



## VCA Compliance UFAS/ADA Wheelchair Accessibility at Biegger Estates

**IFB#: B12154**

### NOTIFICATION OF INTEREST

**This form notifies the SNRHA that your company is participating in this bid process. It is required that all companies who download this bid package return this form to the SNRHA. Only companies who return this form will be sent any notices and/or addendums related to this IFB.**

PLEASE PRINT

Company Name:	
Contact Person:	
Title:	
Phone #:	
Mobile #:	
Fax #:	
Email:	
Street Address:	
City, State, Zip:	

**WHEN YOU OBTAIN THIS BID PACKAGE THIS FORM MUST BE FAXED OR EMAILED TO:**

**Amparo Gamazo**  
**Director of Development/Modernization**  
**Southern Nevada Regional Housing Authority**  
**Email: [amgamazo@snvrha.org](mailto:amgamazo@snvrha.org)**  
**Fax: 702-922-6080**



# Invitation for Bid: # B12154

## VCA Compliance UFAS/ADA Wheelchair Accessibility at Biegger Estates

**March 2012**

BIDS ACCEPTED AT:

**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY  
Development/Modernization Department  
340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, NV 89101  
(702) 922-6060 • FAX (702) 922-6080 • TDD (702) 387-1898**

DATE BIDS ACCEPTED:

**Until Friday, April 27, 2012 at 10:00 a.m. (local time)**

PUBLIC BID OPENING HELD AT:

**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY  
Development/Modernization Department  
340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, NV 89101  
(702) 922-6060 • FAX (702) 922-6080 • TDD (702) 387-1898**

DATE OF PUBLIC BID OPENING:

**Friday, April 27, 2012 at 10:15 a.m. (local time)**

PRE-BID CONFERENCE AT:

**Thursday, April 12, 2012, at 10:00 a.m. at the site located at  
5701 Missouri Avenue, Las Vegas, NV. 89122**

Awarded:

Contractor \_\_\_\_\_ Date \_\_\_\_\_

RAFI, Architects \_\_\_\_\_ Date \_\_\_\_\_

155 South Water Street, Suite 220  
Henderson, NV 89015  
(702) 435-7234

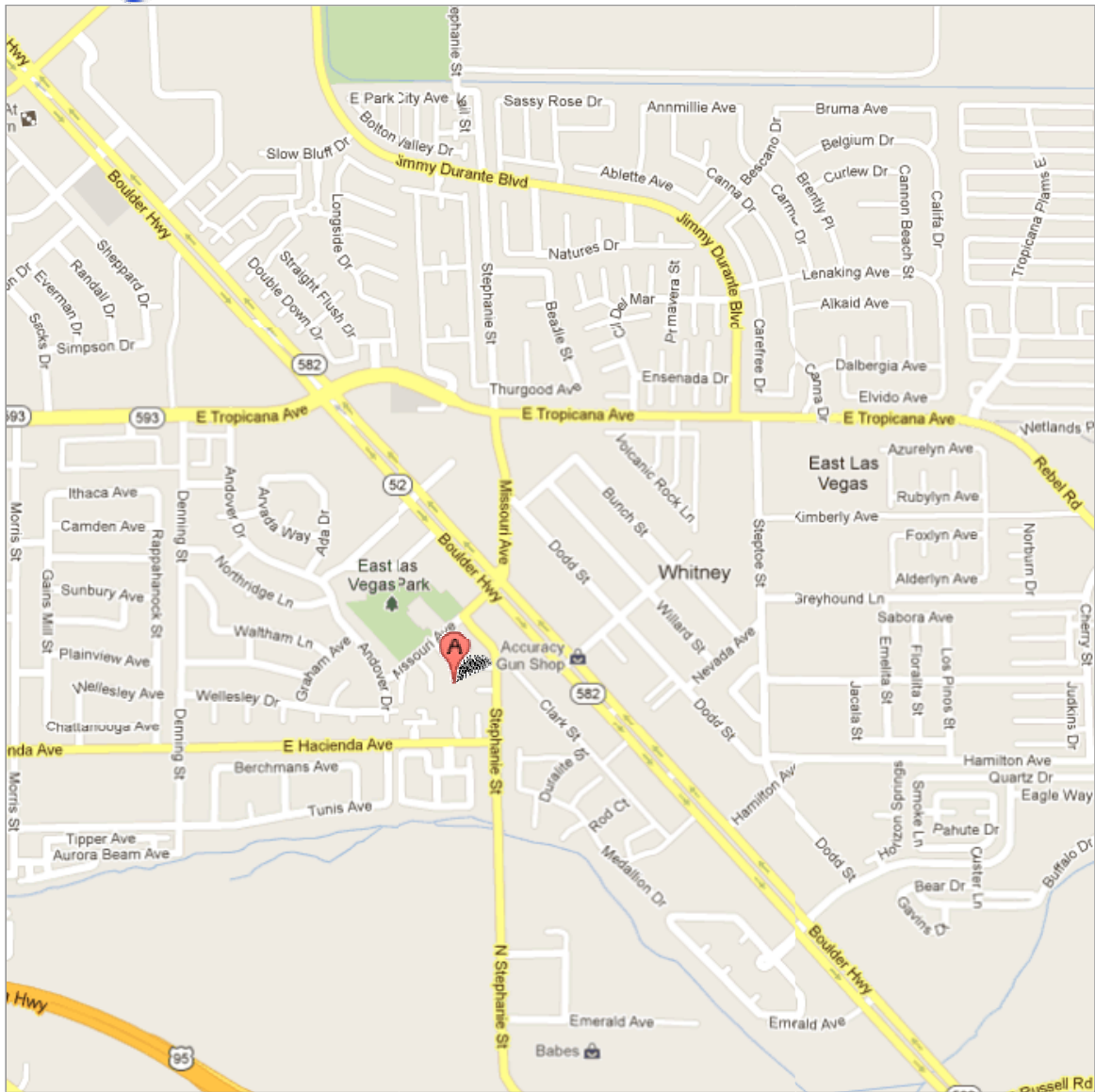
Southern Nevada Regional Housing Authority \_\_\_\_\_ Date \_\_\_\_\_  
340 N. 11<sup>th</sup> Street  
Las Vegas, NV 89101  
(702) 922-6060

SET # \_\_\_\_\_



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance - UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

Address **5701 Missouri Ave**  
**Las Vegas, NV 89122**



**Get Google Maps on your phone**  
Text the word "GMAPS" to 466453





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## INVITATION FOR BID – IFB # B12154

1. THE SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY, NEVADA, herein called "SNRHA," will receive sealed bids from qualified and licensed Contractors for the following work:

**Provide labor, equipment and materials to bring Biegger Estates Site, five (5) units, Management Office and Community Center located at 5701 Missouri Avenue, Las Vegas, NV. 89122, into compliance with 504/UFAS/ADA wheelchair accessibility pursuant to the attached specifications and drawings. The scope of the work includes but is not limited to: Modification to five (5) units, parking areas, sloped access to entrance and remodeling of the interior to accommodate wheelchair accessibility.**

Until **10:00 a.m.** local time, **Friday, April 27, 2012**, at the **Development/Modernization Office of the Southern Nevada Regional Housing Authority, located at 340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, Nevada 89101.** At **10:15 a.m.** bids will be opened publicly and read aloud at the same office at **340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, Nevada 89101.**

2. Bidding Documents may be examined at the following local plan rooms: Construction Notebook, FW Dodge, Sierra Plan Room, Reed Construction Data or at the Development/Modernization Department offices of the SNRHA.
3. Bidding documents, specifications and any applicable drawings will be available for bidders to download from SNRHA website: **www.snvrha.org** click on "Procurement" then "Current Bid Invitations" from the Vendor Center "(follow the directions) or pick up a CD at no charge from the **SNRHA's Development/Modernization Department, 340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, Nevada, 89101 - (702) 922-6060.** **NOTE:** Copies of bid documents received from sources other than the SNRHA will cause your bid to be deemed invalid. Contractor is responsible for the reproduction of bid package, specifications and any applicable drawings, as well as the costs associated with said reproduction.
4. Work to be performed is subject to Davis-Bacon wage requirements for all contracts where the construction is estimated to be over \$2,000.
5. **This contract is subject to the conditions under Section 3** of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The SNRHA's Section 3 Plan contains mandatory numerical goals for hiring of residents and low and very low-income persons on all construction contracts, service contracts and professional service contracts that contain a labor component.
6. The SNRHA encourages Women, Minority and Disabled Veteran Owned firms to apply.
7. Each bid submitted must be accompanied by either: (a) a certified check or bank draft, payable to the Southern Nevada Regional Housing Authority; U. S. Government Bonds; or (b) a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five percent (5%) of the bid. The successful bidder will be required to furnish and pay for satisfactory performance and payment bonds.
8. Award will be made to the responsive and responsible low bidder who submits the low bid that meets all requirements of the conditions and Form of Bid, General Requirements, and Contract requirements.
9. Bidder must be a duly licensed contractor in the State of Nevada for the category of work included. Bidder must also be licensed to do business in the City and County having jurisdiction.
10. A Pre-Bid conference is scheduled for **Thursday, April 12, 2012** beginning @ **10:00 a.m. at the site located at 5701 Missouri Avenue. Las Vegas, NV. 89122.** All prospective bidders should attend. The purpose is to consider prospective bidders concerns.
11. The SNRHA reserves the right to reject any and or all bids at any time during the bid process, or waive any informalities in the bidding.
12. Inquiries may be submitted in writing only to Southern Nevada Regional Housing Authority, Dev/Mod Dept., 340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, NV 89101 or via facsimile at (702) 922-6080 or at the SNRHA's TDD # (702) 387-1898.

**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY**

**John N. Hill, Executive Director**



## INVITACION PARA OFERTAS – IFB # B12154

1. LA AUTORIDAD EN LA VIVIENDA REGIONAL DEL SUR DE NEVADA, referida como "SNRHA", recibirá ofertas selladas de Contratistas especializados con licencia para ejecutar el siguiente trabajo:

**Proveer mano de obra, equipo y materiales para remodelar la propiedad de Biegger Estates, incluyendo las áreas exteriores, cinco (5) unidades de apartamento, la oficina de gerencia y el centro comunitario localizado en el 5701 Missouri Avenue, Las Vegas, NV. 89122, conforme a los requisitos para minusválidos 504/UFAS/ADA y accesibilidad a sillas de ruedas de acuerdo a las especificaciones y planos incluidos en el paquete de oferta. El trabajo incluye pero no esta limitado a: Modificaciones a cinco (5) unidades, áreas de parqueo, áreas de entradas y acceso y remodelación del interior para proveer accesibilidad a personas en sillas de ruedas.**

Propuestas serán aceptadas hasta **10:00am**, hora local, el día **Viernes, Abril 27, 2012**, en la **Oficina de Desarrollo/Modernización del SNRHA, localizada en el 340 North 11th Street, Oficina 150, Las Vegas, NV. 89101**. A las **10:15am** del mismo día las propuestas se abrirán públicamente y serán leídas en voz alta en la misma oficina en el **340 North 11th Street, Oficina 150, Las Vegas, NV. 89101**.

2. Pueden examinar las copias de los documentos de Oferta en las siguientes oficinas locales: Construction Notebook, FW Dodge Reports, Sierra Plan Room, Reed Construction Data o en la oficina de Desarrollo/Modernización del SNRHA
3. Documentos de Oferta, especificaciones y planos estarán disponibles a los contratista en la pagina del Internet del SNRHA: **www.snrha.org** clic en la palabra "**Procurement**" siguiendo "**Current Bid Invitations**, localizado en el **Vendor Center** (siga las instrucciones) o puede recoger un disco compacto (CD), a no costo en la **oficina de Desarrollo/Modernización del SNRHA, localizada en el 340 North 11th Street, Oficina 150, Las Vegas, NV. 89101 - (702) 922-6060**. **Por favor tome nota:** que copias de los documentos de oferta que sean obtenidas por otros medios que no sean el SNRHA causaran que su propuesta sea inválida. Contratista serán responsables por la reproducción de los planos y especificaciones y el costo asociado con dicha reproducción.
4. El trabajo que se llevara acabo esta sujeto a Davis Bacon requisitos de salarios y es aplicable a todos los contratos donde el costo de la construcción es más de \$2,000 dólares
5. **Este contrato esta sujeto a las condiciones de la Sección 3** del Departamento de Desarrollo Urbano Acción 1968 enmendado, 12 U.S.C. 1701 u (Sección 3). El Plan de la Sección 3 del SNRHA contiene mandatarias metas numéricas para emplear residentes o personas de bajos o muy bajos recursos en todos los contratos de construcción, contratos de servicios y contratos de servicios profesionales que incluyan mano de obra.
6. SNRHA invita a los Negocios de la Minoría, Empresas de Mujeres (MBE, WBE) y Veteranos Deshabilitados a someter una oferta.
7. Cada oferta presentada debe ser acompañada por: (a) un cheque certificado del Banco, a nombre de Southern Nevada Regional Housing Authority, Nevada; bonos del Gobierno de U.S.; o (b) un bono de oferta satisfactoria llevada a cabo por el postor y garantías admisibles en una cantidad igual al (5%) de la oferta presentada con cada oferta . El mejor postor deberá proporcionar y pagar por la ejecución satisfactoria y pago de bonos.
8. Se otorgara el contrato al postor responsable que someta la oferta mas baja que cumpla con todas las Condiciones y Formas de la Oferta, Requerimientos Generales, y los Requisitos del Contrato/Oferta.
9. El Postor deberá tener Licencia de Contratista autorizada en el Estado de Nevada para la categoría del trabajo. El postor también debe tener licencia que le permita hacer negocios en la Ciudad y el Condado de Clark de la respectiva jurisdicción.
10. Una conferencia de Pre-Oferta esta programada para el día **Jueves, Abril 12, 2012** comenzando a las **10:00 a.m, en la propiedad localizada en el 5701 Missouri Avenue, Las Vegas, NV. 89122**. Se recomienda a los posibles postores participar en las reuniones. El propósito de esta reunión es para responder las preguntas que tenga los posibles postores.
11. SNRHA se reservara el derecho de rechazar cualquiera o todas las ofertas, en cualquier momento durante el proceso de oferta, o rechazar cualquier oferta que tenga informalidades.
12. Favor dirigir por escrito cualquier pregunta técnica al Departamento de Dev/Mod del SNRHA, localizada en el 340 North 11th Street, Oficina 150, Las Vegas, NV. 89101 o vía fax al (702) 922-6080 o al SNRHA's TDD (702) 387-1898.

### AUTORIDAD EN LA VIVIENDA REGIONAL DEL SUR DE NEVADA

John N. Hill, Director Ejecutivo



## BID SUBMISSION AND FORMAT CHECKLIST

**IMPORTANT:** Each bidder shall submit two (2) bid packages (1 original & 1 copy) with numbered tabs that extend out from the sides of the pages. Proposers are also required to "Sign, Date, and Print Name" on each page of any form that has such at the bottom and will arrange the following **mandatory forms** under each TAB as follows

COMPANY NAME: \_\_\_\_\_

- \_\_\_\_ TAB 1. The "**Bid Submission and Format Checklist**"
- \_\_\_\_ TAB 2. The "**Bid Form**" signed with written amount and dollar figure. (include completed Scope of Work breakdown for each individual house)
- \_\_\_\_ TAB 3. The "**Bid Bond**" with an executed Bid Bond Form (see Alternate Bid Guarantee if necessary)
- \_\_\_\_ TAB 4. "Section 3 -**Contractor Initial Response**" form (Mandatory)
- \_\_\_\_ TAB 5. "**Certification for Business Concerns**" form, if seeking a "Section 3" Business status
- \_\_\_\_ TAB 6. A complete "**Subcontractor's List**" with addresses is to be submitted at time of bid; **Subcontractors who are not submitted now Will Not be considered for approval.**
- \_\_\_\_ TAB 7. The "**Subcontractor Affirmative Action**" Form for each trade to be used
- \_\_\_\_ TAB 8. The "**Disclosure of Ownership**" Form (Prime Contractor & Subcontractors)
- \_\_\_\_ TAB 9. The "**Statement of Bidder's Qualifications**" Form
- \_\_\_\_ TAB 10. The "**Non-Collusive Affidavit**" Form
- \_\_\_\_ TAB 11. "**Certification of Payments to Influence Federal Transactions**" Form (HUD-50071)
- \_\_\_\_ TAB 12. "**Representation, Certifications and Other Statements of Bidders**" form (HUD 5369-A)
- \_\_\_\_ TAB 13. The "**Schedule of Amounts for Contract Payments**" (HUD-51000), form to be completed per instructions for Preparation of form (attached)

**Submit all items, unfolded, in an envelope (clearly marked with the above IFB #, name of company submitting and/or person submitting). If you are submitting as a "Section 3 Business," please indicate on the front of the package as well.**

**Proposers who wish not to have any proprietary information released to the public must indicate on each page of their bid that the information being provided is for the purpose of this solicitation only and shall not be disclosed outside of the Housing Authority.**

**\*\* ANY ITEM LISTED HERE NOT INCLUDED WITH YOUR BID PACKAGE WILL CAUSE YOUR BID TO BE DEEMED "NON-RESPONSIVE"**

**\*\* BIDDERS THAT FAIL TO COMPLETE ANY OF THE ABOVE FORMS, OR USE DIFFERENT FORMS, WILL BE DEEMED "NON-RESPONSIVE"**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name





This Invitation for Bid number is **B12154** for the following:  
**VCA Compliance - UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)**

## BID FORM

Page 1 of 3

Gentlemen:

1. The undersigned, having familiarized \_\_\_\_\_ with the local conditions affecting the cost of the work, and with the specifications (including Invitation for Bids, Instructions to Bidders, this Bid, the form of Bid Bond, the form of Non-Collusive Affidavit, the form of Contract, and the form of Performance and Payment Bond or Bonds, the General Conditions, the Special Conditions, Equal Employment Opportunity Requirements, the General Scope of Work, the Technical Specifications and Drawings) and Addenda, if any, thereto as prepared by the Southern Nevada Regional Housing Authority (SNRHA herein), and at the office of the architect, hereby proposes to complete the work in conjunction with the construction of **Bid #B12154 – VCA Compliance - UFAS/ADA Wheelchair Accessibility at Biegger Estates**, in accordance with the Contract Documents within the time set forth therein and at the prices set forth below:
2. BID SUBMISSION LOCATION, DATE AND TIME: **Development/Modernization Office of the Southern Nevada Regional Housing Authority, 340 N. 11<sup>th</sup> Street, Suite 150, Las Vegas, Nevada 89101 on Friday, April 27, 2012 @ 10:00 a.m. \*\*NO BIDS WILL BE ACCEPTED AFTER THAT TIME\*\***
3. BASE PROPOSAL: The bidder agrees to furnish all labor, materials, equipment and services to construct and complete the project as described and required by the herein above stated Document and any Addenda, in accordance therewith for the sum of:

**(NOTE: MUST BID ON ENTIRE PROJECT. BIDS FOR INDIVIDUAL ITEMS WILL BE DEEMED NON-RESPONSIVE. THE BID WILL BE AWARDED TO THE OVERALL BIDDER WHO MEETS ALL REQUIREMENTS OF THIS INVITATION FOR BID)**

**TOTAL BASE BID**

\_\_\_\_\_ Dollars ( \$ \_\_\_\_\_ )  
(Written Dollar Amount)

**BID BREAKDOWN BY WORK:**

- (1) Base Bid - Site Work \$ \_\_\_\_\_
- (2) Base Bid - Dwelling Units Work \$ \_\_\_\_\_
- (3) Base Bid - Non-Dwelling Bldg /Areas Work \$ \_\_\_\_\_

\_\_\_\_\_  
Signature Date Printed Name



## BID FORM

Page 2 of 3

4. In submitting this bid, it is understood that the right is reserved by the SNRHA to reject any and all bids. If written notice of the acceptance of this bid is mailed, telegraphed or delivered to the undersigned within (30) days after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver within ten (10) days after the contract is presented to him for signature.
  
5. Security in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), in the form of \_\_\_\_\_ is submitted herewith in accordance with the Specifications.
  
6. Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this proposal or any other proposal or the submitting of proposals for the contract for which this proposal is submitted.
  
7. The bidder represents that he has ( ), has not ( ), participated in a previous contract or subcontract subject to the Equal Opportunity clause prescribed by Executive Orders 10925, 11114 or 11246 or the Secretary of Labor; that he has ( ), has not ( ), filed all required compliance reports; and that representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts, which are exempt from the clause.)
  
8. Certification of Non-segregated Facilities: By signing this bid, the bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term, "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontract exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward a notice of his proposed subcontractors as provided in the SNRHA instruction to bidders.

---

Signature

Date

Printed Name



## BID FORM

Page 3 of 3

9. Right to Reject or Terminate: The SNRHA reserves the right to reject any an all bids or to waive any informalities in the process. No bid submitted shall be withdrawn for a period of sixty (60) days subsequent to the opening of proposals, or one hundred twenty days (120) days should HUD approval be required, without the express written consent of the SNRHA Development/Modernization Director. The SNRHA reserves the right to terminate the bid process or to terminate any award at any time for its convenience, or the cancel the sward and make award to the next qualified bidder if the original successful bidder is not able to deliver the required services in a satisfactory manner within the terms outlined within the plans and specifications of these documents.

**NOTE: THE PENALTY FOR MAKING FALSE STATEMENTS IN OFFERS IS PRESCRIBED IN 18 U.W.C. 1001.**



**THE FOLLOWING ADDENDA AND/OR \_\_\_\_\_ ARE HEREBY ACKNOWLEDGED AS BEING INCLUDED IN THIS BID (Failure to acknowledge may cause bid rejection):**

Addendum #: \_\_\_\_\_ Date: \_\_\_\_\_

Addendum #: \_\_\_\_\_ Date: \_\_\_\_\_

Addendum #: \_\_\_\_\_ Date: \_\_\_\_\_

Other: \_\_\_\_\_ By: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Title: \_\_\_\_\_

(Print or type name of person signing above)

\_\_\_\_\_  
Name of person submitting bid

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Address

\_\_\_\_\_  
Fax Number

\_\_\_\_\_  
City, State, Zip

Signature

Date

Printed Name



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance - UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

## BID BOND

Page 1 of 3

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned,

\_\_\_\_\_ as PRINCIPAL and  
(Name of Principal)

\_\_\_\_\_ as SURETY, are held and firmly bound  
(Name of Surety)

unto the Southern Nevada Regional Housing Authority, hereinafter called the "SNRHA," in the penal sum of  
\_\_\_\_\_ Dollars, lawful money of the United States,  
(Written Sum)

for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying bid, dated \_\_\_\_\_, 20\_\_ for:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW THEREFORE, if the principal shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period be specified within sixty (60) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with SNRHA in accordance with the bids as accepted and give bond with good and sufficient surety or sureties, as required by the U. S. Treasury Circular No. 570, sureties acceptable to the government, for the faithful performance of and proper fulfillment of such contract; or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such contract and given such bond within the amount specified in said bid and the amount for which SNRHA may procure the required work or supplies or both, if the latter amount be in excess of the former, the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

\_\_\_\_\_  
Signature Date Printed Name



## BID BOND

Page 2 of 3

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

ATTEST:

\_\_\_\_\_  
(Sole Proprietorship or Partnership)

\_\_\_\_\_  
(Individual Principal Signature)

\_\_\_\_\_  
(Business Address)

(Seal)

\_\_\_\_\_  
(Name of Individual Principal above)

OR ATTEST:

\_\_\_\_\_  
(Corporation)

\_\_\_\_\_  
(Corporate Principal Signature)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(Name of Corporate Principal above)

\_\_\_\_\_  
(Title)

(Seal)

Signature

Date

Printed Name



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

## BID BOND

Page 3 of 3

ATTEST:

\_\_\_\_\_  
(Surety Company)

\_\_\_\_\_  
(Corporate Surety Signature)

\_\_\_\_\_  
(Corporate Surety Signature)

\_\_\_\_\_  
(Business Address)

By: \_\_\_\_\_

\_\_\_\_\_  
(Title)

(Seal)

\_\_\_\_\_  
(Power of Attorney for person signing Surety Company must be attached to the Bond)

Signature

Date

Printed Name



**CERTIFICATION FOR BUSINESS CONCERNS SEEKING SECTION 3 PREFERENCE  
IN CONTRACTING AND DEMONSTRATION OF CAPABILITY**

NAME OF BUSINESS: \_\_\_\_\_

ADDRESS OF BUSINESS: \_\_\_\_\_

TYPE OF BUSINESS:  Corporation  Partnership  Sole Proprietorship  Joint Venture

**\*\*Please provide the required documentation listed in the category for which you are claiming preference:**

**1. FOR BUSINESS CLAIMING STATUS AS A SECTION 3 RESIDENT-OWNED ENTERPRISE**

Copy of resident lease  Other evidence  Copy of evidence of participation in a public assistance program

**For the business entity as applicable:**

- |  |   |
|--|---|
| <input type="checkbox"/> Copy of Articles of Incorporation                                       | <input type="checkbox"/> Certificate of Good Standing |
| <input type="checkbox"/> Assumed Business Name Certificate                                       | <input type="checkbox"/> Partnership Agreement        |
| <input type="checkbox"/> List of owners/stockholder and % of each                                | <input type="checkbox"/> Corporation Annual Report    |
| <input type="checkbox"/> Latest Board minutes appointing officers                                | <input type="checkbox"/> Additional documentation     |
| <input type="checkbox"/> Organization chart with names and titles and brief functional statement |   |

**OR**

**2. FOR BUSINESS CLAIMING SECTION 3 STATUS BY SUBCONTRACTING 25% OF THE DOLLAR AWARDED TO QUALIFIED SECTION 3 BUSINESS**

- List of subcontracted Section 3 business and subcontract amount      AND  
 Copy of certification from City of Las Vegas or Clark County      OR  
 List of the qualifying subcontractors employees, indicating Section 3 status & tax return for the qualifying year

**OR**

**3. FOR BUSINESS CLAIMING SECTION 3 STATUS, CLAIMING AT LEAST 30% OF THEIR WORKFORCE ARE CURRENTLY SECTION 3 RESIDENTS OR WERE SECTION 3 ELIGIBLE RESIDENTS WITHIN 3 YEARS OF DATE OF FIRST EMPLOYMENT WITH THE BUSINESS**

- List of all current full time employees      AND       List of all employees claiming Section 3 status      AND  
 PHA Residential lease (less than 3 years from date of employment)      OR       Tax return for the year employee is claiming eligibility (Must be in the last 3 years – 2011, 2010, or 2009)

\_\_\_\_\_  
Authorizing Name and Signature

\_\_\_\_\_  
Title



## **SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY**

### **PREFERENCE FOR SECTION 3 BUSINESS CONCERNS IN CONTRACTING OPPORTUNITIES**

The Southern Nevada Regional Housing Authority has established the following priority for preference when providing contracting opportunities to Section 3 Businesses:

#### **Priority 1**

##### **Category 1a Business**

Business concerns that are 51 percent or more owned by residents of the housing development or developments for which the Section 3-covered assistance is expended.

#### **Priority 2**

##### **Category 1b Business**

Business concerns whose workforce includes 30 percent of residents of the housing development for which the Section 3-covered assistance is expended, or within three (3) years of the date of first employment with the business concern, were residents of the Section 3-covered housing development.

#### **Priority 3**

##### **Category 2a Business**

Business concerns that are 51 percent or more owned by residents of any other housing development or developments.

#### **Priority 4**

##### **Category 2b Business**

Business concerns whose workforce includes 30 percent of residents of any other public housing development or developments, or within three (3) years of the date of first employment with the business concern, were "Section 3" residents of any other public housing development.

#### **Priority 5**

##### **Category 3 Business**

Business concerns participating in HUD Youth-build programs being carried out in the metropolitan area in which the Section 3-covered assistance is expended.

#### **Priority 6**

##### **Category 4a Business**

Business concerns that are 51 percent or more owned by Section 3 residents in the metropolitan area, or whose permanent, full-time workforce includes no less than 30 percent of Section 3 residents in the metropolitan area, or within three (3) years of the date of employment with the business concern, were Section 3 residents in the metropolitan area.

#### **Priority 7**

##### **Category 4b Business**

Business concerns that subcontract in excess of 25 percent of the total amount of subcontracts to Section 3 business concerns.

#### **Eligibility for Preference**

A business concern seeking to qualify for a Section 3 contracting preference shall certify or submit evidence that the business concern is a Section business concern.



of solicitation provides for participation by a reasonable number of competitive sources. At the time of solicitation, the parties must be informed of:

- the section 3 covered contract to be awarded with sufficient specificity;
- the time within which quotations must be submitted; and
- the information that must be submitted with each quotation.

(B) If the method described in paragraph (i)(A) is utilized, there must be an attempt to obtain quotations from a minimum of three qualified sources in order to promote competition. Fewer than three quotations are acceptable when the contracting party has attempted, but has been unable, to obtain a sufficient number of competitive quotations. In unusual circumstances, the contracting party may accept the sole quotation received in response to a solicitation that provided the prices is reasonable. In all cases, the contracting party shall document the circumstances when it has been unable to obtain at least three quotations.

(ii) Award. (A) Where the section 3 covered contract is to be awarded based upon the lowest price, the contract shall be awarded to the qualified section 3 business concern with the lowest responsive quotation, if it is reasonable and no more than 10 percent higher than the quotation of the lowest responsive quotation from any qualified source. If no responsive quotation by a qualified section 3 business concern is within 10 percent of the lowest responsive quotation from any qualified source, the award shall be made to the source with the lowest quotation.

(B) Where the section 3 covered contract is to be awarded based on factors other than price, a request for quotation shall be issued by developing the particulars of the solicitation, including a rating system for the assignment of points to evaluate the merits of each quotation. The solicitation shall identify all factors to be considered, including price or cost. The rating system shall provide for a range of 15 to 25 percent of the total number of available rating points to be set aside for the provisions of preference for

section 3 business concerns. The purchase order shall be awarded to the responsible firm whose quotations is the most advantageous, considering price and all other factors specified in the rating system.

(2) *Procurement by sealed bids (Invitations for Bid)*. Preference in the award of section 3 covered contracts that are awarded under a sealed bid (IFB) process may be provided as follows:

(i) Bids shall be solicited from all businesses (section 3 business concerns, and non-section 3 business concerns). An award shall be made to the qualified section 3 business concern with the highest priority ranking and with the lowest responsive bid if that bid-

(A) is within the maximum total contract price established in the contracting party's budget for the specific project for which bids are being taken, and

(B) is not more than "X" higher than the total bid price of the lowest responsive bid from any responsible bidder. "X" is determined as follows:

	x=lesser of:
When the lowest responsive bid is less than \$100,000.....	10% of the bid or \$9,000
When the lowest responsive bid is:	
At least \$100,000, but less than \$200,000.....	9% of that bid, or \$16,000
At least \$200,000, but less than \$300,000.....	8% of that bid, or \$21,000
At least \$300,000, but less than \$400,000.....	7% of that bid, or \$24,000
At least \$400,000, but less than \$500,000.....	6% of that bid, or \$25,000
At least \$500,000, but less than \$1 million.....	5% of that bid, or \$40,000
At least \$1 million, but less than \$2 million.....	4% of that bid, or \$60,000
At least \$2 million, but less than \$4 million.....	3% of that bid, or \$80,000
At least \$4 million, but less than \$7 million.....	2% of that bid, or \$105,000
\$7 million or more.....	1½ % of the lowest responsive bid, with no dollar limit

(ii) if no responsive bid by section 3 business concern meets the requirements of paragraph (2)(i) of this section, the contract shall be awarded to a responsible bidder with the lowest responsive bid.

(3) *Procurement under the competitive proposals method of procurement (Request for Proposals (RFP))*. (i) For contracts and subcontracts awarded under the competitive proposals method of procurement (24 CFR 85.36 (d)(3)), a Request for Proposals (RFP) shall identify all evaluation factors (and their relative importance) to be used to rate proposals.

(ii) One of the evaluation factors shall address both the preference for section 3 business concern and the acceptability of the strategy for meeting the greatest extent feasible requirement (section 3 strategy), as disclosed in proposals submitted by all business concerns (section 3 and non-section 3 business concerns). This factor shall provide for a range of 15 to 25 percent of the total number of available points to be set aside for the evaluation of these two components.

(iii) The component of this evaluation factor designed to address the preference for

section 3 business concerns must establish a preference for these business concerns in the order of priority ranking as described in 24 CFR 135.36.

(iv) With respect to the second component (the acceptability of the section 3 strategy), the RFP shall require the disclosure of the contractor's section 3 strategy to comply with the section 3 training and employment preference, or contracting preference, or both, if applicable. A determination of the contractor's responsibility will include the submission of an acceptable section 3 strategy. The contract award shall be made to the responsible firm (either section 3 or non-section 3 business concern) whose proposal is determined most advantageous, considering price and all other factors specified in the RFP.

Dated: June 27, 1994.

**Roberta Actenberg,**  
*Assistant Secretary for Fair Housing and Equal Opportunity*  
 [FR Doc.94-15951 Filed 6-29-94; 8:45am]  
 BILLING CODE 4210-28-P

**Office of the Secretary**  
**24 CFR Subtitle A and Parts 92, 219, 280, 570, 572, 574, 576, 583, 882, 889, 890, 905, 961 and 963.**

[Docket No. R94-1678; FR-3536 F-01]  
 RIN 2501-AB64

**Economic Opportunities for Low- and Very Low-Income Persons-Conforming Amendments**

**AGENCY:** Office of the Secretary, HUD

**ACTION:** Final Rule

**SUMMARY:** Section 3 of the Housing and Urban Development Act of 1968 (section 3), as amended by the Housing and Community Development Act of 1992, requires de economic opportunities generated by HUD financial assistance for housing (including public and Indian housing) and community development programs shall, to the greatest extent feasible, be given to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to businesses that provide economic opportunities for those persons.



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

### SUBCONTRACTOR'S LIST

<u>NAME</u>	<u>(MBE/WBE)</u>	<u>TRADE</u>	<u>ADDRESS</u>	<u>PHONE</u>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

\_\_\_\_\_  
(Prime Contractor)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Signature

Date

Printed Name



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

**SUGGESTED AFFIRMATIVE ACTION PLAN FOR UTILIZATION OF PROJECT AREA BUSINESSES**

Number Of All Contracts Proposed: \_\_\_\_\_

Name Of Company: \_\_\_\_\_

Dollar Value Of All Contracts Proposed: \_\_\_\_\_

Project: \_\_\_\_\_

To The Greatest Extent Feasible, Contracts Will Be Awarded Through Negotiation Or Bid To Qualified Project Area Businesses.

Goal Of These Contracts For Project Area Businesses:

PROPOSED TYPE OF CONTRACT	APPROX. COST	PROPOSED TYPE OF CONTRACT	APPROX. COST

Outline The Program To Achieve These Goals For Economically And Socially Disadvantaged:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(INSERT THIS DOCUMENT IN BID DOCUMENTS AND WITH BID)      DATE: \_\_\_\_\_

Signature

Date

Printed Name



## SUBCONTRACTOR AFFIRMATIVE ACTION

Page 1 of 2

Instructions when submitting a Subcontractor for approval under a Federally funded project, to ensure that Affirmative Action measures were taken to comply with the Equal Opportunity Executive Order 11246.

When selecting a Subcontractor, the General Contractor is to comply with the following:

1. Bid Form - line 6
2. General Conditions of the Contract for Construction (HUD-5370) Sections 37, 38 and 39
3. Supplementary General Conditions to Construction Contract and Specifications. All Sections on "Equal Employment Opportunity"

Date: \_\_\_\_\_

Project No.: \_\_\_\_\_

\_\_\_\_\_  
(Project Name)

\_\_\_\_\_  
(Project Location)

Gentlemen:

In selecting the Subcontractor listed below, a minimum number of \_\_\_\_\_ similar subcontracting firms were contacted to submit a bid. The highlights of the Subcontractor selection will be listed below:

1. Scope of work (state kind of work, if for labor, or material, or both, and give specification reference).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Date Bid advertised: \_\_\_\_\_

a. Method of advertisement: \_\_\_\_\_

3. Last day Bids accepted: \_\_\_\_\_

Signature

Date

Printed Name



## SUBCONTRACTOR AFFIRMATIVE ACTION

Page 2 of 2

4. List of firms submitting bid (Please note the minority or women owned firms):

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a. Attach the bid form(s), and a copy of the bid security deposit(s) used, for each submitted bid.

5. In your opinion, was the above procedure a "Good faith effort" in selecting a minority or women owned subcontracting firms?

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Please submit this form and the requested forms along with the "Request for Acceptance of Subcontractor" for each Subcontractor you will be using.

\_\_\_\_\_  
(Prime Contractor)

By: \_\_\_\_\_

Title: \_\_\_\_\_

---

Signature Date Printed Name



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

**DISCLOSURE OF OWNERSHIP**

**INSTRUCTIONS:** This form must be completed by the General/Prime Contractor, each Sub-contractor and Joint Venture Partnerships. Please provide copies of all Business Licenses, Articles of Incorporation, etc., and WBE, MBE Section 3, RBE Certifications with this form.

_____ Company Name	_____ Address	
_____ City, State & Zip	_____ Telephone	_____ Fax
_____ Primary Contact	_____ Title	
_____ Email Address	_____ Federal Tax Identification Number	
_____ City of Las Vegas Business License Number	_____ State of Nevada Contractor's License Number, If any	

**NAME AND TITLE OF PRINCIPALS OF YOUR COMPANY**

*Please list additional principals on a separate sheet of paper.*

_____ Name	_____ Title	_____ % Owned
_____ Name	_____ Title	_____ % Owned

**SUPPLIER DIVERSITY STATEMENT:** Because the SNRHA receives federal funding, we **must** report to the government our supplier diversity efforts. This Information is used for coding and reporting purposes only and will not affect the ability of your firm to do business with our agency. **If you do not complete this area, we cannot add your firm to our eligible list. Resident (RBE) Minority (MBE) or Women-Owned (WBE) Business Enterprise** qualifies by virtue of 51% or more of the ownership and active management by one or more of the following (check all that apply):

<input type="checkbox"/> Male Owned	<input type="checkbox"/> Public Held Corporation	<input type="checkbox"/> Government Agency	<input type="checkbox"/> Non Profit Org.
<input type="checkbox"/> Woman Owned	<input type="checkbox"/> Caucasian American	<input type="checkbox"/> Native American	<input type="checkbox"/> Hispanic American
<input type="checkbox"/> Asian/Pacific	<input type="checkbox"/> Hasidic Jew	<input type="checkbox"/> Asian/Indian	<input type="checkbox"/> SNRHA Resident
<input type="checkbox"/> African American	<input type="checkbox"/> Veteran <input type="checkbox"/> Disabled	<input type="checkbox"/> W/MBE Certification# _____	
<input type="checkbox"/> SEC 3/RBE Certification # _____	<input type="checkbox"/> Other _____		

**DEBARRED STATEMENT:** Has this firm or any principles ever been disbarred from providing any items or services by any local, state or federal governmental agency?   Y or   N If yes, please attach a full detailed explanation, including dates, circumstances and current status.

**DISCLOSURE STATEMENT:** Does/has this firm or any principal have/had any personal or professional relationship with any commissioner or officer of the SNRHA?   Y or   N If yes, please attach a full detailed explanation, including dates, circumstances and current status.

The undersigned hereby affirms that he/she is empowered to sign this form and requests that the above-noted firm be added to the SNRHA's list of firms eligible to do business with the SNRHA. The undersigned further affirms that, to the best of his/her knowledge, the above information is current and accurate, and acknowledges on behalf of the noted firm that the non-response of two (2) consecutive invitations to provide quotes/bids/proposals by the SNRHA will give the SNRHA the right to remove that firm from its list of eligible firms.

**INSURANCE: Copy of insurance certificate must be provided immediately upon Notice of Award of contract, naming the SNRHA as the Certificate Holder and as an additional insured regarding General Liability.**

General Liability Insurance Policy # and Carrier: \_\_\_\_\_

Workman's Compensation Policy # and Carrier: \_\_\_\_\_

Automobile Liability Insurance Policy # and Carrier: \_\_\_\_\_

\_\_\_\_\_  
Signature Date Printed Name



This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

**KEY PERSONNEL**

**INSTRUCTIONS:**

**LIST PERSONNEL ASSIGNED TO THIS CONTRACT:** Identify the individual(s) that will act as project manager and any other supervisory personnel who will work on project; attach brief resume for each:

**Name:**

**Title**

Blank table area with horizontal lines for data entry.

Signature

Date

Printed Name



**STATEMENT OF BIDDER'S QUALIFICATIONS (GENERAL CONTRACTOR)**

Page 1 of 2

All questions must be answered and the data must be clear and comprehensive. This statement must be notarized. Attach additional pages if needed.

1. Name of bidder: \_\_\_\_\_

2. Name of Principals: \_\_\_\_\_

3. Names of authorized signatories: \_\_\_\_\_

4. Permanent main office address: \_\_\_\_\_

5. When organized?: \_\_\_\_\_

6. Where incorporated?: \_\_\_\_\_

7. How many years have you been engaged in the contracting business under your present name?: \_\_\_\_\_

8. Previous names of companies in which the principals listed above (#2) have engaged in the contracting business:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. List all contracts on hand by name of contract and gross amount:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Have you ever defaulted on a contract? If so, where and why?:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. Have you ever refused to sign a contract at your original bid? If yes, explain:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature

Date

Printed Name





This Invitation for Bid number is **B12154** for the following:  
VCA Compliance -UFAS/ADA Wheelchair Accessibility at Biegger Estates (AMP319)

**STATEMENT OF BIDDER'S QUALIFICATIONS (GENERAL CONTRACTOR)**

Page 2 of 2

12. Names, background, experience and current workload of the principal members of your personnel, including the officer.

Name	Background	Years in Contracting	Current Workload

13. Furnish written evidence of amount and type of credit available.

14. Attach the most recent financial statement.

15. Will you, upon request, fill out a detailed Financial Statement and furnish any other information that may be required by the SNRHA?       Yes       No

16. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the SNRHA, in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
(place) (date) (month) (year)

\_\_\_\_\_  
(Name of Bidder)

State of (\_\_\_\_\_)

By: \_\_\_\_\_

County of (\_\_\_\_\_)

Title: \_\_\_\_\_

\_\_\_\_\_ being duly sworn, deposes and says he is \_\_\_\_\_  
(Individual Signing Above) (Title)

of \_\_\_\_\_ and that the answers to the foregoing questions and all statements therein  
(Name of Organization)

contained are true and correct.

Sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My Commission Expires: \_\_\_\_\_  
(Date)

Notary Public: \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_ Printed Name \_\_\_\_\_



### NON-COLLUSIVE AFFIDAVIT

State of ( NEVADA )

County of ( CLARK )

\_\_\_\_\_, being first duly sworn, deposes and says:

That he/she is \_\_\_\_\_ the party making the foregoing proposal or bid, and that such proposal or bid is genuine and not collusive or; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, to fix overhead, profit or cost element of said bid price, or that of any other bidder or to secure any advantage against the Housing Authority or any person interested in the proposed contract; and that all statements in said bid proposal or bid are true.

Signature of:

\_\_\_\_\_  
(Bidder, if the bidder is an Individual)

\_\_\_\_\_  
(Partner, if the bidder is a Partnership)

\_\_\_\_\_  
(Officer, if the bidder is a Corporation)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

My Commission Expires: \_\_\_\_\_  
(Date)

\_\_\_\_\_  
Notary Public

# Schedule of Amounts for Contract Payments

U.S. Department of Housing and Urban Development  
Office of Public and Indian Housing

OMB Approval No. 2577-0157  
(Exp. 1/1/2014)

No progress payments shall be made to the contractor unless a schedule of amounts for contract payments in accordance with the construction contract is received.

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless that collection displays a valid OMB control number.

Construction practices and HUD administrative requirements establish the need that HAs maintain certain records or submit certain documents in conjunction with the oversight of the award of construction contracts for the construction of new low-income housing developments or modernization of existing developments. These forms are used by HAs to provide information on the construction progress schedule and schedule of amounts for contract payments. Responses to the collection of information are required to obtain a benefit or to retain a benefit. The information requested does not lend itself to confidentiality.

Project Name and Location	Project Number
---------------------------	----------------

Name, Address, and Zip Code of Contractor
---

Nature of Contract	Contract Number
--------------------	-----------------

Approved for Contractor by	Title	Date (mm/dd/yyyy)
----------------------------	-------	-------------------

Approved for Architect by	Title	Date (mm/dd/yyyy)
---------------------------	-------	-------------------

Approved for Owner by	Title	Date (mm/dd/yyyy)
-----------------------	-------	-------------------

Item No. (1)	Description of Item (2)	Quantity (3)	Unit of Measure (4)	Unit Price in Place (5)	Amount of Sub-Item (6)	Amount of Principal Item (7)

<b>Total Amount of Contract or Carried Forward</b>	\$
--	----

To the best of my knowledge, all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.  
**Warning:** HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1010, 1012; 31 U.S.C. 3729, 3802)

Signature of authorized representative	Date signed (mm/dd/yyyy)
--	--------------------------

## Instructions for Preparation of form HUD-51000

1. A separate breakdown is required for each project and prime contract instructions for preparation are given below.
  - a. **Heading.** Enter all identifying information required for both forms.
  - b. **Columns 1 and 2.** In column 1, enter the item numbers starting with No. 1, and in column 2 enter each principal division of work incorporated in the contract work.
    - (1) **Master List.** The Master list contains the basic items into which any construction contract may be subdivided for the purpose of preparing the Construction Progress Schedule and the Periodical Estimates for Partial Payments. Only those items shall be selected which apply to the particular contract. To ensure uniformity, no change shall be made in the item numbers. Generally, about 25 to 40 major items appear in a contract.
    - (2) **Items Subdivided.** In the Contractor's breakdown, against which all periodical estimates will be checked prior to payment, each major item must be subdivided into sub-items pertinent to the project involved and in agreement with the Contractor's intended basis for requesting monthly payments.
  - c. **Column 3.** Enter the total quantity for each sub-item of each principal division of work listed in the breakdown.
  - d. **Column 4.** Enter the appropriate unit of measure for each sub-item of work opposite the quantities described in column 3, such as "sq. ft.," "cu. yd.," "tons," "lb.," "lumber per M/BM," "brickwork per M," etc., applicable to the particular sub-item. Items shown on "lump sum" or equivalent basis will be paid for only on completion of the whole item and not on a percentage of completion basis.
  - e. **Column 5.** Enter the unit price, in place, of each sub-item of work.
  - f. **Column 6.** Enter the amount of each sub-item obtained by multiplying the quantities in column 3 by the corresponding unit prices in column 5.
  - g. **Column 7.** Enter the amount of principal item only, obtained by adding the amounts of all sub-items of each principal division of work listed in column 6. Continue with the breakdown on form HUD-51000.
  - h. The "Schedule of Amounts for Contract Payments" shall be signed and dated in the space provided at the bottom of each sheet of the form by the individual who prepared the breakdown for the Contractor.
2. The minimum number of copies required for each submission for approval is an original and two copies. When approved, one fully approved copy will be returned to the Contractor.

### Master List of Items

Item No.	Division of Work	Item No.	Division of Work	Item No.	Division of Work
1	Bond	20	Rough Carpentry		
2	General Conditions \1	21	Metal Bucks	44	Retaining Walls
3	Demolition & Clearing	22	Caulking	45	Storm Sewers
	<b>Structures</b>	23	Weatherstripping	46	Sanitary Sewers
4	General Excavation	24	Lath & Plastering-Drywall	47	Water Distribution System
5	Footing Excavation	25	Stucco	48	Gas Distribution System
6	Backfill	26	Finish Carpentry	49	Electrical Distribution System
7	Foundation Piles & Caissons	27	Finish Hardware	50	Street & Yard Lighting
8	Concrete Foundations	28	Glass & Glazing	51	Fire & Police Alarm System
9	Concrete Superstructures	29	Metal Doors	52	Fire Protection System
10	Reinforcing Steel	30	Metal Base & Trim	53	Street Work
11	Waterproofing & Dampproofing	31	Toilet Partitions	54	Yard Work
12	Spandrel Waterproofing	32	Floors	55	(Other)
13	Structural Steel	33	Painting & Decorating	56	(Other)
14	Masonry	34	Screens		
15	Stonework	35	Plumbing		<b>Equipment</b>
16	Miscellaneous & Ornamental Metal	36	Heating	57	Shades & Drapery Rods
17	Metal Windows	37	Ventilating System	58	Ranges
18	Roofing	38	Electrical	59	Refrigerators
19	Sheet Metal	39	Elevators	60	Kitchen Cabinets & Work Tables
		40	Elevator Enclosures—Metal	61	Laundry Equipment
		41	Incinerators—Masonry & Parts	62	(Other)
		42	(Other)		
		43	(Other)	63	<b>Punch List \2</b>
				64	Lawns & Planting

1 General Conditions should be 3% to 5% of contract amount.

2 Punch List should be approximately 1/2 of 1% or \$30 per dwelling unit, whichever is greater.



## ALTERNATE BID GUARANTEE

At the time of Bid Submission the following could be submitted in lieu of the Bid Bond; (All amounts being 5% of the Bid price.)

- 1) A Certified check or bank draft made payable to the Southern Nevada Regional Housing Authority
- 2) A U. S. Government Bond in the amount made payable to the Southern Nevada Regional Housing Authority

**U.S. Department of Housing and  
Urban Development**  
Office of Public and Indian Housing

**Instructions to Bidders for Contracts  
Public and Indian Housing Programs**

# Instructions to Bidders for Contracts

## Public and Indian Housing Programs

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### 1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

### 2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

### 3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

### 4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

## 5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

## 6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

## 7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

Mrs. Amparo Gamazo  
Development/Modernization Department  
Southern Nevada Regional Housing Authority  
340 North 11th Street, Suite # 150  
Las Vegas, NV. 89101-3611

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

## 8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, except other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.



(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

#### **9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)**

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

#### **10. Assurance of Completion**

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

[ ] (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

[ ] (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

[ ] (3) a 20 percent cash escrow;

[ ] (4) a 25 percent irrevocable letter of credit; or,

[ ] (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

#### **11. Preconstruction Conference (applicable to construction contracts)**

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

#### **12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)**

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [ ] does [ ] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.



**GENERAL DECISION - No: NV120018**  
**Modification #: 1**

**Dated: 02/10/12**

**RESIDENTIAL**

**Residential Wage Decision:** will apply to the Dwelling unit work to include but not limited to: Demolition, Building Concrete, Building Masonry, Misc Materials, Windows, Roofing, Elevated Walkways, Carpentry, Casework/Millwork, Sealants, Insulation, Gypsum Board, Paint, Plaster, Finish Carpentry, Hardboard Lap Siding, Doors, Elevators, Specialties, Flooring, Plumbing, HVAC, Electrical, Low Voltage, Window Coverings (Blinds), Equipment, Appliances Install.

Work on the **Non-Dwelling Buildings/Areas (Community Building, Laundry Room and Management Office)** is considered to be incidental to the **Residential Wage Decision** therefore, this wage will also apply to the Non-Dwelling Buildings/Areas as described above.

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**PLEASE NOTE THAT THE WAGE RATES MAY HAVE**  
**CHANGED SIGNIFICANTLY**

The construction activity for this scope of work may require additional labor classifications not reflected in the approved wage decision, i.e., painter, plumber, etc. Therefore, enclosed is HUD-4230-A, Report of Additional Classification and Rate.

Per HUD Labor Relations Department, the Contractor is no longer required to contact three (3) contractors in the area who perform this work and request data on wages paid and number of employees. **The Contractor is still required, for this contract, to submit form HUD-4230-A, Report of Additional Classification and Rate, for approval of classifications not included in the approved wage determination.** Refer to Section 46 of the General Conditions for Construction Contracts (form HUD-5370).

Please forward the information requested above to HUD, *through* the Southern Nevada Regional Housing Authority, for final processing.

General Decision Number: NV120018 02/10/2012 NV18

Superseded General Decision Number: NV20100018

State: Nevada

Construction Type: Residential

County: Clark County in Nevada.

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories).

Modification Number	Publication Date
0	01/06/2012
1	02/10/2012

CARP1780-001 07/01/2011

	Rates	Fringes
Carpenter, Drywall Hanger Only...	\$ 37.76	11.85

ZONE PAY:

0 to 40 miles radius from intersection of Maryland Parkway and Charleston Blvd in Las Vegas: Free Zone

40 to 60 miles radius: \$2.50 additional per hour

Over 60 miles radius: \$4.25 additional per hour

Laughlin Area: \$2.00 additional per hour

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ELEC0357-005 06/01/2011

	Rates	Fringes
ELECTRICIAN.....	\$ 38.99	17.07+3%

ZONE PAY:

(A) The area bound by a 25 mile radius from the intersection of Main Street and Fremont Street in Las Vegas is hereby established a Free Zone.

(B) The area bound by a 25-55 mile radius from the intersection of Main and Fremont Street shall receive \$2.50 per hour at a straight time rate for Zone Pay.

(C) The area outside of 55 miles radius from Main Street and Fremont Street shall receive \$3.50 per hour at the straight time rate of Zone Pay.

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\* ENGI0012-011 01/01/2012

	Rates	Fringes
Operators:		
(4) Roller, Base (Ride)		

along).....	\$ 38.70	21.22
(6) Bulldozer.....	\$ 38.92	21.22
(8) Paver, Including Asphalt.....	\$ 39.03	21.22

Add \$2.00 per hour to wage rates:  
 20 miles to 40 miles from the City Hall of Las Vegas  
 Add \$3.00 per hour to wage rates:  
 40 Miles to 60 Miles from the City Hall of Las Vegas  
 Add \$3.50 per hour:  
 Over 60 Miles from the City Hall of Las Vegas

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 LABO0872-006 07/01/2009

	Rates	Fringes
LABORER		
(1) Form Stripping.....	\$ 25.31	17.63
(2) Asphalt Dumpman.....	\$ 25.52	17.63
(3) Cement Mason Tender, Pipelayer.....	\$ 25.62	17.63

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 PLAS0797-002 07/01/2010

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 34.17	12.11

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 ROOF0162-003 08/01/2011

	Rates	Fringes
ROOFER.....	\$ 24.11	7.82

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 SHEE0088-001 08/01/2011

	Rates	Fringes
Sheet Metal Worker (HVAC Duct Only).....	\$ 22.54	12.76
Zone 1: 0 to 30 miles		\$0.00
Zone 2: 30 to 50 miles		\$2.50
Zone 3: 50 to 100 miles (including Laughlin)		\$3.50
Zone 4: over 100 miles		\$5.00

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 \* SUNV2007-017 09/14/2007

	Rates	Fringes
CARPENTER, Excludes Drywall Hanging.....	\$ 13.39	1.95
LABORER: Common or General.....	\$ 9.00	0.00
LABORER: Landscape Only.....	\$ 7.25	0.00
OPERATOR: Backhoe.....	\$ 13.96	0.00
OPERATOR: Excavator.....	\$ 14.30	0.00

OPERATOR: Forklift.....	\$ 15.80	0.60
OPERATOR: Grader/Blade.....	\$ 25.79	6.34
OPERATOR: Loader.....	\$ 20.81	5.12
OPERATOR: Scraper.....	\$ 21.53	7.33
OPERATOR: Trencher, Excluding Hand Guided Trencher...	\$ 16.35	0.00
TRUCK DRIVER, Includes Dump Truck.....	\$ 17.50	1.91
TRUCK DRIVER: Water Truck.....	\$ 17.36	1.79

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

## Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage

payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION





**GENERAL DECISION - No: NV120034**

**Modification #: 1**

**Dated: 02/10/12**

**HIGHWAY**

**Highway Wage Decision** will apply to site related work to include but not limited to: Site Demolition, Site Excavation/Grading, Wet/Dry Utilities, Asphalt, Site Electrical, Concrete Curbs and Gutters, Concrete Sidewalk and Ramps, Concrete Driveways & Approach, Concrete Walkways, Concrete A/C Pads, Dumpsters Enclosures, Landscaping, Site Masonry, Trails Assemblies/Misc Metals, Site Fencing, Gates and Playgrounds.

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**PLEASE NOTE THAT THE WAGE RATES MAY HAVE  
CHANGED SIGNIFICANTLY**

The construction activity for this scope of work may require additional labor classifications not reflected in the approved wage decision, i.e., painter, plumber, etc. Therefore, enclosed is HUD-4230-A, Report of Additional Classification and Rate.

Per HUD Labor Relations Department, the Contractor is no longer required to contact three (3) contractors in the area who perform this work and request data on wages paid and number of employees. **The Contractor is still required, for this contract, to submit form HUD-4230-A, Report of Additional Classification and Rate, for approval of classifications not included in the approved wage determination.** Refer to Section 46 of the General Conditions for Construction Contracts (form HUD-5370).

Please forward the information requested above to HUD, *through* the Southern Nevada Regional Housing Authority, for final processing.

General Decision Number: NV120034 01/06/2012 NV34

Superseded General Decision Number: NV20100064

State: Nevada

Construction Type: Highway

County: Clark County in Nevada.

EXCLUDES NEVADA TEST SITE (NTS), NATIONAL TEST AND TRAINING RANGE (NTTR) & TONOPAH TEST RANGE (TTR)

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number 0 Publication Date 01/06/2012

SUNV2011-001 10/01/2010

	Rates	Fringes
BRICKLAYER.....	\$ 45.43	
BRICKLAYER ZONE PAY: add the applicable amounts per hour calculated based on radius of 50 miles from the City Hall in Las Vegas, Nevada.		
Zone 1: 0 to 40 miles	\$0.00	
Zone 2: over 40 to 50 miles	\$2.50	
Zone 3: over 50 to 70 miles	\$5.00	
Zone 4: over 70 miles	\$7.50	

The area within the city limits of Boulder City and Primm, Nevada shall be considered free zones.

CARPENTER.....	\$ 48.95	
CARPENTER ZONE PAY: add the applicable amounts per hour calculated from Maryland Parkway and Charleston Boulevard, Las Vegas.		
Zone 1: 0 to 40 miles	\$0.00	
Zone 2: over 40 to 60 miles	\$2.50	
Zone 3: over 60 miles	\$4.25	
Laughlin Area:	\$2.00	

CEMENT MASON/CONCRETE FINISHER...	\$ 46.28	
CEMENT MASON ZONE PAY: add the applicable amounts per hour calculated based on a radius from the City Hall of Las Vegas, Nevada:		

Zone 1: 0 to 30 miles           \$0.00  
 Zone 2: over 30 to 50 miles \$1.50  
 Zone 3: over 50 miles           \$3.25

## ELECTRICIAN

Electrician  
 Neon Sign.....\$ 45.52  
 Wireman.....\$ 56.31  
 Line Construction  
 Groundman.....\$ 35.33  
 Heavy Equipment Operator...\$ 43.37  
 Lineman.....\$ 52.82

ZONE PAY (Electrician Only does not apply to Line Construction): add the applicable amounts per hour calculated based on a radius from City Hall of Las Vegas.

Zone 1: 0 to 25 miles           \$0.00  
 Zone 2: over 25 to 55 miles \$2.50  
 Zone 3: over 55 miles           \$3.50

FENCE ERECTOR.....\$ 17.46

Hod Carrier (Brick Mason  
 Tender).....\$ 43.31

IRONWORKER.....\$ 56.74

## LABORER

Flagperson.....\$ 41.44  
 Group 1.....\$ 42.94  
 Group 2.....\$ 43.15  
 Group 3.....\$ 43.25  
 Group 4.....\$ 43.34  
 Group 5.....\$ 43.44  
 Highway Stripper.....\$ 30.81  
 Traffic Barrier Erector.....\$ 42.94

LABORER ZONE PAY: add the applicable amounts per hour calculated based on a radius from the City Hall of Las Vegas, Nevada.

Zone 1: 0 to 30 miles:           \$0.00  
 Zone 2: over 30 to 50 miles: \$1.50  
 Zone 3: over 50 miles:           \$3.25  
 Laughlin Area:                   \$2.25

## LABORER CLASSIFICATIONS:

Group 1

Construction Clean-Up; Dry packing of concrete & filling of

form bolt holes; File grader, street paving, airport runways; Guinea chaser; demolition or general construction; packing rod steel & pans; temporary water lines (portable type); Landscape gardener; Nurseryman; Tarman and mortarman, Kettleman, potman and man applying asphalt, lay-kold creosote, fine, and similar type materials; Underground, including caisson bellows; Scaffold Erector (under 14 ft.); Landscape Decorative rock Installer - (Ponds, Waterfalls, Etc.); Materials Handler; Tool Crib; Light Crib; Light Tool Repairman; Mechanical Stabilized Earth Wall; Certified Firewatch.

Group 2

Asphalt raker, ironer, spreader, luteman; Buggymobile man; Cement dumper (on one yard or larger mixers & handling bulk cement); Cesspool digger and installer; Chucktender; Concrete core cutter; Concrete curer, impervious membrane and oiler of all materials; Concrete saw man, excluding tractor type, cutting, scoring old or new concrete; Gas and oil wrapper, pot tender and form man; Making and caulking of all non-metallic pipe joints; Operators and tenders of pneumatic and electric tools, vibrating machines, hand propelled trenching machines, impact wrench multiplate and similar mechanical tools not separately classified herein; Operator of cement grinding machine; Riprap stonepaver; Roto-scraper; Sandblaster (pot tender); Scaler

Septic tank digger and installer (lead man); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredders.

Group 3

Cutting torch operator; Jackhammer and/or pavement breaker; Laying of all non-metallic pipe, including landscape sprinklers, sewer pipe, drain pipe and underground tile; Mudcutter; Concrete vibrator operator, all sizes; Rock slinger; Scaler (using bos'n chair or safety belt or power tools); Laying of all metallic and non-metallic pipe, p.v.c. and duct bank, including landscape sprinklers, sewer pipe, drain pipe and underground tile; Cement dumper (on one yard or larger mixers and handling bulk cement; Concrete core cutter; Concrete curer, impervious membrane and oiler of all materials; Decorative rock installer (ponds, waterfalls, etc.); Shotcrete/gunite.

Group 4

Cribber or shorer, lagging, sheeting, trench bracing, hand guided lagging hammer; Head rock slinger; Powderman-blaster; Sandblaster (nozzleman); Steel header-board man

Group 5

Driller (core, diamond or wagon); Joy driller model TW-M-2A, Gardner-Denver model DH 143 and similar type drills

MILLWRIGHT.....\$ 49.95

MILLWRIGHT ZONE PAY: add the applicable amounts per hour calculated from Maryland Parkway and Charleson Boulevard, Las

Vegas

Zone 1: 0 to 20 miles \$0.00

Zone 2: over 20 to 40 miles \$1.50

Zone 3: over 40 miles \$3.25

PAINTER.....\$ 46.64

PILEDRIVERMAN.....\$ 58.47

PLUMBER/PIPEFITTER.....\$ 56.52

PLUMBER ZONE PAY: employees performing work on Public Works covered by this Agreement shall be entitled to the following wage rates for all hours worked calculated on an air mile radius from the Clark County Regional Justice Center.

Zone 1: 0 to 20 miles \$0.00

Zone 2: over 20 to 45 miles \$3.75

Zone 3: over 45 to 75 miles \$7.50

Zone 4: over 75 miles \$11.25

POWER EQUIPMENT OPERATOR:

(Cranes, Piledriving, & Hoisting Equipment)

Group 1

Engineer Oiler.....\$ 59.35

Forklift.....\$ 55.67

Group 2

Truck Crane Oiler.....\$ 59.35

Group 3

A-Frame or Winch Truck;  
Ross Carrier (Jobsite).....\$ 58.26

Group 4

Bridge-Type Unloader and  
Turntable Operator;  
Helicopter Hoist.....\$ 58.40

Group 5

Hydraulic Boom Truck  
(Pittman); Stinger Crane  
(Austin-Western or  
Similar Type); Tugger  
Hoist (1 Drum).....\$ 58.62

Group 6

Bridge Crane; Cretor  
Craner; Hoist (Chicago  
Boom and Similar Type);  
Lift Mobile; Lift Slab  
Machine (Vagtbor and  
Similar Types); Material  
Hoist/Manlift; Polar  
Gantry Crane; Self  
Climbing Scaffold (or  
Similar Type); Shovel,

Backhoe, Dragline,  
 Clamshell (Over 3/4 YD.  
 and up to 5 CU. YDS.);  
 Silent Piler; Tugger  
 Hoist (2 Drum).....\$ 58.73  
 Group 7  
 Pedestal Crane; Shovel,  
 Backhoe, Dragline,  
 Clamshell (over 5 CU.  
 YDS.); Tower Crane  
 Repairman; Tugger Hoist  
 (3 Drum).....\$ 58.85  
 Group 8  
 Crane Operator (up to and  
 including 25 ton capacity).\$ 60.82  
 Crawler Transporter;  
 Derrick Barge (up to and  
 including 25 ton  
 capacity); Hoist, Stiff  
 legs, Guy Derrick or  
 Similar Type (up to and  
 including 25 ton  
 capacity); Shovel,  
 Backhoe, Dragline,  
 Clamshell (Over 7 CU YDS.).\$ 59.02  
 Group 9  
 Crane Operator (over 25  
 tons up to and including  
 50 tons).....\$ 60.82  
 Derrick Barge (over 25  
 tons up to and including  
 50 tons); Highline  
 Cableway; Hoise, Stiff  
 Legs, Guy Derrick or  
 Similar Type (over 25  
 tons and up to and  
 including 50 tons); K-  
 Crane; Polar Crane; Self  
 Erecting Tower Crane  
 Maximum Lifting Capacity  
 10 tons. 1 ton Operator....\$ 59.19  
 Group10  
 Crane (over 50 tons up to  
 and including 100 tons);  
 Mobile Tower Crane (over  
 50 tons up to and  
 including 100 tons).....\$ 62.24  
 Derrick Barge (over 50  
 tons up to and including  
 100 tons); Hoist, Stiff  
 Legs, Guy Derrick or  
 Similar Type (over 50  
 tons up to and including  
 100 tons).....\$ 60.19  
 Group11  
 Crane (over 100 tons up  
 to and including 200  
 tons); Mobile Tower Crane  
 (over 100 tons up to and  
 including 200 tons).....\$ 62.74

Derrick Barge (over 100 tons up to and including 200 tons); Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 100 tons up to and including 200 tons).....\$ 61.19  
 Tower Crane and Tower Gantry.....\$ 63.19  
 Group12  
 Crane (over 200 tons up to and including 300 tons); Mobile Tower Crane (over 200 tons up to and including 300 tons).....\$ 65.38  
 Derrick Barge (over 200 tons up to and including 300 tons); Hoist, Stiff Legs, Guy Derrick or Similar Type (over 200 tons up to and including 300 tons).....\$ 62.19  
 Group13  
 Crane (over 300 tons); Mobile Tower Crane (over 300 tons).....\$ 66.75  
 Derrick Barge (over 300 tons); Helicopter Pilot; Hoist Operator, Stiff Legs, Guy Derrick or Similar Type (over 300 tons).....\$ 63.19

## POWER EQUIPMENT OPERATOR:

(Group 1-8)

Equipment Greaser (Grease Truck).....\$ 58.40  
 Equipment Greaser (Rack)....\$ 56.91  
 Group 1.....\$ 55.67  
 Group 2.....\$ 56.62  
 Group 3.....\$ 56.91  
 Group 4.....\$ 58.40  
 Group 6.....\$ 58.62  
 Group 8.....\$ 58.73

ZONE PAY [ALL POWER EQUIPMENT OPERATORS INCLUDING CRANES, PILEDIVING AND HOISTING EQUIPMENT]: add the applicable amounts per hour calculated from the City Hall of Las Vegas, Nevada.

Zone 1: 0 to 20 miles           \$0.00  
 Zone 2: over 20 to 40 miles \$2.00  
 Zone 3: over 40 to 60 miles \$3.00  
 Zone 4: over 60 miles           \$3.50

POWER EQUIPMENT OPERATOR CLASSIFICATIONS (GROUP 1-8):

## Group 1

Bargeman; Blade Assistant; Brakeman; Compressor; Ditch Witch, with seat or similar type equipment; Elevator - inside; Engineer Oiler; Forklift (under 5 Tons); Generator; Generator, Pump or Compressor Plant; Pump; Signalman; Steam Cleaner/Pressure Washer; Switchman.

## Group 2

Asphalt-Rubber Plant (Nurse Tank); Concrete Mixer - Skip type; Conveyor; Forklift (over 5 Tons); Hydrostatic Pump; Oiler Crusher (Asphalt or Concrete Plant); PJU Side Dump Jack; Rotary Drill Tender (Oilfield); Screening and Conveyor Machine (or similar types); Skiploader (wheel type up to  $\frac{3}{4}$  yd. without attachment); Tar Pot Fireman; Temporary Heating Plant; Trenching Machine Oiler.

## Group 3

Asphalt-Rubber Blend; Bobcat or similar type (Skid Steer); Ford Ferguson (with dragtype attachments); Helicopter Radioman (ground); Stationary Pipe Wrapping and Cleaning Machine.

## Group 4

Asphalt Plant Fireman; Backhoe (Mini-Max or similar type); Boring Machine; Boring System Electronic Tracking Locator; Boxman or Mixerman (Asphalt or Concrete); Chip Spreading Machine; Concrete Cleaning Decontamination Machine; Concrete Pump (small portable); Drilling Machine, Small Auger Types (Texoma Super Economatic, or similar types - Hughes 100 or 200, or similar types - drilling depth of 30' maximum); Guard Rail Post Driver; Highline Cableway Signalman; Horizontal Directional Drilling Machine; Hydra-Hammer-Aero Stomper; Power Concrete Curing Machine; Power Concrete Saw; Power - Driven Jumbo Form Setter; Power Sweeper; Rock Wheel Saw/Trencher; Roller (compacting); Screed (Asphalt or Concrete); Trenching Machine (up to 6 ft.); Vacuum or Muck Truck.

## Group 6

Articulating Material Hauler; Asphalt Plant Engineer; Batch Plant; Bit Sharpener; Concrete Joint Machine (canal and similar type); Concrete Planer; Dandy Digger; Deck Engine; Derrickman (Oilfield type); Drilling Machine, Bucket or Auger Types (Calweld 100 Bucket or similar types - Watson 1000 Auger or similar types - Texoma 330, 500 or 600 Auger or similar types - drilling depth of 45' maximum); Drilling Machine (including water wells); Hydrographic Seeder Machine (straw, pulp or seed); Jackson Track Maintainer, or similar type; Kalamazoo Switch Tamper, or similar type; Machine Tool; Maginnis Internal Full Slab Vibrator; Mechanical Berm, curb or gutter (concrete or asphalt); Mechanical Finisher Operator (concrete, Clary-Johnson-Bidwell or similar); Pavement Breaker (truck mounted); Road Oil Mixing Machine; Roller (asphalt or finish); Rubber-Tired Earth Moving Equipment (single engine, up to and including 25 yds. struck); Self-Propelled Tar Pipelining Machine; Skiploader (crawler and wheel type, over  $\frac{3}{4}$



yd. and up to and including 1½ yds.); Slip Form Pump (power driven hydraulic lifting device for concrete forms); Tractor - Bulldozer, Tamper-Scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger Hoist (1 drum); Ultra High Pressure Waterjet Cutting Tool System; Vacuum Blasting Machine.

#### Group 8

Asphalt or Concrete Spreading (Tamping or Finishing); Asphalt Paving Machine (Barber Greene or similar type); Asphalt-Rubber Distributor; Backhoe (up to and including ¾ yd.); Cast in Place Pipe Laying Machine; Combination Mixer and Compressor (Gunitite Work); Compactor - self propelled; Concrete Mixer - Paving; Crushing Plant (Non Portable); Drill Doctor; Drilling Machine, Bucket or Auger Types (Calweld 150 Bucket or similar types - Watson 1500, 2000, 2500 Auger or similar types - Texoma 700, 800 Auger or similar types - drilling depth of 60' maximum); Elevating Grader; Grade Checker; Gradall; Grouting Machine; Heavy Duty Repairman; Heavy Equipment Robotics; Kalamazoo Balliste Regulator or similar type Kolman Belt Loader and similar type; Le Tourneau Blob Compactor or similar type; Loader (Athey, Euclid, Sierra and similar types); Master Environmental Maintenance Mechanic; Mobark Chipper or similar types; Ozzie Padder or similar types; PC 490 Slot Saw; Pneumatic Concrete Placing Machine (Hackley-Presswell or similar type); Portable Crushing Plant; Pumpcrete Gun; Rock Drill or similar types; Rotary Drill (excluding Caison type); Rubber-Tired Earth Moving Equipment (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-Tired Earth Moving Equipment (multiple engine - up to and including 25 yds. struck); Rubber-Tired Scraper (self-loading paddle wheel type - John Deere, 1040 and similar single unit); Self-Propelled Curb and Gutter Machine; Shuttle Buggy; Skiploader (crawler and wheel type over 1½ yds. up to and including 6½ yds.); Soil Remediation Plant (C.M.I. Enviro Tech Thermal or Similar Types); Surface Heaters and Planer; Tractor Compressor Drill Combination; Tractor (any type larger than D-5 - 100 flywheel h.p. and over, or similar - Bulldozer, Tamper, Scraper and Push Tractor, single engine); Tractor (boom attachments); Traveling Pipe Wrapping, Cleaning and Bending Machine; Trenching Machine (over 6 ft. depth capacity, manufacturer's rating); Trenching Machine with Road Miner Attachment (over 6 ft. depth capacity, manufacturer's rating); Ultra High Pressure Waterjet Cutting Tool System Mechanic; Water Pull (compaction).

#### POWER EQUIPMENT OPERATOR:

(Groups 10 to 25)

Group 10.....	\$ 58.85
Group 11.....	\$ 59.95
Group 12.....	\$ 59.02
Group 13.....	\$ 59.12
Group 14.....	\$ 59.15
Group 15.....	\$ 59.23
Group 16.....	\$ 59.35
Group 17.....	\$ 59.52
Group 18.....	\$ 59.62
Group 19.....	\$ 59.73

Group 20.....\$ 59.85  
 Group 21.....\$ 60.02  
 Group 22.....\$ 60.12  
 Group 23.....\$ 60.23  
 Group 24.....\$ 60.35  
 Group 25.....\$ 60.52

POWER EQUIPMENT OPERATOR CLASSIFICATIONS (GROUP 10-25):

Group 10

Drilling Machine, Bucket or Auger Types (Calweld 200 B Bucket or similar types - Watson 3000 or 5000 Auger or similar types - Texoma 900 Auger or similar types - drilling depth of 105' maximum); Dual Drum Mixer; Monorail Locomotive (diesel, gas or electric); Motor Patrol - Blade (single engine); Multiple Engine Tractor (Euclid and similar type - except Quad 9 Cat.); Pneumatic Pipe Ramming Tool and similar types; Pre-Stressed Wrapping Machine (2 Operators required); Rubber-Tired Earth Moving Equipment (single engine, over 50 yds. struck); Rubber-Tired Earth Moving Equipment (multiple engine, Euclid, Caterpillar and similar - over 25 yds. and up to 50 yds. struck); Tower Crane Repairman; Tractor Loader (crawler and wheel-type over 6½ yds.); Woods Mixer (and similar Pugmill equipment).

Group 11

Dynamic Compactor LDC350 (or similar types).

Group 12

Auto Grader; Automatic Slip Form; Drilling Machine, Bucket or Auger Types (Calweld, Auger 200 CA or similar types - Watson, Auger 6000 or similar types- Hughes Super Duty, Auger 200 or similar types - drilling depth of 175' maximum); Hoe Ram or similar with Compressor; Mass Excavator - Less than 750 cu. yds.; Mechanical Finishing Machine; Mobile Form Traveler; Motor Patrol (multi-engine); Pipe Mobile Machine; Rubber-Tired Earth Moving Equipment (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-Tired Self-Loading Scraper (paddle-wheel-Auger type self-loading - 2 or more units); Vermeer Rock Trencher (or similar type).

Group 13

Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (single engine, up to and including 25 yds. struck).

Group 14

Canal Liner (not less than 4 employees - Oiler, Mechanic, Grade Checker required); Canal Trimmer; Remote Controlled Earth Moving Equipment (no one shall operate more than two pieces of earth moving equipment at one time - \$1.00 per hour additional to base rate); Wheel Excavator (over 750 cu. yds. per hour).

Group 15

Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (multiple engine - up to and including 25 yds. struck).

Group 16

Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (single engine, over 50 yds. struck); Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck).

Group 17

Rubber-Tired Earth Moving Equipment, equipment with the Push-Pull System (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Tandem Tractor (crawler type tractors in tandem - Quad 9 and similar type).

Group 18

Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck).

Group 19

Rotex Concrete Belt (or similar types); Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, including compaction units - single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck).

Group 20

Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck).

Group 21

Rubber-Tired Earth Moving Equipment, in Tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck).

Group 22

Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (single engine, up to and including 25 yds. struck)

Group 23

Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (multiple engine, up to and including 25 yds. struck).

Group 24

Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (single engine, over 50 yds. struck); Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (multiple engine, Euclid, Caterpillar and similar, over 25 yds. & up to 50 yds. struck).

Group 25

Concrete Pump - truck mounted (Oiler required when boom over 105' or 36 meters); Rubber-Tired Earth Moving Equipment, equipment with the Tandem Push-Pull System (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck).

TRUCK DRIVER

Group 1.....	\$ 46.13
Group 2.....	\$ 46.23
Group 3.....	\$ 46.44
Group 4.....	\$ 46.62
Group 5.....	\$ 46.82
Group 6.....	\$ 47.12

TRUCK DRIVER ZONE PAY: add the applicable amounts per hour calculated from Las Vegas City Hall.

Zone 1: 0 to 30 miles	\$0.00
Zone 2: over 30 to 50 miles	\$1.50
Zone 3: over 50 to 70 miles	\$2.50
Zone 4: over 70 miles	\$3.50

TRUCK DRIVER CLASSIFICATIONS:

Group 1

Drivers of dump trucks (less than 12 yds. water level), drivers of trucks (legal payload capacity less than 15 tons), water and fuel truck drivers under 2,500 gal, pickup driver, service station attendant, teamster equipment, warehousemen, drivers of busses used for transportation of up to 16 passengers.

Group 2

Drivers of dump trucks (12 yds but less than 16 yds water level), drivers of trucks (legal payload capacity between 15 and 20 tons), drivers of transit mix trucks (under 3 yds), dumpcrete trucks (less than 6 1/2 yds water level), gas and oil pipeline working truck drivers, including winch truck and all sizes of trucks, water and fuel truck drivers (2,500 gal to 4,000 gal), truck greaser, drivers of busses (used for transportation or more than 16 passengers), warehouse clerk.

Group 3

Drivers of dump trucks (16 yds up to and including 22 yds water level), drivers of trucks (legal payload cap. 20 tons but less than 25 tons), drivers of dumpster trucks, drivers of transit-mix trucks (3 yds but less than 6 yds), dumpcrete trucks (6 1/2 yds water level and over), fork lift driver, Ross Carrier driver, highway water and fuel drivers (4,001 gallon but less than 6,000 gallon), stock room clerk, tireman.

Group 4

Drivers of transit-mix trucks (6 yds or more), drivers of dump trucks (over 22 yds. water level), drivers of trucks (legal payload capacity 25 tons and over), drivers of fuel and water trucks (6,000 gallon and over).

Group 5

Drivers of trucks and trailers in combination (six axles or more).

Group 6

All Off-road Equipment, Truck Repairman, Transport Drivers and Drivers of Road Oil Spreader Trucks, DW 10 and DW 20 Euclid-type equipment Letourneau pulls, Terra Cobras and similar types of equipment, also PB and similar type trucks when performing work within the Teamster jurisdiction, regardless of types of attachment, including power units pulling off-highway belly dumps in tandem.

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====  
Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

-----  
The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

#### Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

#### Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial

contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
REPORT OF ADDITIONAL CLASSIFICATION AND RATE**

**HUD FORM 4230A**

OMB Approval Number 2501-0011  
(Exp. 01/31/2010)

1. FROM (name and address of requesting agency)	2. PROJECT NAME AND NUMBER
	3. LOCATION OF PROJECT (City, County and State)

4. BRIEF DESCRIPTION OF PROJECT	5. CHARACTER OF CONSTRUCTION <input type="checkbox"/> Building <input type="checkbox"/> Residential <input type="checkbox"/> Heavy <input type="checkbox"/> Other (specify) <input type="checkbox"/> Highway
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6. WAGE DECISION NO. (include modification number, if any)  <input type="checkbox"/> COPY ATTACHED	7. WAGE DECISION EFFECTIVE DATE
--	---------------------------------

8. WORK CLASSIFICATION(S)	HOURLY WAGE RATES	
	BASIC WAGE	FRINGE BENEFIT(S) (if any)

9. PRIME CONTRACTOR (name, address)	10. SUBCONTRACTOR/EMPLOYER, IF APPLICABLE (name, address)
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**Check All That Apply:**

- The work to be performed by the additional classification(s) is not performed by a classification in the applicable wage decision.
- The proposed classification is utilized in the area by the construction industry.
- The proposed wage rate(s), including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage decision.
- The interested parties, including the employees or their authorized representatives, agree on the classification(s) and wage rate(s).
- Supporting documentation attached, including applicable wage decision.

**Check One:**

- Approved, meets all criteria. DOL confirmation requested.**
- One or more classifications fail to meet all criteria as explained in agency referral. DOL decision requested.**

<p style="text-align: center;">_____</p> <p style="text-align: center;"><b>Agency Representative</b> (Typed name and signature)</p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><i>Date</i></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><i>Phone Number</i></p>	<p><b>FOR HUD USE ONLY</b> <b>LR2000:</b></p> <p><b>Log in:</b></p> <p><b>Log out:</b></p>
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<b>Report of Additional Classification and Wage Rate</b>	<b>U.S. Department of Housing and Urban Development Office of Labor Relations</b>	OMB Approval No. 2501-0011 (Exp. 01/31/2010)
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Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. The information is considered non-sensitive and does not require special protection. This information is required to obtain benefits. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

Employers engaged on HUD-assisted construction projects subject to Davis-Bacon wage requirements must pay no less than the wages determined to be prevailing by the Secretary of Labor to all laborers and mechanics engaged on the construction work. On occasion, the applicable Davis-Bacon wage decision does not contain all of the work classifications and wage rates needed to complete the construction work. This information collection facilitates the addition of needed work classifications and wage rates for the construction work involved. This form is used by HUD and local agencies administering HUD programs to report employer request(s) for additional classification and wage rates so that an appropriate wage rate can be approved by the Department of Labor for the construction work. This information collection is required by Department of Labor regulations at 29 CFR 5.5. While no assurances of confidentiality are pledged to respondents, HUD generally discloses these data only in response to a Freedom of Information request.

## Instructions

### General:

**Contractors/Employers:** Do not need to complete this form. Submit a written, signed request to the responsible contracting agency naming the work classifications and the wage rates, including any fringe benefits, that are proposed.

**Local Agency Staff:** Complete items 2 through 10. Submit one copy of this form to the responsible HUD Labor Relations Office with a copy of the applicable Davis-Bacon wage decision and the written request from the employer naming the work classifications and wage rates that are proposed. (The employer's request must be made in writing and must be signed.)

1. For HUD or State CDBG Office use. Enter the name and address of HUD Office (or State CDBG office) submitting the report and to which the DOL reply should be sent.
2. Enter the name and number of the project or contract involved.
3. Enter the location of the project involved: city, county and state.
4. Describe the construction involved, e.g., new construction or rehabilitation, number and type of buildings, number of stories, number of units (as applicable). For example, New construction: 3 – 4-story buildings; 120 units.
5. Enter the character of construction as defined by DOL for Davis-Bacon prevailing wage rate purposes.
6. Enter the number of the Davis-Bacon wage decision applicable to the construction work. Include the number of wage decision modifications (if any) applicable to the work.
7. Enter the effective date of the wage decision for the project. (See DOL regulations at 29 CFR 1.6.)
8. Enter the work classifications and corresponding hourly basic wage rates and fringe benefit rates (if any) requested.
9. Self-explanatory.
10. If the requesting employer is not the prime contractor, enter the name and address of the subcontractor/employer making the request.

Remainder of Form: HUD Labor Relations/State CDBG use.

HUD Labor Relations/State CDBG Staff: Evaluate the employer's request against the criteria for approval (see DOL Regulations, 29 CFR Part 5, and related contract labor standards provisions). The criteria are reflected in "checklist" form to ensure that each factor is considered and to ensure that supporting documentation, including a copy of the applicable wage decision, is attached. Check the box next to each criterion that is met; do not check the box next to any criterion that is not met.

If the request meets all criteria, check the appropriate box, enter the name and telephone number of the HUD/State CDBG agency representative, and sign and date the form. Submit one copy of the completed form to the DOL with a copy of the applicable Davis-Bacon wage decision and the written request from the employer involved.

If the request fails to pass all criteria, check the appropriate box, enter agency contact information, and sign and date the form. Submit one copy of the completed form to the DOL with a copy of the applicable Davis-Bacon wage decision, the written request from the employer involved, *and* a cover letter explaining how the employer's request failed to meet one or more of the criteria.

### Submission of Report

Completed forms shall be sent to: Branch of Construction Wage Determinations, U.S. Department of Labor, 200 Constitution Avenue, NW, Room S-3014, Washington, DC 20210.

# General Conditions for Construction Contracts - Public Housing Programs

## U.S. Department of Housing and Urban Development

Office of Public and Indian Housing  
OMB Approval No. 2577-0157 (exp. 01/31/2014)

**Applicability. This form is applicable to any construction/development contract greater than \$100,000.**

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 24 CFR 85.36, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).

The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.

The information requested does not lend itself to confidentiality.

HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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## 1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
- (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
- (c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
- (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
- (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
- (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.
- (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.
- (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
- (j) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.
- (l) "Work" means materials, workmanship, and manufacture and fabrication of components.
- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
- (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least [ ] (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
- (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
- (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
- (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
- (f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
- (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
- (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

## 2. Contractor's Responsibility for Work

## 3. Architect's Duties, Responsibilities, and Authority

- (a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
- (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
  - (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
  - (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
  - (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

#### 4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

### Construction Requirements

#### 5. Pre-construction Conference and Notice to Proceed

- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

#### 6. Construction Progress Schedule

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.
- (c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

#### 7. Site Investigation and Conditions Affecting the Work

- (a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

- (b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

### 8. Differing Site Conditions

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.
- (b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.
- (c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.
- (d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

### 9. Specifications and Drawings for Construction

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be required in the planning and production of the work. Such

promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- (b) Wherever in the specifications or upon the drawings the words 'directed', 'required', 'ordered', 'designated', 'prescribed', or words of like import are used, it shall be understood that the 'direction', 'requirement', 'order', 'designation', or 'prescription', of the Contracting Officer is intended and similarly the words 'approved', 'acceptable', 'satisfactory', or words of like import shall mean 'approved by', or 'acceptable to', or 'satisfactory to' the Contracting Officer, unless otherwise expressly stated.
- (c) Where 'as shown', 'as indicated', 'as detailed', or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word 'provided' as used herein shall be understood to mean 'provide complete in place' that is 'furnished and installed'.
- (d) 'Shop drawings' means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- (e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.
- (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be requests may be submitted as the need arises, but each

such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

## 10. As-Built Drawings

- (a) 'As-built drawings,' as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. 'As-built drawings' shall be synonymous with 'Record drawings.'
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

## 11. Material and Workmanship

- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.
- (b) Approval of equipment and materials.
- (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. Before installing the work, the Contractor shall

When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

- (2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.
- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.
- (5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.
- (6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.
- (c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

## 12. Permits and Codes

- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any
- examine the drawings and the specifications for

compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

### 13. Health, Safety, and Accident Prevention

- (a) In performing this contract, the Contractor shall:
- (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
  - (2) Protect the lives, health, and safety of other persons;
  - (3) Prevent damage to property, materials, supplies, and equipment; and,
  - (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
- (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
  - (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

- (f) New work which connects to existing work

### 14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

### 15. Availability and Use of Utility Services

- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.
- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

### 16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

shall correspond in all respects with that to which it

connects and/or be similar to existing work unless otherwise required by the specifications.

- (g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
- (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
- (i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
- (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
- (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

## 17. Temporary Buildings and Transportation of Materials

- (a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- (b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

## 18. Clean Air and Water

The contractor shall comply with the Clean Air Act, as

- (f) The PHA may conduct routine inspections of the construction site on a daily basis.

amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

## 19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

## 20. Inspection and Acceptance of Construction

- (a) Definitions. As used in this clause -
  - (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
  - (2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
  - (3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
- (b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
- (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.
- (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to



contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

- (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
- (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
- (j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

## 21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
- (b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the
- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the

work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

## 22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

## 23. Warranty of Construction

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of \_\_\_\_\_ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
- (1) The Contractor's failure to conform to contract requirements; or
  - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
- (1) Obtain all warranties that would be given in normal commercial practice;
  - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
  - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.
- Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the

repair of any damage that results from any defect in PHA furnished material or design.

- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

## 24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

### Administrative Requirements

## 25. Contract Period

The Contractor shall complete all work required under this contract within 120 calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

## 26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

## 27. Payments

- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has

acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

- (d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved breakdown of the contract price. Such estimates shall be submitted not later than \_\_\_\_\_ days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.
- (e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:
  - (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
  - (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
  - (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

- (f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.
- (g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting

Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- (k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

## 28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the
  - (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit

Contractor and the Contracting Officer.

- (c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

## 29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
  - (1) In the specifications (including drawings and designs);
  - (2) In the method or manner of performance of the work;
  - (3) PHA-furnished facilities, equipment, materials, services, or site; or,
  - (4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:
  - costs (identified with specific work to be performed);
  - Construction equipment exclusively necessary for the change;
  - Costs of preparation and/ or revision to shop drawings resulting from the change;
  - Worker's

Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.

- (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
- (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change.

The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.

- (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
- (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
- (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

### 30. Suspension of Work

- (a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have

been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

- (c) A claim under this clause shall not be allowed (1) for any proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and

costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

### 31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

### 32. Default

- (a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall

be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
- (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
  - (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

### 33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of \$ \_\_\_\_\_ [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

\*\$100.00 per dwelling unit per day,  
\$100.00 per non-dwelling unit per day,  
in addition to \$100.00 per site per day

completion of the work together with any increased costs occasioned the PHA in completing the work.

- (c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

### 34. Termination for Convenience

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
- (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

### 35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

### 36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
- (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
  - (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$ \_\_\_\_\_ [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

- (3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$ 1 Mil [Contracting Officer insert amount] per occurrence.
- (b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.
- (c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

### 37. Subcontracts

- (a) Definitions. As used in this contract -
- (1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

- (2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.
- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

### 38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

- (a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- (b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;
- (c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;
- (d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and
- (e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

### 39. Equal Employment Opportunity

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.
- (b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

- (c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.
- (d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.
- (e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.
- (f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.
- (g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.
- (i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.
- (j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.
- 40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.**
- (a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- (b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.
- (c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- (d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
- (e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
- (f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- (g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

#### 41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

#### **42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees**

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

#### **43. Limitations on Payments made to Influence Certain Federal Financial Transactions**

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

#### **44. Royalties and Patents**

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

#### **45. Examination and Retention of Contractor's Records**

be posted at all times by the Contractor and its

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

#### **46. Labor Standards - Davis-Bacon and Related Acts**

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

- (a) Minimum Wages.
  - (1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall subcontractors at the site of the work in a prominent and



accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
- (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or

program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.
- (c) Payrolls and basic records.
  - (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
- (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
- (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
  - (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
  - (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
  - (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.
  - (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
- (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

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#### 47. Non-Federal Prevailing Wage Rates

- (a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds: (1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
- (b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
- (c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

#### 48. Procurement of Recovered Materials.

- (a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
- (b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of \$10,000 of the item both under and outside that contract.

**U.S. Department of Housing  
and Urban Development**  
Office of Public and Indian Housing

**Representations, Certifications,  
and Other Statements of Bidders**  
**Public and Indian Housing Programs**

# Representations, Certifications, and Other Statements of Bidders

## Public and Indian Housing Programs

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### 1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

\_\_\_\_\_ [insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

[ ] [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [ ] is, [ ] is not included with the bid.

### 2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [ ] has, [ ] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [ ] has, [ ] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

### 3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

#### 4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

- (a) Result in an unfair competitive advantage to the bidder; or,
- (b) Impair the bidder's objectivity in performing the contract work.

[ ] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

#### 5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

#### 6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

#### 7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [ ] is, [ ] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [ ] is, [ ] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [ ] is, [ ] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

- [ ] Black Americans
- [ ] Asian Pacific Americans
- [ ] Hispanic Americans
- [ ] Asian Indian Americans
- [ ] Native Americans
- [ ] Hasidic Jewish Americans

#### 8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [ ] is, [ ] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [ ] is, [ ] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

**9. Certification of Eligibility Under the Davis-Bacon Act** (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

**10. Certification of Nonsegregated Facilities** (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

- (1) Obtain identical certifications from the proposed subcontractors;
- (2) Retain the certifications in its files; and
- (3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

**Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities**

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

**Note:** The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

**11. Clean Air and Water Certification** (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [ ] is, [ ] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

**12. Previous Participation Certificate** (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [ ] is, [ ] is not included with the bid.

**13. Bidder's Signature**

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

\_\_\_\_\_  
(Signature and Date)

\_\_\_\_\_  
(Typed or Printed Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Company Address)



# Certification of Payments to Influence Federal Transactions

U.S. Department of Housing and Urban Development  
Office of Public and Indian Housing

Applicant Name

Program/Activity Receiving Federal Grant Funding

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, Disclosure Form to Report Lobbying, in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

I hereby certify that all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.

**Warning:** HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1010, 1012; 31 U.S.C. 3729, 3802)

Name of Authorized Official

Title

Signature

Date (mm/dd/yyyy)



## CERTIFICATE AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_ of  
the

(Name of Secretary of Corporation)

Corporation named as Principal in the within Bond; that \_\_\_\_\_  
(Name of Signatory)

who signed the said bond on behalf of the Principal was then

\_\_\_\_\_ of said Corporation; that I know his signature, and his  
(Title)

signature thereto is genuine; and that said Bond was duly signed, sealed, and attested to, for and in  
behalf of said Corporation by authority of its governing body.

\_\_\_\_\_  
(Corporate Seal)

---

Signature

Date

Printed Name



**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY  
CERTIFICATION REGARDING DRUG-FREE WORKPLACE REQUIREMENTS**

Page 1 of 2

- A. The Southern Nevada Regional Housing Authority certifies that it will, or will continue to provide a drug free workplace by:
- a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
  - b) Establishing an ongoing drug-free awareness program to inform employees about:
    - (1) The dangers of drug abuse in the workplace;
    - (2) The grantee's policy of maintaining a drug-free workplace;
    - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
    - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
  - c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
  - d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will:
    - (1) Abide by the terms of the statement; and
    - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
  - e) Notifying HUD in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number (s) of each affected grant;
  - f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted:
    - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

---

Signature

Date

Printed Name



**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY  
CERTIFICATION REGARDING DRUG FREE WORKPLACE REQUIREMENTS**

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- (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
  - g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a),(b),(c),(d),(e), and (f).
- B. The Grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant.

Place of performance (street, address, city, county, state, zip code)

By: \_\_\_\_\_  
General Contractor

\_\_\_\_\_  
ATTEST



## CERTIFICATIONS

I, \_\_\_\_\_, certify that I am the  
 (Name of Signatory or Officer of Contractor)  
 \_\_\_\_\_, of the Corporation  
 (Title)  
 named as "Contractor" herein, that \_\_\_\_\_,  
 (Name of Signatory)  
 who signed the Contract on behalf of the Contractor, was then \_\_\_\_\_  
 (Title)  
 of said Corporation; that said Contract was duly signed for and in behalf of said Corporation by authority of its governing  
 body, and is within the scope of its corporate powers.

(Corporate Seal)

\_\_\_\_\_  
 \_\_\_\_\_

I HEREBY CERTIFY that to the best of my knowledge and belief, based upon observation and inquiry,  
 \_\_\_\_\_ who signed this Contract for the  
 (Name of Signatory)  
 \_\_\_\_\_, had the authority to execute the  
 same,  
 (Name of Contractor)

and is the individual who signs similar Contracts on behalf of this Corporation and the public generally.

\_\_\_\_\_  
John N. Hill, Executive Director

(This last certification must be made by the person who signed the Contract for the Southern Nevada Regional Housing Authority.)



## HUD INFORMATION BULLETIN 90-23

Page 1 of 2

### 1. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

- a. The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.
- b. In the event of any claim or suit against the SNRHA on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the SNRHA, when requested by the Contracting Officer, all evidence and information in possession of the contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the SNRHA except where the contractor has agreed to indemnify the SNRHA.
- c. The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architects-engineer subcontracts) and those for material, expected to exceed the Small Purchases threshold.

### 2. CLEAN AIR AND WATER CERTIFICATION

The Contractor certifies that:

- a. Any facility to be used in the performance of this proposed contract is \_\_\_\_\_ / is not \_\_\_\_\_ listed on the Environmental Protection Agency List of Violating Facilities;
- b. The Offeror will immediately notify the Contracting Officer, before award, of the receipt of any communication for the Administrator, or a designee, or the Environmental Protection Agency, indicating that any facility that the Offeror proposed to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and
- c. The Contractor will include a certification substantially the same as this certification, including this paragraph (c) in every nonexempt subcontract.

### 3. CLEAN AIR AND WATER

"Air Act," as used in this clause, means the Clean Air Act (42 U.S.C. 7401 et seq.).

"Clean Air standards," as used in this clause, means:

- (1) Any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, work practices, or other requirements combined in, issued under, or otherwise adopted under the Air Act or Executive Order 11738.
- (2) An applicable implementation plan as described in Section 1109d of the Air Act (41 U.S.C. 7401d)
- (3) An approved implementation procedure or plan under section 111(c) or section 111(d) of the Air Act (42 U.S.C. 7411(c) or (d)); or
- (4) An approved implementation procedure under section 1129(d) of the Air Act (42 U.S.C. 7412(d))

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Signature

Date

Printed Name



## HUD INFORMATION BULLETIN 90-23

Page 2 of 2

"Clean water standards," as used in this clause, means any enforceable limitation, control, condition, prohibition, standard, or other requirement promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C.1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317)

"Compliance," as used in this clause, means compliance with:

- (1) Clean air or water standards; or
- (2) A schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency, or an air or water pollution control agency under the requirements of the Air Act or Water Act and related regulations.

"Facility," as used in this clause, means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by a Contractor or subcontract, used in the performance of a contract or subcontract. When a location or site shall be deemed a facility except when the Administrator, or a designee, or the Environmental Protection Agency, determines that independent facilities are co-located in one geographical area.

"Water Act," as used in this clause, means Clean Water Act (33 U.S.C. 1251 et seq.).

b. The Contractor agrees:

- (1) To comply with all the requirements of section 114 of the Clean Air Act (42 U.S.C. 7414) and section 308 of the Clean Water Act (33 U.S.C. 1318) relating to inspection, monitoring, entry, reports, and information, as well as other requirement specified in section 114 and section 308 of the Air Act and the Water Act, and all regulations and guidelines issued to implement those acts before the award of this contract;
- (2) That no portion of the work as required by this prime contract will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this contract was awarded unless and until the EPA eliminates the name of the facility from the listing;
- (3) To use best efforts to comply with clean air standards and clean water standards at the facility in which the contract is being performed; and
- (4) To insert the substance of this clause into any nonexempt subcontract, including this subparagraph(b)(4).

#### 4. ENERGY POLICY AND CONSERVATION ACT

The Contractor must meet the mandatory energy efficiency standards as required by the Energy Policy and Conservation Act (Pub.L.94-16). The "Covered product" shall meet the highest energy efficiency requirements in accordance with industry performance standards. "Covered product" means a consumer product such as central air conditions, freezers, furnaces, and water heaters. Copies of standards can be obtained from the list identified in the SNRHA's project manual, dated December 1989, page 01090-4 under the trade association names and titles section.

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Signature

Date

Printed Name



## SPECIAL CONDITIONS

### 1. PROJECT SITE(S)

- (1) **BIEGGER ESTATES – 5701 MISSOURI AVENUE, LAS VEGAS, NV. 89122**

### 2. TIME FOR COMPLETION

- A. The total project shall be completed within **120 calendar days** and in accordance with approved construction schedule.
- B. Completion shall be further defined as "Substantial Completion" of the work in progress to include but not limited to:
1. All **final inspections** and **Certificate of Occupancy** Inspections (if applicable) are approved by City/County Building Officials, Water District, Sanitation District, Fire Department, Public Work and/or State of Nevada **as required and by any other agency having jurisdiction over the project.**
  2. Minor punch-list items.
  3. If the work does not require a permit from a local jurisdiction, only **minor punch-list items** will be considered for work remaining. Minor punch-list items shall be defined as: adjusting components, touch up paint, minor clean-up, not to include **hauling debris away from the site**, etc.
- C. **When a project is declared "Substantially Completed,"** the only work left to complete will be **minor punch-list items.**
- D. The contractor shall notify the Housing Authority in writing when the job is considered substantially complete and the requirements in **item 2.B. of this document** have been met. Lack of written notification will result in the accrual of contract time until written notice is received.
- E. The Housing Authority must have the concurrence of the Engineer/Professional of Record before the job is considered "Substantially Complete."
- F. Final payment application (10% retention) can not be released until the punch-list has been completed and all close-out documents have been received and approved by the Housing Authority.

### 3. LIQUIDATION DAMAGES

As actual damages for any delay in completion are impossible to determine, the Contractor and his sureties shall be liable for and shall pay to the SNRHA, **the sum of \$100 per dwelling unit per day in addition to \$100 per non-dwelling unit per day in addition to \$100 per site per day**, as fixed, agreed and liquidated damages for each calendar day of delay until the work is completed and accepted.

### 4. COMMUNICATIONS

- (a) All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.
- (b) Any notice to or demand upon the contractor shall be sufficiently given if delivered at the office of the contractor stated on the signature page of the Contract or at such other office as he may from time to time designate in writing to the SNRHA or deposited in the United States mail in a sealed postage-prepaid envelope, or if delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.





## SPECIAL CONDITIONS

- (c) All papers required to be delivered to the SNRHA or architect shall, unless otherwise specified in writing to the contractor, be delivered to the SNRHA and any notice to or demand upon the SNRHA or architect shall be mailed in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to the SNRHA at such address, or to such other representatives of the SNRHA or to such other address as the SNRHA may subsequently specify in writing to the Contractor for such purpose.
- (d) Any such notice shall be deemed to have been given as of the time of actual delivery; or, in the case of mailing, when the same should have been received in due course of post; or, in case of telegrams, at the time of actual receipt.

### 5. JOB OFFICES

- (a) The Contractor must designate an area to serve the posting requirements of this contract. A board (4 X 8) must be in plain view in a well-trafficked area at each site. On this board will be posted EEO and wage information in compliance with the General Conditions of this contract.
- (b) For all jobs over \$500,000, the Contractor shall furnish and maintain, during construction of the project, adequate facilities at the site to be designated by the SNRHA for the use of the SNRHA and the Architect, as follows: Development/Modernization Director will state the need.
- (c) The Job Office shall include office space of approximately 12' X 12' with light, heat, cold water, toilet facilities, janitor's service, local telephone, plan tables and plan racks, a desk, chair and one four-drawer file cabinet. The Contractor may, at his option, furnish a Job Office trailer that specifically has been designed for that purpose. The trailer, if used, shall be subject to approval by the SNRHA.
- (d) The Contractor and his subcontractors may maintain such office and storage facilities on the site as may be necessary for the proper conduct of the work. These shall be located so as to cause no interference with any work to be performed on the site. The Architect shall be consulted with regard to locations.
- (e) Upon completion of the project, or as directed by the SNRHA or Engineer, the Contractor shall remove all such temporary structures and facilities from the site, same to become his property, and leave the premises in the condition required by the Contractor.

### 6. MINIMUM RATES OF PAY

A schedule of the minimum rates of pay applicable to this Contract is attached.

### 7. EQUIPMENT FURNISHED BY OTHERS

- (a) The following equipment will be furnished by others but installed by the Contractor:  
not applicable
- (b) The Contractor shall, at his expense and risk, unload and install equipment, and do any necessary hauling to the places for installation. The Contractor shall furnish the SNRHA with a schedule of his need for equipment sufficiently of such need to enable the SNRHA to obtain delivery under the procurement contracts.



## **SPECIAL CONDITIONS**

- (c) Where the type of equipment requires rough-in dimensions, the Engineer or SNRHA will furnish them to the Contractor as soon as available.
- (d) When equipment arrives at the delivery point, the Contractor shall promptly unload and transfer it to the project site, unless otherwise permitted or directed. The equipment shall not be unloaded except in the presence of a representative of the SNRHA with whom the Contractor shall jointly determine what, if any, damage has occurred in transit, and the responsibility therefore. Turnover of the equipment to the Contractor shall then be formalized by means of a transfer receipt, executed in triplicate, signed by the representatives of the Contractor and the SNRHA. This document shall show all particulars of the shipment it covers, the number and condition of the items turned over to the Contractor shall be fully responsible for the equipment.
- (e) The Contractor shall inspect all equipment items for latent defects or concealed damage and for shortages, and immediately report all such discrepancies to the SNRHA so that correction or replacement can be obtained.
- (f) The provision to "install" as used in paragraph 7.b. above, covers all operations and materials in connection with this equipment necessary to (1) distribute; (2) uncrate; (3) assemble as may be normally necessary; (4) place in permanent position; (5) connect up; and (6) clean up.
- (g) The Contractor shall deliver all such equipment in whole and satisfactory operating condition. He shall be responsible for actions and costs applicable to final testing, adjusting, and checking for proper performance.

### 8. PERFORMANCE AND PAYMENT BONDS

The company providing the required performance and payment bonds must be listed in U.S. Treasury Circular No. 570 as a surety approved to issue bonds securing Government contracts in the State of Nevada.



## ADDITIONAL CLAUSES AND REQUIREMENTS

1. Contract Change Procedures:

a. **Modifications:**

Changes in the work may be accomplished after execution of the contract for construction, if approved by the SNRHA and provided in the Agreement Between Owner and Contractor, and without invalidating the Contract for construction, by Supplemental Instruction or by Change Order, subject to the limitations stated in this Section and elsewhere in the Contract documents.

(1) A **Modification** is a:

(1.a.) **Supplemental Instruction:** Is an order for a minor change in the work issued by the Architect/Professional, involving no changes in the contract amount or contract time, and or a

(1.b.) **Change Order:** Is a written instrument prepared by the Owner and signed by the Owner, contractor and Architect/Professional, stating their agreement upon a change in the work, which results in a change in the Contract time and/or Contract amount.

(2) Changes in the work shall be performed under applicable provisions of the Contract documents and the Contractor shall proceed promptly, unless otherwise provided in the Supplemental Instruction or Change Order.

(3) If the unit prices are stated in the Contract documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a proposed Change Order that application of such unit prices to quantities or work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

(4) The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract sum shall be actual net cost as confirmed by the Owner.

b. **Supplemental Instructions:**

The Architect/Professional has the authority, with the approval of the Owner, to order minor changes in the work not involving adjustment in the Contract sum or extension of the Contract time and not inconsistent with the intent of the Contract documents. Such changes shall be affected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

c. **Changes Orders:**

(1) **Change Order Request:** The Architect/Professional may request a Change Order Request (COR) from the Contractor, which includes a detailed description of a proposed change in the work, with or without supplementary or revised drawings and specifications. Within seven (7) calendar days of the request, the Contractor shall submit the COR to the Architect/Professional, with a statement describing the reasons for the change and the effect on the Contract amount and Contract time, with full documentation. The Contractors COR will include a description of the effect on work separate or other contractors. After review, the Architect/Professional will submit the COR to the Owner, with recommendations. If necessary, the Change Orders costs will be negotiated between the Contractor and Owner, prior to final approval.

(2) **Change Order:** When the Owner and Contractor agree with the adjustments in the Contract amount and Contract time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded in the Change Order prepared by the Owner and executed by all parties.



- (3) **Change Order Procedures:** The Contractor will submit proposals and/or billings for materials and/or labor for all additional work in strict conformance with all provisions, rates and requirements as set forth in the Prevailing Wage Rates outlined in the Construction Contract Documents. The Contractor will submit proposals and/or billings for materials and/or labor with charges limited to those set forth below:

(3.1) **Materials:**

- a. The cost of products or materials to the Contractor or Subcontractor less any applicable trade discount shall be subject to mark-up for overhead and profit, of ten percent (10%).
- b. The Owner reserves the right to request copies of any or all invoices or contracts, including those from the originating suppliers, subcontractors or manufacturers.
- c. No overhead and profit will be allowed on taxes.

(3.2) **Labor:**

- a. The General Contractor will be allowed to add a maximum of fifteen percent (15%) overhead and profit in the Change Order labor cost.
- b. Contractor and Subcontractor labor costs shall be based on current (at time of advertising for bid) prevailing wages rates as approved by the Department of Housing and Urban Development, Labor Relations Department.

- (3.3) No additional overhead and profit will be allowed for omitting work. When both additions and credits covering related work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.

- (3.4) Any change order submitted that does not meet the above requirements will not be considered by the SNRHA.

- d. **Execution of change orders:** A Change Order will be fully executed by the Owner after the document is signed by the Contractor and the Architect/Professional.

- (1) Pending full execution of change order, the Contractor may included approved amounts in the Applications for Payment.

2. Claims for Adjustments and Disputes:

- a. Any controversy or claim, excepting artistic effect as generally accepted in the industry, arising out of or relating to the bid process or the performance of a contract, which cannot be resolved by mutual agreement or the protest procedures (including administrative appeal) contained herein, shall, pursuant to NRS 338.150, be settled by arbitration as administered by the Nevada Arbitration Association, at Las Vegas, Nevada, as follows:

- (1) If the value of the protest, dispute, intended award or contract is less than \$50,000, the dispute shall be settled according to the STREAMLINED ARBITRATION RULES of the Nevada Arbitration Association.

- (2) If the value of the protest, dispute, intended award or contract is more than \$50,000, the dispute shall be settled according to the CONSTRUCTION, COMMERCIAL AND VOLUNTARY ARBITRATION RULES of the Nevada Arbitration Association. Judgment upon the award rendered by; the arbitrators may be entered into any court having jurisdiction thereof.



- b. In the event that any controversy or claim arising out of or relating to the performance of the bid becomes the subject of arbitration, the Southern Nevada Regional Housing Authority (SNRHA) shall have the right, at its option, to join or bring in any additional party to the arbitration proceeding, and the bidder hereby irrevocably consents and agrees to such joinder.
- c. In the event that the SNRHA is named a party to any arbitration action arising out of, or resulting from the purchase and/or delivery of the services/items specified in this bid, the bidder hereby agrees, at the request of the SNRHA, to be joined as a party to the arbitration proceeding and to be bound by any decision resulting from arbitration.
- d. None of the time provisions imposed apply to the joinder rights provided herein in such a way as to preclude the SNRHA from joining the bidder as a party to any arbitration proceeding in which it is named and which arises out of, or results from, the purchase and/or delivery of the services/items specified in this bid.
- e. In order for the bidder to be able to arbitrate any claim, dispute or other matter in question between the parties, written notice must be given to the SNRHA within thirty (30) calendar days after the claim, dispute or other matter arises. In order for the SNRHA to be able to arbitrate any claim, dispute or other matter in question between the parties, written notice must be given to the bidder within sixty (60) calendar days after the claim, dispute or other matter arises. The purpose of such notification is to place the other party on notice so that proper measures can be taken to properly defend against such claim, dispute or other matter, and the failure to give such notice shall preclude the party desiring arbitration from subsequently arbitrating that particular claim, dispute or other matter.
- f. The filing of this written notice shall preserve that party's right to arbitrate, but shall not obligate the party to proceed with arbitration. In the event that either party desires to proceed with the arbitration of a claim, dispute, or other matter with respect to which such notice has been given, a written demand for arbitration shall be filed in writing with the other party within sixty (60) calendar days after the ending of the contract, and failure to make such demand shall forever bar such claim from being arbitrated.
- g. In the event of arbitration, it is agreed by the parties that all means of discovery, including but not limited to depositions and interrogatories, will be afforded to the parties involved in the arbitration, and the appointed arbitrator(s) shall have all authority to impose sanctions against either party for failing to comply with the rules for discovery provided under the Nevada Rules of Civil Procedure.
- h. Within ten (10) calendar days after written receipt by either party of the other's intention to arbitrate, both parties shall each select an arbitrator of their own choosing which shall be uncontestable by the other party.
- i. The two-(2) uncontestable arbitrators shall attempt to select a third arbitrator who shall be as neutral as unmanly possible. The third arbitrator should not be actively involved in an industry directly involved in the items, materials or services to be purchased under this contract. The background of the third arbitrator should be of broad general business, preferably in a senior management position.
- j. If a third suitable arbitrator cannot be found by the two uncontestable arbitrators within fifteen (15) calendar days after the first being selected, then either party may, in writing, make application to the Eighth Judicial District Court in accordance with NRS 38.005 for an appointment of the third arbitrator.
- k. Upon appointment of the third arbitrator, all three (3) arbitrators shall commence within five (5) calendar days after that appointment to commence reaching a determination of the dispute, under the applicable industry rules of the American Arbitration Association.
- l. The award rendered by the arbitrator(s) shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.
- m. If the contract is still in force, the contractor shall carry the work and maintain progress during any arbitration, court proceedings or other disputes excluding those contained in this section, unless otherwise mutually agreed upon in writing. The arbitration shall be conducted in accordance with all Bid Documents.



3. Default:

The SNRHA may, subject to the provisions outlined below, terminate the whole or any part of the contract in any one of the following circumstances, by written thirty-(30) calendar day's notice of default to the contractor:

- (1) If the contractor fails to perform the service(s) within the time specified herein or any extension thereof; or
- (2) If the contractor fails to perform any of the provisions of the contract, or so fails to make progress as to endanger performance of the contract in accordance with its terms, and in either of these two circumstances does not cure such failure within the requirements set forth in the Bid Documents; or
- (3) In the event the contractor is unable to tender performance on the date, time, and location specified by the SNRHA, the contractor agrees to pay the SNRHA an amount equal to the actual costs incurred by the SNRHA in replacing the contractor's services. Indemnification shall be made for the time the contractor fails to perform under the terms and conditions of the contract. In addition to the above payments, damages arising from the contractor's failure to perform will apply in all cases except where failure to perform arises out of causes beyond the control and without fault or negligence of the contractor.
- (4) Except with the respect to defaults of the subcontractors, the contractor shall not be liable for any excess costs if the failure to perform the contract arises out of causes beyond the control without the fault or negligence of the contractor. Such causes may include, but are not limited to, acts of God or of the public enemy, acts of the SNRHA, in either its sovereign or contractual capacity, acts of the Federal, State or local governments in their sovereign capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault of the contractor.
- (5) If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both the contractor and subcontractor, and without the negligence of either of them, the contractor shall both be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractors were obtainable from other sources in sufficient time to permit the contractor to meet the required delivery and/or installation schedule.

4. Termination For Convenience of the SNRHA:

- a. The performance of work under the contract may be terminated by the SNRHA in whole or in part from time to time, upon at least a thirty (30) calendar day written notice to the contractor or successful bidder when such action is deemed by the SNRHA to be in its best interest. Termination of work shall be affected by delivery to the contractor of a Notice of Termination specifying the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective.
- b. After receipt of the Notice of Termination and except as otherwise directed by the SNRHA, the contractor shall:
  - (1) Stop work under the contract on the date and to the extent specified in the Notice of Termination.
  - (2) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination.
- c. After receipt of a Notice of Termination, contractor shall submit to the SNRHA, in the form and with the certification as may be prescribed by the SNRHA, a termination claim and invoice.



- d. Such claim and invoice shall be submitted promptly, but not later than thirty (30) days from the effective date of termination. Upon failure of contractor to submit his/her termination claim and invoice within the time allowed, the SNRHA may determine on the basis of information available to the SNRHA, the amount, if any, due the contractor in respect to the termination, and such determination shall be final. After such determination is made, the SNRHA shall pay the contractor the amount determined.
  - e. The contractor, for a period of five (5) years after the final settlement under the contract, shall make available to the SNRHA, at all reasonable times, at the office of the contractor, all his books, records, documents, or other evidence bearing on the costs and expenses of the contractor, under the contract in respect to the termination of the work.
5. Notification:
- a. Notices to the contractor shall be addressed to his/her place of business as designated on the Form of Bid, or such other place as may be designated in writing by the contractor.
  - b. Unless otherwise specified in the Technical Specifications, notices to the SNRHA shall be addressed to:  
Southern Nevada Regional Housing Authority  
Ms. Amparo Gamazo  
Development/Modernization Director  
340 N. 11<sup>th</sup> Street, Suite 150  
Las Vegas, NV 89101-3611  
Telephone: (702) 922-6060 or (702) 922-6071 ■ Fax: (702) 922-6080 ■ TDD: (702) 387-1898
  - c. In the event of suspension or termination of the contract, the notices may also be given by the SNRHA upon personal delivery to any person whose action or knowledge of such suspension or termination would be sufficient notice to the contractor.
6. Delays and Time Extensions: The contractor is responsible for completing the work within the time established in the contract. The SNRHA is responsible for monitoring the contractor to ensure that work will be completed as scheduled. The SNRHA may authorize justifiable time extensions without prior HUD review and approval, unless the SNRHA is subject to prior HUD approval under a HUD-established threshold that is less than the requested amount. The "Default" clause on the forms HUD-53700, 5370-C and 5370-EZ prescribe the conditions under which a time extension may be granted. The basic principle is that delays arising from unforeseeable causes beyond the control and without the fault or negligence of the contractor may be grounds for allowing a time extension. Such time extensions should be formalized in a written modification to the contract.
7. Time Extension Criteria: In order to be considered for approval by the SNRHA, requests for time extensions should meet the following criteria:
- a. The contractor should submit a written notice to the SNRHA within (10) calendar days of the start of any delay;
  - b. The severity and extent of adverse weather could not have been reasonably foreseen by the contractor (normal seasonal levels of rain, snow, cold or heat should have been considered by the contractor); and
  - c. The cause of the delay was beyond the contractor's control.
8. Documentation: Immediately upon receipt of the contractor's notification of delay or request for time extension, the SNRHA shall send a letter of acknowledgement to the contractor. The letter will indicate that either: (1) immediate consideration will be given to the contractor's request or (2) the actual delay in work is difficult to determine and consideration will be given to the contractor's request upon completion of work.



SNRHA staff will review the records to ensure that the information provided by the contractor is accurate and complete. This will allow the Contracting Officer to determine the cause of the delay and the extent that it was within the Contractor's control. It will also determine if the request meets the contract's criteria for approving or rejecting the request for a time extension. Two criterion for approval of time extension request follow:

- a. The contractor's request, as documented by the SNRHA "finding of fact," meets the requirements stated in "Documentation" above, and
- b. The additional time requested by the contractor is reasonable based on the nature and duration of the delay.

9. Liquidated Damages for Failure to Perform:

- a. The SNRHA depends upon the availability and functionality of the services and/or materials as outlined in the Bid Documents for the purposes of conducting necessary business.
- b. It is virtually impossible to accurately define the exact amount of financial loss the SNRHA would incur if the services and/or materials as outlined in the Bid Documents become unavailable for use. However, the SNRHA should not be subject to financial indebtedness if in fact the services and/or materials as outlined in the bid are not provided.
- c. Criteria for the contractor's failure to perform and the liquidated damages to be addressed are indicated below:
  - (1) Unavailability of the services and/or materials as defined as not being delivered for the SNRHA business use within the time the contractor promises the services and/or materials will be available.
  - (2) Acts of God is the only reason that may excuse the contractor from being assessed liquidated damages.
  - (3) Unless otherwise identified within the Bid documents, the amount of liquidated damages to be assessed shall be **the sum of \$100.00 per dwelling unit per day, \$100.00 per non-dwelling unit per day and \$100.00 per site per day**. The final amount shall be deducted from the contractor's monthly billing for services and/or materials up to a maximum of the total monthly amount of service. If billing is not handled on a monthly basis, the amount due to the SNRHA may be subtracted from any billing invoice submitted to the SNRHA for payment by the contractor.

10. Joinder Privileges - N.R.S. 332:

- a. Pursuant to Nevada Revised Statute 332.195, the State of Nevada and/or any political subdivision within the State of Nevada may be granted the privilege of joining the awarded contract, at the option of the successful bidder ONLY. If the successful bidder so grants such a privilege, the terms and conditions of the Bid Documents may be passed on to the joining political subdivision by the successful bidder.
- b. The successful bidder shall retain the unilateral right to allow or disallow any political subdivision the privilege of joining the awarded contract. In the event the successful bidder allows another political subdivision to joint the SNRHA contract, it is expressly understood that the SNRHA shall in no way be liable for the joining political subdivision obligations to the successful bidder in any manner whatsoever.

11. Billing Method:

Billings for services and/or materials awarded under the provisions of the Bid Documents will commence on the day on which such services and/or materials are activated and used by the SNRHA. Services shall be provided and billed as instructed in the Technical Specifications.





12. Disputed Billings (Charges):

In the event that the SNRHA disputes any portion of the billing(s), the SNRHA shall obey the undisputed portion of such billing and initiate the dispute-resolving procedures, as follows:

- (1) Should the SNRHA dispute a portion of any of its billing(s), its representative shall, within thirty (30) calendar days after the SNRHA's receipt of such billing, informally notify the contractor's designated representative that such dispute exists. Such dispute shall be resolved in accordance with the contractor's customary informal dispute resolution process.
- (2) If such dispute cannot be resolved by the contractor's customary informal dispute resolution process, within ten (10) calendar days after such notification is given, the SNRHA's Purchasing Agent and the contractor's local Manager shall meet to discuss the matter.
- (3) If the SNRHA Purchasing Agent and the contractor's local Manager are unable to resolve the dispute through such discussion within ten (10) calendar days, the SNRHA shall, within ten (10) calendar days thereafter, either:
  - (a) Pay the disputed charges and reserve the right to submit the matter to arbitration, as called for under Section D., Paragraph 1., Claims For Adjustments and Disputes.
  - (b) Not pay the disputed charge and submit the matter to arbitration, as referred to in the preceding paragraph above.
- (4) As stated previously, the decision from arbitration will be binding upon both parties. If the decision is adverse to the SNRHA, the SNRHA shall pay the amount, which is ordered, to the contractor within ten (10) calendar days after the SNRHA's receipt of the decision. If the decision is in favor of the SNRHA, the contractor will either; (a) clear the amount which is ordered from the SNRHA account, or (b) repay to the SNRHA the amount ordered; either option within ten (10) calendar days after the contractor's receipt of decision.

13. Non-Escalation:

Unless otherwise specified in the Technical Specifications, the unit prices reflected on the Form of Bid shall remain firm with NO provision for price increases during the term of the contract.

14. Funding Restrictions and Order Quantities:

The SNRHA reserves the right to reduce or increase estimated or actual quantities in whatever amount necessary without prejudice or liability to the SNRHA, if:

- (1) Funding is not available.
- (2) Legal restrictions are placed upon the expenditure of monies for this category of service or supplies; or,
- (3) The SNRHA's requirements in good faith change after award of the contract.

15. Licensing, SIIS, Insurance Permits:

- a. At the time of bid award, all prospective bidders shall be duly licensed in accordance with all applicable statutes/codes of the State of Nevada and the City and County having jurisdiction.
- b. A City and County business license allowing the prospective bidder to conduct and/or supply the services and/or materials described in these Bid Documents shall also be required of all prospective bidders at the time of bid award (proof of pending applications is acceptable)
- c. Should the successful bidder intend to sublet portions of the work (if expressly allowed by the SNRHA), it shall be the responsibility of the successful bidder to insure that all sub-bidders also be properly licensed in accordance with the aforesaid State statutes and City codes.



- d. At the time of bid submittal, prospective bidders utilizing employees shall be duly registered with the State of Nevada Industrial Insurance System (SIIS) and the State of Nevada Employment Security Department and shall be current in their payments and coverage for both. Award cannot be made to any apparent successful bidder unless he/she meets this requirement. It shall be the responsibility of the successful bidder to ensure that all sub-bidders also meet this requirement.

**NOTE:** Copies of the above named documents (City and County business license; State of Nevada SIIS and State Employment Certificates of Coverage; and other local, State, County or Federal licenses or certifications as may be required for this bid) will be required from the successful bidder before award can be made. Failure to submit these documents shall cause that bidder not to be considered for Award.

- e. Prior to contract approval and up to project acceptance by the owner, the successful bidder shall furnish at its own expense to the SNRHA a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) insurance on all work in place and/or materials stored at the building sites(s). The SNRHA's existing fire and extended coverage policy may not be endorsed for any work under this contract.

As detailed with in the Conditions/Specifications, insurance coverage that may include all or part of the following: Comprehensive General Liability Insurance to include Premises-Operations, Products/Complete Operations, Blank Contractual Liability with Extended Liability Coverage, Broad Form Property Damage. Insurance coverage from the firm's liability insurance carrier(s) indicating the Housing Authority as an "Additional Insured," (minimum of \$1,000,000. each occurrence, general aggregate minimum limit of \$2,000,000.); General Liability Fire Damage insurance of at least \$50,000. Medical pay insurance reflecting a minimum of \$5,000. Firm must submit insurance certificate addressed to the SNRHA for their Worker's Compensation Insurance (NOTE: not required from firms that have only (1) employee and will not employ any other employee to work on the SNRHA property). **Please note that all insurance coverage should have a \$1,000.00 deductible.**

- (1) Automobile Liability Insurance combined single limit of \$1,000,000.00. **All insurance coverage shall have a \$1,000.00 deductible.**

Before the Award of Bid, the successful bidder shall provide to the SNRHA Dev/Mod Director, insurance certificates addressed to the SNRHA certifying (1) and (2) above. Such binders insurance will afford at least sixty (60) days written notice reference cancellation to the SNRHA Dev/Mod Director, at Post Office Box 1897, Las Vegas, Nevada 89125. Failure by the successful bidder to submit such documents as instructed shall, at the discretion of the SNRHA Dev/Mod Director, allow that bidder to be eliminated from consideration for the award of Bid and allow the SNRHA to make Award to the next lowest bidder, as long as he/she are able to comply with the Specifications and requirements of the Bid.

- f. Unless otherwise stated in the Bid Documents, all local, City or County, State or Federal permits which may be required by this bid, whether or not they are known to either the SNRHA or the bidders at the time of Bid Opening or Bid Award, shall be the sole responsibility to the successful bidder, and any bid sums submitted on the Form of Bid shall reflect all costs required by the successful bidder to procure and provide such necessary permits.

16. Taxes:

All persons doing business with the SNRHA should be aware that the SNRHA is exempt from paying Nevada State Sales and Use Taxes and Federal Excise Taxes. **This tax exemption status is not extended for use by professional or contractors.** A letter of Tax Exemption will be provided to the successful bidder upon request.



17. State Statutes:

Prospective bidders are advised they must observe all State and Federal statutes regarding minimum wage rates, NRS 338, equal employment opportunity, Copeland Anti-Kickback Act, etc. Each and every provision of Chapter 332 of the NRS and other laws required to be inserted in these Bid Documents shall be deemed to be inserted herein and finalized contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall be physically amended to make such insertion or correction

18. Government Standards:

It is the responsibility of the prospective bidder that all items and services submitted for bid conform to all local, State, and Federal law concerning safety (OSHA and NOSHA) and environmental control (EPA and Clark County Pollution regulations). The successful bidder shall be responsible for all costs incurred for compliance with these possible ordinances, requirements or laws. No time extensions shall be granted or financial consideration given to the successful bidder for time or monies lost due to violations of these regulations.

19. Freight On Bill and Delivery:

- a. All bid prices submitted shall reflect the cost of delivering the bidded services and/or materials to the location(s) specified within the Bid Documents or on the contract.
- b. The successful bidder agrees to deliver to the designated location(s) on or before the date as specified in the finalized contract. Failure to deliver on or before the specified date constitutes an event of default by the successful bidder. Upon default, the successful bidder agrees that the SNRHA may, at its option, rescind the finalized contract under the DEFAULT CLAUSE of these Instructions and seek compensatory damages as provided by law.

20. Backorders:

The SNRHA Development/Modernization Coordinator or his/her designated alternate, must be notified within five (5) calendar days of all backordered materials and/or incomplete services, and the estimated date delivery and receipt is to be made. Unless otherwise stipulated in the contract, any order that will take over a maximum of fourteen (14) days past the original agreed upon delivery date may, at the option of the SNRHA, be canceled and ordered from another source, if, in the opinion of the SNRHA Development/Modernization Director, it is in the best interest of the SNRHA to do so.

21. Contract Extension:

Unless otherwise stated within the Bid Documents, the SNRHA shall retain the right to, at the end of the original contract, extend the contract up to a maximum of the length of the original contract (i.e.: 1 year original contract = 1-year possible maximum extension of same contract). This shall be possible only if the successful bidder agrees not to raise any individual or total bid sums, unless the original contract sums were allowed to change based on a Price Adjustment Provision contained in the original contract; and that no other changes may be made to the original agreement, except at the SNRHA's discretion.

22. Literature:

Prospective bidders may be required to furnish, either as part of their sealed bid or at another specified time during the bid, specification sheets, brochures, product literature, or other such materials which contain sufficient data to enable the SNRHA staff to properly evaluate the items being submitted for bid consideration. Failure to enclose such data, if required, may cause rejection of that bid without consideration. If the prospective bidder has a question as to whether or not such materials should be submitted, it shall be their responsibility to make inquiry of the SNRHA Development/Modernization Director.



23. Training:

If requested by the SNRHA, the successful bidder shall provide a qualified factory-trained instructor for up to eight (8) hours or more of theory and practical instruction. The training shall be equivalent to that provided to the manufacturer's field service personnel. **NOTE:** This paragraph applies mainly to bids concerning machinery and equipment; however, shorter instruction periods may be required for other items. The required instruction time may be specified in the Technical Specifications.

24. Instruction Manuals:

If requested by the SNRHA, the successful bidder shall furnish, at no additional cost to the SNRHA, two (2) complete instruction manuals and parts breakdowns upon delivery of the bid items.

25. Communication:

If during the period of the contract it is necessary that the SNRHA place toll or long distance telephone calls or telegrams in connection therewith (for complaints, adjustments, shortages, failure to deliver, etc.), it is understood that the successful bidder will bear the charge or expense for all such calls/telegrams.

26. Work On Authority Property:

If the successful bidder's work under this bid involves operations by the successful bidder on SNRHA premises, the successful bidder shall take all necessary precautions to prevent the occurrence of any injury to persons or property during the progress of such work, and except to the extent that any such injury is caused solely and directly by the SNRHA's negligence, shall indemnify the SNRHA, and their officers, agents, servants and employees against all loss which may result in any way from any act or omission of the successful bidder, its agents, employees, or subcontractors; and the successful bidder shall maintain such public liability, property damage and employer's liability and compensation insurance as will protect the SNRHA from said risks and from any claims, any applicable workmen's compensation and occupational disease acts.

27. Estimated Quantities:

Unless otherwise indicated the quantities reflected on the Bid Documents, to the best of the SNRHA's knowledge, reflect projected consumption date. These quantities are not meant to infer or imply actual consumption figures or quantities that will be purchased by the SNRHA under the finalized contract; but, pursuant to all Bid Documents, these quantities will be used to determine the successful bidder.

28. Record Retention and Inspection:

- a. The successful bidder agrees that the SNRHA or any duly authorized representative shall have access to and the right to examine, audit, excerpt, copy or transcribe any pertinent transaction, activity, time cards, or other records relating to this proposed contract. Such material, including all pertinent costs, accounting, financial records and proprietary data, must be kept and maintained by the contractor in a location within Clark County, Nevada, for a period of five (5) years after completion of this contract unless the SNRHA's written permission is obtained to dispose of said materials prior to this time.
- b. If, at any time during the term of the contract, or at any time after the expiration or termination of the contract, authorized representatives of the SNRHA conduct an audit of the contractor's records regarding the service provided to the SNRHA, and if such audit finds the SNRHA's dollar liability for such service is less than payments made by the SNRHA to the contractor; then the contractor agrees that the difference shall be either; (1) repaid immediately by the contractor to the SNRHA by cash payment, or (2) at the SNRHA's option, credited against any future payment to the contractor.



29. Warranty:

- a. The services/materials provided under this bid shall conform to all information contained within these Bid Documents as well as all applicable Industry Published Technical Specifications, and if one of the above mentioned Specifications contain more stringent requirements than the other, the more stringent requirements shall apply.
- b. Unless otherwise indicated in the Technical Specifications, all materials, workmanship and title shall be guaranteed by the successful bidder to be free of defects for a period of one (1) calendar year from the date of acceptance by the SNRHA.
- c. All freight cost incurred for shipment to and from the contractors designated place of business to correct warranty defects during the warranty period shall be borne by the successful bidder.
- d. The liability of the successful bidder to the SNRHA (except as to title) arising out of the furnishing of the goods and/or services or of its use under the terms of the contract shall not exceed the correcting of the defect(s) in the goods and/or services as provided under the contract, and upon expiration of the warranty period all such liability shall terminate EXCEPT UNDER THE WARRANTY FOR MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

30. Warranty Exclusions Prohibited:

- a. The SNRHA will NOT accept any warranty clause from either the successful bidder or from a manufacturer, which states:
  - (1) That the warranty of merchantability and/or the warranty of fitness for a particular purpose is excluded from the offer to the SNRHA.
  - (2) That the manufacturer's and/or successful bidders warranty is in lieu of all other warranties that are either expressed or implied.
- b. In addition to the above restrictions, the warranty requirements of the Bid Documents shall run from the manufacturer to the SNRHA as well as from the successful bidder to the SNRHA if the goods/services are sold by a distributor or agent.

31. Correction of Warranty Defects:

- a. If required by the Bid Documents, the successful bidder shall, within five (5) calendar days after the Bid Opening and prior to the delivery of the goods and/or services, appoint a firm in the immediate Las Vegas area of his/her own choosing who will be the immediate contact point for the correction of warranty defects.
- b. Unless otherwise stated in the Conditions/Specifications, the local firm shall address and correct any warranty defects within twenty-four (24) hours of notification. Any warranty defect that requires more than twenty-four (24) hours to correct shall require the direct intervention by the successful bidder and must be corrected within ten (10) calendar days after notification by the SNRHA.
- c. Failure to comply with the requirements of the provisions of this provision (No. 27) shall be just cause for the SNRHA declaring the contract in default under the Default Clause of these Instructions, and shall allow the SNRHA to seek remedy at law.

32. Official, Agent and Employees of the SNRHA Not Personally Liable:

It is agreed by and between the parties hereto that in no event shall any official, officer, employee, or agent of the Southern Nevada Regional Housing Authority, in any way be personally liable or responsible for any covenant or agreement herein contained whether expressed or implied, nor for any statement, representation or warranty made herein or in any connection with this agreement.



33. Subcontractors:

Unless otherwise stated within the bid documents, the successful bidder may not use any subcontractors to accomplish any portion of the services described within the Technical Specifications without the prior written permission of the SNRHA's Development/Modernization Coordinator.

34. Salaries and Expenses Relating to the Successful Bidders Employees:

Unless otherwise stated within the Bid Documents, the successful bidder shall pay all salaries and expenses of, and all Federal, Social Security taxes, Federal and State Unemployment taxes, and any similar taxes relating to its employees used in the performance of this contract. The successful bidder further agrees to comply with all Federal, State and local wage and hour laws and all licensing laws applicable to its employees or other personnel furnished under this agreement.

35. Attorney's Fees:

In the event that litigation is commenced by one party hereto against the other in connection with the enforcement of any provision of this agreement, the prevailing party shall be paid by the losing party all court costs and other expenses of such litigation, including attorney's fees, in a reasonable amount, to be determined by the court. The amount so allowed as attorneys' fees shall be taxed to the losing party as costs of the suit, unless prohibited by law.

36. Independent Contractor:

The successful bidder is an independent contractor. Nothing herein shall create any association, agency, partnership or joint venture between the parties hereto and neither shall have any authority to bind the other in any way.

37. Severability:

If any provision of this agreement or any portion or provision hereof applicable to any particular situation or circumstance is held valid, the remainder of this agreement of the remainder of such provision (as the case may be), and the application thereof to other situations or circumstances shall not be affected thereby.

38. Waiver of Breach:

A waiver of either party of any terms or condition of this agreement in any instance shall not be deemed or construed as a waiver of such term of condition for the future, or of any subsequent breach thereof. All remedies, rights, undertakings, obligations, and agreements contained in this agreement shall be cumulative and none of them shall be in limitation of any other remedy, right, obligation or agreement of either party.

39. Time of the Essence:

Time is of the essence under this agreement as to each provision in which time of performance is a factor.

40. Limitation of Liability:

In no event shall the SNRHA be liable to the successful bidder for any indirect, incidental, consequential or exemplary damages.

41. Indemnity:

a. The successful bidder shall protect, indemnify and hold the SNRHA its officers, employees, agents, consulting engineers and other retained consultants harmless from and against any and all claims, damages, losses, suits, actions, decrees, judgments, attorney's fees, court costs and other expenses of any kind or character which the SNRHA, its officers, employees, agents, consulting engineers or other retained consultants may suffer, or which may be sought against, recovered from or obtainable against the SNRHA, its officers, employees, agents, consulting engineers or other retained consultants (i) as a result of, or by reason of, or arising out of, or on account of, or in consequence of the operations of the successful bidder, its subcontractors or agents, or anyone directly or indirectly employed by any subcontractor or agent, in the fulfillment or performance of the terms, conditions or covenants of the contract or agreement, regardless of whether or not the occurrence which gave rise to such claim, damage, loss, suit, action, judgment or expense was caused, in part, by the party indemnified hereunder; or (ii) as a result of, or by reason of, or arising out of, or on account of, or in consequence of, any neglect in safeguarding the work; or (iii) through



the use of unacceptable materials and/or products which may be defective or manufactured, designed or installed so as to give rise to a claim; or (iv) because of any claim or amount recovered under the "Nevada Industrial Insurance Act", or any other law, ordinance, or decree. Any money due the successful bidder under and by virtue of the contract which is considered necessary by the SNRHA for such purpose, may be retained by the SNRHA for its protection; or in case no money is due, its surety may be held until all such claims, damages, losses, suits, actions, decrees, judgments, attorney's fees and court costs and other expenses of any kind or character as aforesaid shall have been settled and suitable evidence to that effect furnished to the SNRHA; provided, however, that money due the successful bidder will not be withheld when the successful bidder produces satisfactory evidence that is adequately protected by public liability and property damage insurance, if required.

- b. In this connection, it is expressly agreed that the successful bidder shall, at its own expense, defend the SNRHA, its officers, employees, agents, consulting engineers and other retained consultants, against any and all claims, suits or actions which may be brought against them, as a result of, or by reason of, or arising out of, or on account of, or in consequence of any act or omission against which the successful bidder shall fail to do so, the SNRHA shall have the right, but not the obligation, to defend the same and to charge all direct and incidental costs of such defense to the successful bidder including attorney's fees and court costs.
- c. Reimbursement to the successful bidder by the SNRHA, in whole or in part, for the costs of protecting traffic shall not serve to relieve the successful bidder of its responsibility as set forth in the Bid Documents.
- d. The successful bidder guarantees the payment of all just claims for materials, supplies and labor, and all other just claims against it or any subcontractor, in connection with the contract.

42. Lobbying Certification:

By proposing to do business with the SNRHA or by doing business with the SNRHA, each bidder certifies that:

- a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the bidder, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement.
- b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the bidder shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- c. The successful bidder shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.
- d. This clause is a material representation of fact upon which reliance was placed when the award was made or entered into. The signing of a contract or acceptance of award certifies compliance with this certification, which is a prerequisite for making or entering into a contract which is imposed by section 1352, Title 31, U.S. code. Any person who fails to file the required certifications shall be subject to civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



43. Bonding:

- a. As may be required by these Instruction or the Specifications, each bidder, successful bidder, of contractor may be required to provide one or more of a variety of bonds. Any bid bonds required must be delivered with the bid submittal. Unless otherwise stated within the Specifications or addenda, all other bonds must be delivered to the SNRHA within ten (10) days of receipt of notice from the SNRHA. If the bidder, successful bidder or contractor fails to deliver such required bond by the tenth calendar day after receipt of notice from the SNRHA, he/she shall pay to the SNRHA the amount of \$250.00 per day as liquidated damages. If the bidder, successful bidder, or contractor does not keep the required bonds or insurance policies in effect or allows such to lapse, he/she shall pay to the SNRHA the amount of \$500.00 per day in liquidated damages. If the Specifications does not require any bond to be submitted, then these Instructions shall not require such bond; however, if the Specifications do require a bond to be submitted this bonding clause shall be in effect.

BRIEF DESCRIPTION OF VARIOUS TYPES OF BONDS THAT MAY BE REQUIRED:

- b. The BID BOND shall guarantee to the SNRHA that the bidder shall enter into a contract to provide the required goods or services at the prices and conditions contained within the bid documents, and shall guarantee that the bidder shall provide a performance bond or other required bond if award is to be made to that bidder. The amount of the bid bond may vary from one bid to another.
- c. The PERFORMANCE BOND shall guarantee to the SNRHA that the successful bidder or contractor shall perform and complete the work as detailed within and required by the bid documents. Unless otherwise stated within the Specifications or addenda, this bond shall be in the amount of 100% of the contract price or value.
- d. The LABOR AND MATERIAL BOND shall guarantee to the SNRHA that the successful bidder or contractor shall pay all labor and materials obligations that he/she incurs as a result of performing the requirements of the bid documents and/or contract.
- e. The GUARANTY BOND shall guarantee to the SNRHA that the successful bidder or contractor shall guarantee for a period of not less than one (1) year that (a) all workmanship provided by his/her firm or any subcontractors used shall be free of defect; and (b) all materials or equipment installed or provided shall be free of fault and shall perform in such a manner as to meet the Specifications and requirements of the bid documents or contract.
- f. Form of Bonds: All bonds submitted to the SNRHA shall be written on the forms supplied by the SNRHA; and no changes or additions may be made to these forms without the written consent of the SNRHA Purchasing Agent. The bidder shall require the attorney-in-fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of his/her power of attorney. Pursuant to NRS 680A.300, any bond prepared by a licensed nonresident agent must be countersigned by a resident agent.

44. Debarment and Suspension.

Contractor agrees, by submitting this bid, to include this clause without modification in all lower tier transactions, solicitations, bids, contracts and subcontracts.

- a. By submitting this bid SNRHA, the contractor hereby certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency. This certification is made pursuant to the regulations implementing Executive Order 12549, Debarment and Suspension, 28 C.F.R., pt. 67 § 67.510, as published as pt. VII of the May 26, 1988, Federal Register (pp. 19610-19211), and any relevant program-specific regulations.





- b. Contractor acknowledges and agrees that, pursuant to Federal Acquisition Regulation (FAR) 9.406-2, the SNRHA has discretion to suspend and/or debar contractor from conducting future business with the SNRHA for contractor's commission of the offenses outlined in FAR 9.406-2, including, but not limited to, violation of any applicable Federal law, commission of fraud, embezzlement and/or theft, receipt of stolen property, sue of inappropriate construction materials, repeated contract violations and recurrent re-inspections. The SNRHA's right to suspend and/or debar contractor is in addition to the SNRHA's right to assess the monetary penalties outlined in Paragraph 44(b)(1).
- (1) Contractor acknowledges and agrees that the SNRHA may assess a monetary penalty for a third, and any subsequent punch-list inspection caused by Contractor's negligence or willful disregard in failing to complete Contractor's scope of work by the initial, or secondary punch-list inspection date assigned by the SNRHA or any other local or state governing body. The penalty for a third, and any subsequent punch-list inspection shall be a \$200 re-inspection appointment fee plus a \$75 per hour services fee plus any overtime fees, if applicable. The monetary penalty shall be paid by Contractor to the SNRHA, or deducted by the SNRHA from the contractor's owed balance under the contract.
45. Section 3: The SNRHA has mandated numerical goals for resident hiring on all construction contracts, service contracts and professional services contracts which contain a labor component. These numerical goals are in compliance with Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u), providing for employment opportunities for small businesses and lower income persons in connection with projects and activities funded by public housing assistance.
- i. The SNRHA has established four (4) ways in which a contractor may fulfill the Section 3 Requirements (refer to Resident Hiring Scale under Attachment A). They are as follows:
- a. Joint venture with a SNRHA resident-owned business. The business must be 51% or more owned by SNRHA Section 3 residents (includes all SNRHA housing programs) and receive a portion of the contract commensurate with the scale requirement outlined in the Section 3 Hiring Scale; or
  - b. Direct hiring of SNRHA's Public Housing residents, Housing Choice Voucher participants, Affordable Housing residents and/or low and very low-income neighborhood residents based on the Section 3 Hiring Scale; or
  - c. Contractor incurs the cost of providing skilled training (State Board certified or similar) for residents in an amount commensurate with the sliding scale set forth in the Section 3 Hiring Scale; or
  - d. Contractor makes a contribution to the SNRHA's Section 3 Job Development Fund to provide assistance to residents to obtain training and employment. The level of contribution must be commensurate with the sliding scale set forth in the Section 3 Hiring Scale.



# SAMPLE

**CONTRACT BETWEEN**  
**THE SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY**  
**AND**  
**CLICK HERE AND TYPE COMPANY**

## INTRODUCTION

This **Click Here and Type** Contract (the “Contract”) by and between the Southern Nevada Regional Housing Authority, a Nevada non-profit corporation (hereinafter “SNRHA”) and **Click Here and Type COMPANY NAME** (hereinafter “the Contractor”) is hereby entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ (the “Effective Date”).

### I.0 Definitions

- I.1 **Invitation For Bids (“IFB”).** A competitive solicitation process conducted by the SNRHA wherein an award is generally made to the responsive and responsible bidder that submits the lowest proposed cost.
- I.2 **Purchasing Manager (“SNRHA PM”).** The SNRHA Purchasing Manager.
- I.3 **Request For Proposals (“RFP”).** A competitive solicitation process conducted by the SNRHA wherein an award is generally made to the top-rated responsive and responsible bidder.
- I.4 **Days.** All references to “days” shall be calendar days; in the case that the last day referenced falls on a Saturday, Sunday or legal holiday, then the period of time shall be automatically extended to include the next work day.
- I.5 **Appendices.** The following documents are included in the Contract as individually noted exhibits and shall be incorporated herein and made a part of this Contract by reference as if fully set forth herein:
  - I.5.1 **Appendix No. A:** form HUD-5370 (11/2006), **HUD General Conditions of the Contract for Construction, Public Housing Programs and any amendments thereto;**
  - I.5.2 **Appendix No. B:** **Section 3 Mandatory Requirements**
  - I.5.3 **Appendix No. C:** form HUD-4230A, **Report of Additional Classification and Rate;**
  - I.5.4 **Appendix No. D:** form HUD-51000 (7/97), **Schedule of Amounts for Contract Payments;**
  - I.5.5 **Appendix No. E:** form HUD-51001, (3/92), **Periodic Estimate of Partial Payment;**
  - I.5.6 **Appendix No. F:** form HUD-51002, (3/92), **Schedule of Change Orders;**
  - I.5.7 **Appendix No. G:** form HUD-51003, (3/92) **Schedule of Materials Stored;**
  - I.5.8 **Appendix No. H:** form HUD-51004, (3/92), **Summary of Materials Stored;**
  - I.5.9 **Appendix No. I:** form SNRHA **Subcontractor/Supplier Final Waiver of Mechanics Lien.**



- 1.6** The following, each of which was either issued by the SNRHA as a part of the competitive solicitation and/or which was completed and returned by the Contractor in response to the solicitation (copies are not included under any of the appendices but are included herein by reference and are included within the solicitation file):
- 1.6.1** Current City of Las Vegas Business License;
  - 1.6.2** Current State of Nevada Contractor's License;
  - 1.6.3** Current Insurance Certificate/Endorsement (naming the SNRHA as "additional insured");
  - 1.6.4** GSA Debarred and HUD Limited Denial of Participations Certifications;
  - 1.6.5** Profile of Firm Form;
  - 1.6.6** Subcontractors Exceeding 5% and 1% Listings;
  - 1.6.7** Subcontractors List;
  - 1.6.8** Subcontractor's Affirmative Action Form;
  - 1.6.9** Certification for Business Concerns Seeking Section 3 Preference in Contracting and Demonstration of Capability;
  - 1.6.10** Contractor's and Subcontractor's Non-Conclusive Affidavits;
  - 1.6.11** Technical Specifications included as part of Bid Package [Click Here and Type IFB NO.](#);
  - 1.6.12** Summary of Work included as part of Bid Package [Click Here and Type IFB NO.](#);
- 1.7** **Priority.** In the case of any discrepancy between this Contract and any of the above noted documents, Appendix A shall control. In the case of any discrepancy between this Contract and Appendices B-G, the requirement(s) listed within the body of this Contract shall first take precedence, then the requirement(s) listed within each appendix shall take precedence in the order they are listed above.

**2.0** **Term of Contract.** Services pursuant to this Contract (the "Services") shall begin upon Contractor's receipt of the written Notice to Proceed by SNRHA, pursuant to Section 5 of Appendix A. Notwithstanding the continuation of any warranties contained herein, this Contract shall terminate pursuant to Sections 32 or 34 of Appendix A, or upon Final Completion (as described in Section 3.2.3.2).

### **3.0 Services and Payment**

- 3.1** **Scope of Services.** The Contractor shall furnish all labor, material, equipment and services, and perform and complete rehabilitation services of [Click Here and Type DESCRIPTION OF PROJECT](#), located at the following location:

[Click Here and Type PROPERTY ADDRESS OR DESCRIPTION](#)

in accordance with this Agreement and IFB No. [Click Here and Type IFB NO.](#) prepared by the SNRHA and any duly executed Addenda to this Agreement. Said labor, materials, equipment and services shall be provided on the dates and times determined by the SNRHA at the above-stated SNRHA communities and/or facilities. In addition, the SNRHA shall retain the right to implement and/or enforce any item issued as a part of IFB No. [Click Here and Type IFB NO.](#)

### **3.2 Cost/Value of Services**



**3.2.1 Labor Costs.** The Contractor shall not pay wages that are less than the highest wage required by either of the following:

**3.2.1.1** The wage determination rates listed in IFB No. [Click Here and Type IFB NO.](#)

**3.2.1.2** Appendix A.

**3.2.2 Contract Value.** The SNRHA shall pay the Contractor for the performance of the Contract, in current funds, subject to additions and deductions as provided in the Technical Specifications, not-to-exceed (“NTE”) the sum of:

**[Click Here and Type AMOUNT](#)**

Contractor exceeds the above-stated NTE amount at its own risk.

**3.2.3 Time for Performance.** The Contractor hereby agrees to commence work under this Contract upon receipt of a written Notice to Proceed (“NTP”), submitted by SNRHA. The Contractor shall complete the project within [Click Here and Type WRITTEN NUMBER OF DAYS](#) ([Click Here and Type NUMERICAL DIGIT](#)) calendar days thereafter, pursuant to Section 25 of Appendix A.

**3.2.3.1 Delays/Time Extensions.** Time extensions for performance may be granted by the SNRHA PM and SNRHA Executive Director pursuant to Section 32 of Appendix A. Any time extension shall be granted by written modification to this Contract.

**3.2.3.2 Final Completion.** Pursuant to Section 20 of Appendix A, the Contractor shall notify the SNRHA PM, in writing, as to the date when in its opinion the work is substantially complete and ready for inspection. Upon receipt of such notification, SNRHA shall conduct an inspection of the work within ten (10) days. SNRHA and/or the A/E shall promptly advise the Contractor, in writing, of any remaining final punch list items following such inspection. The Contractor shall notify SNRHA in writing when all punch list items have been completed and all clean-up has been done. SNRHA will then conduct a final inspection within ten (10) days of receipt of such notification. Performance shall be considered complete upon the Contractor’s receipt from SNRHA of written acceptance of the work and SNRHA’s receipt from the Contractor of the following:

**3.2.3.2.1** Certificate of Occupancy issued by the responsible local agency;

**3.2.3.2.2** One original and two notarized copies of the Contractor’s lien release (in the form attached as Appendix H), including certifications that:

**3.2.3.2.2.1** the work was completed in accordance with the Technical Specifications, including any modifications to this Contract;

**3.2.3.2.2.2** the total amount due the Contractor and a separately stated amount for each unsettled claim against the SNRHA;

**3.2.3.2.2.3** documentation noting that the SNRHA is released of all claims, other than those stated in the Contractor’s release;

**3.2.3.2.2.4** wages paid to laborers were paid as required herein; and



**3.2.3.2.2.5** all guaranties and warranties contained herein are assigned to the SNRHA.

**3.2.4 Liquidated Damages.** Pursuant to Section 33 of Appendix A, the Contractor agrees to pay to the SNRHA, the sum of [Click Here and Type](#) per day as fixed, agreed, liquidated damages for each consecutive calendar day beyond the time for performance as provided in Section 3.2.3, provided this Contract is not terminated pursuant to Section 11, until Final Completion is achieved.

**3.2.5 Non-Escalation.** Unless otherwise specified within the RFP/IFB documents, the unit prices reflected in this Contract shall remain firm with no provision for price increases during the term of the Contract.

#### 4.0 Billing Procedure

**4.1** To receive payment for Services rendered pursuant to this Contract, the Contractor shall:

**4.1.1** Comply with Section 27 of Appendix A.

**4.1.2** Submit a fully completed Periodic Estimate for Partial Payment form (form HUD-51001, attached as Appendix D), showing the value of the work performed each period based upon the approved breakdown of the contract price. The approved breakdown of the contract price is reflected in the Schedule of Amounts for Contract Payment (form HUD-51000, attached as Appendix C) which was previously submitted by the Contractor and approved by SNRHA. Such estimates shall be submitted not later than thirty (30) days of completing the work and shall be subject to corrections and revisions by the SNRHA.

**4.1.3** Submit all certified payroll reports up to the date of the work being billed and as detailed in Section 46 of Appendix A.

**4.1.4** Progress payments must be approved by the SNRHA PM and the SNRHA Executive Director with the concurrence of the Architect/Engineer ("A/E") prior to payment.

**4.1.5** Progress payment requests must be delivered to the attention of:

Southern Nevada Regional Housing Authority  
Attn: Accounts Payable  
P.O. Box 1897  
Las Vegas, NV 89125

**4.1.6** The Contractor shall complete and submit the following forms as required with each request for progress payment(s):

**4.1.6.1** Schedule for Change Orders (form HUD-51002)

**4.1.6.2** Schedule for Materials Stored (form HUD-51003)

**4.1.6.3** Summary of Materials Stored (form HUD-51004)

**4.1.7** The SNRHA will pay each properly completed invoice received on a Net/30 basis. Any invoice received that is not properly completed will not be paid unless and/or until the Contractor complies with the applicable provisions of this contract.

**4.1.8** Final payment will be made by SNRHA upon receipt of the Contractor's release as required by Section 3.2.3.2, all required payroll reports have been received and any wage discrepancies have been resolved by the Contractor.



- 5.0 Contractor's Obligations.** Pursuant to this Contract, the Contractor agrees to provide the specific construction obligations detailed in Appendix A and the Technical Specifications issued by the SNRHA included in IFB No. [Click Here](#) and **Type IFB NO.** and herein.
- 5.1** The Contractor agrees not to accept or perform any assigned work initiated by a contract amendment or change order without the prior written approval of the SNRHA PM and the SNRHA Executive Director.
- 5.1.1 Change Order Requests:** The Contractor acknowledges, by signature below, that change order requests will not be summarily approved. All change order requests must be submitted to SNRHA for approval, prior to undertaking the additional work, in accordance with Section 29 of Appendix A, and the Additional Clauses and Requirements section included in IFB No. [Click Here](#) and **Type IFB NO.**
- 5.1.2 Minimum Rates of Pay.** The Contractor shall pay not less than the wages required under the wage determination rates included in IFB No. [Click Here](#) and **Type IFB NO.** and Section 46 of Appendix A, and any amendments thereto.
- 5.2 Supervision and Oversight.** The Contractor shall be solely responsible for providing supervision and oversight to all of the Contractor's personnel and any subcontractors that are assigned to the SNRHA work pursuant to this Contract.
- 5.3 Qualified Personnel.** The Contractor warrants and represents that it will assign only qualified personnel to perform the Services. For the purposes of this Contract, the term "qualified personnel" shall mean those personnel that are experienced and/or trained in the manner generally accepted within the Contractor's industry.
- 5.4 Compliance with Federal and State Laws.** All work performed by the Contractor, pursuant to this Contract, shall be done in accordance with all applicable federal, state and local laws, regulations, codes and ordinances.
- 5.5 Licensing.** The Contractor shall provide SNRHA with copies of any required current City, State and/or Federal licenses. Failure to maintain these licenses in a current status during the term(s) of this Contract shall constitute a material breach thereof.
- 5.6 Permits.** Unless otherwise stated in the Contract documents, all local, state or federal permits which may be required to provide the Services ensuing from award of this Contract, whether or not known to either the SNRHA or the Contractor at the time of the Contract execution, shall be the sole responsibility of the Contractor including any and all costs therefore.
- 5.7 Government Standards.** It is the responsibility of the Contractor to ensure that all items and Services proposed conform to all local, state and federal law concerning safety (e.g., OSHA and NIOSH) and environmental control (e.g., EPA and Clark County Pollution Regulations) and any other enacted ordinance, code, law or regulation. The Contractor shall be responsible for all costs incurred for compliance with any such possible ordinance, code, law or regulation. No time extensions shall be granted or financial consideration given to the Contractor for time or monies lost due to violations of any such ordinance, code, law or regulations that may occur.
- 5.8 Freight-On Bill and Delivery.** All costs submitted by the Contractor shall reflect the cost of delivering the proposed items and/or Services to the location(s) specified within the RFP/IFB documents or within the Contract.
- 5.9 Work on SNRHA Property.** If the Contractor's work under the Contract involves operations by the Contractor on SNRHA premises, the Contractor shall take all necessary precautions to prevent the occurrence of any injury to persons or property during the progress of such work.



- 5.10 Subcontractors.** Unless otherwise stated within the RFP/IFB/bid documents, the Contractor may not use any subcontractors to accomplish any portion of the Services required by this Contract without the prior written permission of the SNRHA PM.
- 5.11 Salaries and Expenses Relating to the Contractor's Employees.** Unless otherwise stated within the RFP/IFB documents, the Contractor shall pay all salaries and expenses of, and all federal Social Security taxes, federal and state unemployment taxes, and any similar taxes relating to its employees used in the performance of the Contract. The Contractor further agrees to comply with all federal, state and local wage and hour laws and all licensing laws applicable to its employees or other personnel furnished under this Contract.
- 5.12 Communication.** If during the period of the Contract, it is necessary that the SNRHA place toll or long distance telephone calls or facsimiles in connection with the Contractor's performance of the Contract (for complaints, adjustments, shortages, failure to deliver, etc.), it is understood that the Contractor may, at the discretion of the SNRHA, bear the charge or expense for all such calls and/or facsimiles.
- 5.13 Access to Records.** Both parties hereby agree that the Contractor will make available to the SNRHA, HUD, the Comptroller General of the United States, or any of their duly authorized representatives (including retained auditors), any books, documents, papers, and records of the Contractor which are directly pertinent to this Contract for the purpose of making audit, examination, excerpts and transcriptions.
- 5.14 Record Retention.** The Contractor shall retain all such records pertaining to this Contract for a period of not less than three (3) years after final payment or the completion of any Services provided pursuant to this Contract, whichever occurs later.
- 5.15 Backorders**
- 5.15.1** The Contractor must notify the SNRHA PM within ten (10) days of the following:
- 5.15.1.1** Any and all backordered materials;
  - 5.15.1.2** Any delay in the Contractor's performance; and
  - 5.15.1.3** The estimated date for delivery or performance.
- 5.16 Inspections.** Pursuant to Sections 3 and 20 of Appendix A, the Contractor shall permit SNRHA and/or the A/E to conduct periodic inspections of the work. Any deficiencies noted by SNRHA and/or the A/E during inspections shall be disclosed to the Contractor in writing within [Click Here and Type WRITTEN NUMBER OF DAYS \(Click Here and Type NUMERICAL DIGIT\)](#) days of discovery, and the Contractor shall remedy such deficiency within [Click Here and Type WRITTEN NUMBER OF DAYS \(Click Here and Type NUMERICAL DIGIT\)](#) days of notification of such from SNRHA and/or the A/E.
- 5.17 Progress Meetings.** The Contractor shall attend progress meetings as required by SNRHA according to the schedule SNRHA will provide. Progress meetings shall be used to discuss work progress, payments, problems or deficiencies noted during inspections, overdue reports, the status of the construction schedule, and any other matters relevant to this Contract.

## **6.0 Insurance Requirements**

- 6.1** The Contractor shall maintain insurance coverage during the effective term(s) of this Contract as provided in Section 36 of Appendix A and Section 4 of the Conditions of Form of Bid included in IFB No. [Click Here and Type IFB NO..](#)



- 6.2** The Contractor shall provide the SNRHA with current certificate(s)/endorsement(s) evidencing the insurance coverage referenced above. Failure to maintain the above-referenced insurance coverage, including naming the SNRHA as an additional insured (where appropriate) during the term(s) of this Contract shall constitute a material breach thereof.
- 6.3** Insurance certificate(s)/endorsement(s) shall be delivered to:

**Purchasing Manager  
Contracts & Purchasing  
Southern Nevada Regional Housing Authority  
Post Office Box 1897  
Las Vegas, NV 89125**

## **7.0 Indemnification**

- 7.1** The Contractor shall protect, indemnify and hold the SNRHA, its officers, employees, and agents harmless from and defend against any and all claims, damages, losses, suits, actions, decrees, judgments, attorney's fees, court costs and other expenses of any kind or character which the SNRHA, its officers, employees, agents, consulting engineers or other retained consultants may suffer, or which may be sought against, recovered from or obtainable against the SNRHA, its officers, employees, and agents, based upon the Contractor's actions or failure to act during the performance of the Contractor's duties hereunder, or as a result of any work performed by the Contractor, regardless of when such claims shall arise. The Contractor's duty to indemnify SNRHA shall apply regardless of whether or not the event which gave rise to such a claim was caused, in part, by SNRHA.
- 7.2** Any money due by the Contractor under and by virtue of this Contract which is considered necessary by the SNRHA for such purpose, may be retained by the SNRHA for its protection; or in case no money is due, its surety may be held until all such claims, damages, losses, suits, actions, decrees, judgments, attorney's fees and court costs and other expenses of any kind or character as aforesaid shall have been settled and suitable evidence to that effect furnished to the SNRHA provided, however, that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that it is adequately protected by applicable public liability and property damage insurance;
- 7.3** The Contractor shall, at its own expense, defend the SNRHA, its officers, employees, and agents, against any and all claims, suits or actions which may be brought against them, or any of them, as a result of, or by reason of, or arising out of, or on account of, or in consequence of any act or failure to act the consequences of which the Contractor has indemnified the SNRHA, its officers, employees, and agents against. If the Contractor fails to do so, the SNRHA shall have the right, but not the obligation, to defend the same and to charge all direct and incidental costs of such defense to the Contractor including attorney's fees and court costs.
- 7.4** The Contractor guarantees the payment of all claims for materials, supplies and labor, and all other claims against it or any subcontractor, in connection with the Contract.
- 7.5** The Contractor shall provide that any authorized contractual arrangement with a subcontractor shall be in conformance with the terms of this Contract including the indemnity provisions of this Section 8.

## **8.0 Financial Viability and Regulatory Compliance**

- 8.1** The Contractor warrants and represents that its corporate entity is in good standing with all applicable federal, state and local licensing authorities and that it possesses all requisite licenses to perform the Services required by this Contract. The Contractor further warrants and represents that it owes no outstanding federal, state or local taxes or business assessments.





- 8.2** Contractor agrees to promptly disclose to the SNRHA any IRS liens or insurance or licensure suspension or revocation that may adversely affect its capacity to perform the Services required by this Contract. The failure by the Contractor to disclose such issue to the SNRHA in writing within five (5) days of Contractor's receipt of such notification will constitute a material breach of this Contract.
- 8.3** The Contractor further agrees to promptly disclose to the SNRHA any change of its ownership and/or any declaration of bankruptcy that the Contractor may undergo during the term(s) of this Contract. The failure of the Contractor to disclose any change of its ownership and/or its declaration of bankruptcy within five (5) days of said actions shall constitute a material breach of this Contract.

## **9.0 Disputes**

- 9.1** All disputes arising under or relating to this Contract, except for disputes relating to Labor Standards - Davis Bacon and Related Acts, shall be disposed of in accordance with Section 31 of Appendix A.

## **10.0 Breach.** Pursuant to 24 CFR 85.36(i), as issued by the Office of the Secretary, HUD, the SNRHA and the Contractor each agree to comply with the following provisions:

- 10.1 Termination For Cause and Convenience.** SNRHA may terminate this Contract for cause, pursuant to Section 32 of Appendix A. SNRHA may also terminate this Contract for convenience pursuant to Section 34 of Appendix A. Any termination notice shall state the following:

- 10.1.1** whether the Contract is being terminated for convenience or cause;

- 10.1.2** whether the Contract is terminated in whole or in part;

- 10.1.3** if terminated for cause, the acts or omissions constituting the material breach, the SNRHA PM's determination that failure to perform is not excusable, SNRHA's right to charge excess costs of re-procurement to the Contractor, and the Contractor's appeal rights;

- 10.1.4** effective date of termination;

- 10.1.5** if applicable, the Contractor's right to proceed under the non-terminated portion of the Contract; and

- 10.1.6** any special instructions.

- 10.2** Prior to termination, the SNRHA may choose, at its sole discretion, to warn the Contractor, verbally or in writing, of any issue of non-compliant or unsatisfactory performance. Such warning may include placing the Contractor on probation, thereby giving the Contractor a certain period of time to correct the deficiencies or potentially suffer termination. The SNRHA shall maintain in the Contract file a written record of any such warning detailing all pertinent information. If the Contractor does not agree with such action, the Contractor shall have ten (10) days from receipt of such verbal or written warning to dispute or protest such action in writing; if it does not do so within the 10-day period, it shall have no recourse but to accept the SNRHA's position on the issue. The written protest must detail all pertinent information pertaining to the dispute, including any justification detailing the SNRHA's alleged incorrect action(s).

- 10.3** After termination, if the Contractor does not agree with the SNRHA's justification for the termination, the Contractor shall have ten (10) days from the date of termination to dispute such action in writing.

- 10.4** Any protest or dispute submitted by the Contractor under this Section shall thereafter be conducted in accordance with Section 9.1 herein.

- 10.5** All rights and remedies granted to SNRHA herein and any other rights and remedies which SNRHA may have at law and in equity are hereby declared to be cumulative and not exclusive. The fact that SNRHA



may have exercised any remedy without terminating this Contract shall not impair SNRHA's rights thereafter to terminate or to exercise any other remedy herein granted, or to which SNRHA may be otherwise entitled.

**11.0 Applicable Federal Law.** Pursuant to 24 CFR 85.36(i), as issued by the Office of the Secretary, HUD, the SNRHA and the Contractor each agree to comply with the following provisions:

**11.1 Executive Order 11246.** For all construction contracts awarded in excess of \$10,000, both parties hereby agree to comply with "Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor Regulations (41 CFR Chapter 60).

**11.2 Copeland "Anti-Kickback" Act.** For all construction or repair contracts awarded, both parties hereby agree to comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor Regulations (29 CFR Part 3).

**11.3 Mandatory Section 3 Requirements:** The SNRHA has adopted a scale (See Appendix B) for hiring that is used on all construction, service and professional contracts that contain a labor component as *referenced HUD Act of 1968, as amended, 12 U. S. C. 170 u.* All Section 3 covered contracts shall include the following clause (referred as to the Section 3 Clause):

**11.3.1** The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

**11.3.2** The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

**11.3.3** The contractor agrees to send to each labor organization or representative or workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

**11.3.4** The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

**11.3.5** The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require



employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

**11.3.6** Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

**11.3.7** With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

**11.4 Davis-Bacon Act.** For all construction contracts awarded in excess of \$2,000 when required by Federal Grant Program legislation, both parties hereby agree to comply with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented in Department of Labor Regulations (29 CFR Part 5).

**11.5 Sections 103 and 107 of the Contract Work Hours and Safety Standards Act.** For all construction contracts awarded in excess of \$2,000 and for other contracts, which involve the employment of mechanics or laborers awarded in excess of \$2,500, both parties hereby agree to comply with the Sections 103 and 107 of the Contract Work Hours and Safety Act (40 U.S.C. 327-330) as supplemented in Department of Labor Regulations (29 CFR Part 5).

**11.6 Clean Air Act.** For all contracts in excess of \$100,000, both parties hereby agree to comply with all applicable standards, orders or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857(h), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).

**11.7 Energy Policy and Conservation Act.** Both parties hereby agree to comply with all mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

**11.8 Additional Federally Required Orders/Directives.** Both parties agree that they will comply with the following laws and directives, where applicable:

**11.8.1** Executive Order 11061, as amended, which directs the Secretary of HUD to take all action which is necessary and appropriate to prevent discrimination by agencies that utilize federal funds.

**11.8.2** Public Law 88-352, Title VI of the Civil Rights Act of 1964, which provides that no person in the United States shall, on the basis of race, color, national origin or sex, be excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity which receives federal financial assistance. The SNRHA hereby extends this requirement to the Contractor and its private contractors. Specific prohibited discriminatory actions and corrective action are described in Chapter 2, Subtitle C, Title V of the Anti-Drug Abuse Act of 1988 (42 U.S.C. 1901 et. seq.).

**11.8.3** Public Law 90-284, Title VIII of the Civil Rights Act of 1968, popularly known as the Fair Housing Act, which provides for fair housing throughout the United States and prohibits any person from discriminating in the sale or rental of housing, the financing of housing or the provision of brokerage services, including in any way making unavailable or denying a dwelling to any person because of race, color, religion, sex or national origin. Pursuant to this statute, the



SNRHA requires that the Contractor administer all programs and activities, which are related to housing and community development in such a manner as to affirmatively further fair housing.

**11.8.4** The Age Discrimination Act of 1975, which prohibits discrimination on the basis of age.

**11.8.5** Anti-Drug Abuse Act of 1988 (42 U.S.C. 11901 et. seq.).

**11.8.6** HUD Information Bulletin 909-23 which is the following:

**11.8.6.1** Notice of Assistance Regarding Patent and Copyright Infringement;

**11.8.6.2** Clean Air and Water Certification; and

**11.8.6.3** Energy Policy and Conservation Act.

**11.8.7** That the funds that are provided by the SNRHA and HUD hereunder shall not be used, directly or indirectly, to employ, award a Contract to, or otherwise engage the services of any debarred, suspended or ineligible Contractor.

**11.8.8** That none of the personnel who are employed in the administration of the work required by this Contract shall, in any way or to any extent, be engaged in the conduct of political activities in violation of Title V, Chapter 15, of the United States Code.

**11.8.9** That neither party has colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, to fix overhead, profit or cost element of said bid price, or that of any other bidder, or to secure any advantage against either party or any person interested in the proposed Contract; and that all statements in said proposal or bid are true.

**11.8.10** The mention herein of any statute or Executive Order is not intended as an indication that such statute or Executive Order is necessarily applicable nor is the failure to mention any statute or Executive Order intended as an indication that such statute or Executive Order is not applicable. In this connection, therefore, each provision of law and each clause, which is required by law to be inserted in this Contract, shall be deemed to have been inserted herein, and this Contract shall be read and enforced as though such provision or clause had been physically inserted herein. If, through mistake or otherwise, any such provision is not inserted or is inserted incorrectly, this Contract shall forthwith be physically amended to make such insertion or correction upon the application of either part.

**11.9 Rights in Data and Patent Rights (Ownership and Proprietary Interest).** SNRHA shall have exclusive ownership of, all proprietary interest in, and the right to full and exclusive possession of all information, materials, and documents discovered or produced by Contractor pursuant to the terms of this Contract, including but not limited to reports, memoranda or letters concerning the research and reporting tasks of this Contract.

**12.0 Debarment and Suspension.** Contractor agrees, by submitting this bid, to include this clause without modification in all lower tier transactions, solicitations, bids, contracts and subcontracts.

**12.1** By execution of this Contract with the SNRHA, the Contractor hereby certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency. This certification is made pursuant to the regulations implementing Executive Order 12549, Debarment and Suspension, 28



C.F.R. pt. 67 § 67.510, as published as pt. VII of the May 26, 1988, Federal Register (pp. 19610-19211), and any relevant program-specific regulations.

**12.2** Contractor acknowledges and agrees that, pursuant to Federal Acquisition Regulation (“FAR”) 9.406-2, the SNRHA has discretion to suspend and/or debar contractor from conducting future business with the SNRHA for contractor’s commission of the offenses outlined in FAR 9.406-2, including, but not limited to, violation of any applicable Federal law, commission of fraud, embezzlement and/or theft, receipt of stolen property, use of inappropriate construction materials, repeated contract violations and recurrent re-inspections. The SNRHA’s right to suspend and/or debar contractor is in addition to the SNRHA’s right to assess the monetary penalties outlined in Section 12.2.1.

**12.2.1** Contractor acknowledges and agrees that the SNRHA may assess a monetary penalty for a third, and any subsequent punch-list inspection caused by Contractor’s negligence or willful disregard in failing to complete Contractor’s scope of work by the initial, or secondary, punch-list inspection date assigned by the SNRHA or any other local or state governing body. The penalty for a third, and any subsequent punch-list inspection shall be a \$200 re-inspection appointment fee plus a \$75 per hour services fee plus any overtime fees, if applicable. The monetary penalty shall be paid by Contractor to the SNRHA, or deducted by the SNRHA from the contractor’s owed balance under the contract.

**13.0 Lobbying Certification.** By execution of this Contract with the SNRHA the Contractor thereby certifies, to the best of his or her knowledge and belief, that:

**13.1** No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal loan, the entering into of any cooperative agreement, or modification of any federal contract, grant, loan, or cooperative agreement.

**13.2** If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form – LLL, Disclosure Form to Report Lobbying, in an accordance with its instructions.

**13.3** The Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

#### **14.0 Miscellaneous Provisions**

**14.1 Notices, Invoices and Reports.** Except as otherwise provided in this Contract, all notices, reports, records or other communications that are required or permitted to be given to the parties under this Contract shall be sufficient in all respects if given in writing and delivered in person, by facsimile, by overnight courier or by registered or certified mail, postage prepaid, return receipt requested, to the receiving party at the following address:

**If to SNRHA:** Procurement Department  
Southern Nevada Regional Housing Authority  
340 North 11th Street, Suite 180  
Las Vegas, NV 89101  
Facsimile: 702-922-7050

**Copy to:** Parker Nelson & Associates



2460 Professional Court  
Las Vegas, NV 89128  
Attn: Theodore Parker, III, Esq.  
Facsimile: 702-868-8001

**If to Contractor:**

or such other address as such party may have given to the other parties by notice pursuant to this Section. Notice shall be deemed given on (i) the date such notice is personally delivered, (ii) three (3) days after the mailing if sent by certified or registered mail, (iii) one (1) business day after the date of delivery to the overnight courier if sent by overnight courier, or (iv) the next succeeding business day after transmission by facsimile, provided that any fax delivery is followed up with another method of notice listed in this Section within one (1) business day of sending the facsimile.

- 14.2 Taxes.** All persons doing business with the SNRHA are hereby made aware that the SNRHA is exempt from paying Nevada State Sales and Use Taxes and Federal Excise Taxes. A letter of Tax Exemption will be provided upon request.
- 14.3 Officials, Agents and Employees of the SNRHA Not Personally Liable.** It is agreed by and between the parties hereto that in no event shall any official, officer, employee, or agent of the SNRHA in any way be personally liable or responsible for any covenant or agreement herein contained whether expressed or implied, nor for any statement, representation or warranty made herein or in any connection with this Contract.
- 14.4 Assignment.** Except pursuant to Section 35 of Appendix A, the Contractor shall not assign or transfer any interest in this Contract.
- 14.5 Entire Agreement; Amendment.** This Contract (including all Appendices attached hereto or other documents included by reference herein) constitutes the entire contract between the parties hereto and may not be modified except by an instrument in writing signed by the party to be charged. This Contract may be amended, supplemented or modified only by a written instrument duly executed by or on behalf of each party hereto.
- 14.6 Governing Law; Venue.** The laws of the State of Nevada shall govern the validity, construction and effect of this Contract, unless such laws are superseded by, or in conflict with applicable federal laws and/or federal regulations. Each party irrevocably submits to the exclusive jurisdiction of any federal or state court located in Clark County, Nevada in any action, suit or proceeding arising out of or relating to this Contract, and agrees that any such action, suit or proceeding shall be brought only in such court.
- 14.7 Attorney's Fees.** In the event that litigation is commenced by one party hereto against the other in connection with the enforcement of any provision of this Contract, the prevailing party shall be paid by the losing party all court costs and other expenses of such litigation, including reasonable attorneys' fees. The amount so allowed as attorneys' fees shall be taxed to the losing party as costs of the suit, unless prohibited by law.
- 14.8 Severability.** If any provision of this Contract or any portion or provision hereof applicable to any particular situation or circumstance is held invalid, the remainder of this Contract or the remainder of such provision (as the case may be), and the application thereof to other situations or circumstances shall not be affected thereby.
- 14.9 Waiver of Breach.** A waiver of either party of any terms or conditions of this Contract in any instance shall not be deemed or construed as a waiver of such term or condition for the future, or of



any subsequent breach thereof. All remedies, rights, undertakings, obligations, and agreements contained in this Contract shall be cumulative and none of them shall limit any other remedy, right, obligation or agreement of either party.

**14.10 Time of the Essence.** Time is of the essence for performance of this Contract.

**14.11 Payment and Performance Bonds.** If the Contract Value as provided in Section 3.2.2 exceeds \$100,000, the Contractor shall furnish bonds covering faithful performance of the Contract and payment obligations arising thereunder. Bonds may be obtained through the Contractor’s usual source and the cost thereof shall be included in the Contract Value. The amount of each bond shall be equal to one hundred percent (100%) of the Contract Value. In addition:

**14.11.1** The bond must be approved and reviewed by the SNRHA PM;

**14.11.2** The bond must name the Southern Nevada Regional Housing Authority as obligee;

**14.11.3** The Contractor shall deliver the required bonds to SNRHA before the commencement of any work pursuant to this Contract.

**14.12 Limitation of Liability.** In no event shall the SNRHA be liable to the Contractor for any indirect, incidental, consequential or exemplary damages.

**15.0 Certifications.** The undersigned representatives of each party acknowledge by signature below that they have reviewed the foregoing and understand their respective obligations as defined herein. This Contract may be signed in counterparts.

**CONTRACTOR NAME**

By: \_\_\_\_\_ Date: \_\_\_\_\_

**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY**

By: \_\_\_\_\_ Date: \_\_\_\_\_  
JOHN HILL  
EXECUTIVE DIRECTOR



## **ATTACHMENT A**

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# **SNRHA'S MANDATORY SECTION 3 REQUIREMENTS FOR EMPLOYMENT OPPORTUNITIES FOR SMALL BUSINESSES AND LOW-INCOME RESIDENTS/PERSONS**





## SECTION 3 CLAUSE

### **SNRHA'S MANDATORY SECTION 3 REQUIREMENTS**

***This contract is subject to the following conditions under Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3).***

- A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- B. The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.
- C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor or organization or workers' representative of the contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- D. The contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
- E. The contractor will certify that any vacant employment positions, including training positions that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
- F. Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- G. With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprise. Parties to this contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).



**HIRING SCALE FOR SECTION 3 PARTICIPANTS  
TRAINING AND EMPLOYMENT OPPORTUNITIES  
(2/18/10)**

The Southern Nevada Regional Housing Authority (SNRHA) has adopted the following scale for hiring that is to be used on all construction contracts, service contracts and professional service contracts that contain a labor component. It is expected that an appropriate number of residents and other low- and very-low-income individuals with particular qualifications or a willingness to begin unskilled labor will be able to participate in the SNRHA's contracted labor efforts.

<b>TOTAL CONTRACT/ SERVICE DOLLARS</b>	<b>Percentage of contract to base hiring requirements</b>
Contract amount \$25,000 but less than \$100,000	6.0% of the contract amount
\$100,000, but less than \$200,000	5.5% of the contract amount
At least \$200,000, but less than \$300,000	5.0% of the contract amount
At least \$300,000, but less than \$400,000	4.5% of the contract amount
At least \$400,000, but less than \$500,000	4.0% of the contract amount
At least \$500,000, but less than \$1 million	3.5% of the contract amount
At least \$1 million, but less than \$2 million	3.0% of the contract amount
At least \$2 million, but less than \$4 million	2.5% of the contract amount
\$4 million or more	2.0% of the contract amount

The SNRHA has established four (4) ways in which a contractor may fulfill the Section 3 requirements as listed above. They are as follows:

1. Joint venture with a SNRHA resident-owned business. The business must be 51% or more owned by SNRHA Section 3 residents (includes all SNRHA housing programs) and receive a portion of the contract commensurate with the scale requirement outlined above; or
2. Direct hiring of SNRHA's Public Housing residents, Housing Choice Voucher participants, Affordable Housing residents and/or low and very low-income neighborhood residents based on the Section 3 Hiring Scale; or
3. Contractor incurs the cost of providing skilled training (State Board certified or similar) for residents in an amount commensurate with the sliding scale set forth in the Section 3 Hiring Scale; or
4. Contractor makes a contribution to the SNRHA's Section 3 Job Development Fund to provide assistance to residents to obtain training and employment. The level of contribution must be commensurate with the sliding scale set forth in the Section 3 Hiring Scale.

A contractor may fulfill their Section 3 obligation through a combination of these options but must meet all base requirements as set forth in this plan. When hiring, only the gross wages earned will be counted towards the Hiring Scale requirement. A prime contractor may also satisfy SNRHA resident hiring requirements through its subcontractors.



Furthermore, SNRHA has adopted the following threshold and scale for mandatory hiring that is to be used on all construction contracts, service contracts and professional service contracts that contain a labor component.

<b>TOTAL CONTRACT/ SERVICE DOLLARS</b>	<b>Minimum Number of Hires</b>
\$100,000, but less than \$500,000	1 New Hire
At least \$500,000, but less than \$750,000	2 New Hires
At least \$750,000, but less than \$1 million	3 New Hires
At least \$1 million, but less than \$2 million	4 New Hires
At least \$2 million, but less than \$3 million	5 New Hires
At least \$3 million, but less than \$4 million	6 New Hires
For each additional \$1 million over \$4 million	1 New Hire per \$1 million

The contractor’s compliance will be evaluated based on this scale. This requirement is the minimum acceptable hiring scale; it is expected that most contractors will exceed this requirement.

**WHO CAN I HIRE?  
Resident Hiring Requirements**

SNRHA’s preference is to ensure that as many SNRHA residents as possible are employed. In an effort to further that goal, SNRHA has created the following required hiring preference tier. Contractors must exhaust higher priority tiers before being able to hire in lower tiers. A contractor will submit an Intent to Hire form to the Section 3 Coordinator who will make referrals based on this requirement from the Job Bank maintained by SNRHA and the qualifications set forth by the Contractor.

- Tier 1 : Hire SNRHA Public Housing Residents, Housing Choice Voucher (aka Section 8) Participants or Affordable Housing Residents
- Tier 2 : Hire eligible Section 3 residents from approved YouthBuild programs
- Tier 3 : Hire non-SNRHA Section 3 residents residing in Clark County

If the Section 3 Coordinator is not able to provide qualified referrals for the position to be filled, they will certify that the Contractor has exhausted the higher priority tiers and allow the contractor to pursue hiring outside of SNRHA programs. Failure to obtain written approval to hire from Tier 3 beforehand will result in wages paid being deemed ineligible.

**HOW WILL SECTION 3 BE MONITORED AND ENFORCED?  
Compliance Requirements**

The SNRHA requires contractors and vendors to implement progressive efforts to comply with Section 3. A Section 3 Coordinator will monitor and evaluate contractor compliance with established employment, training and resident hiring goals.

Each contract will be monitored closely to ensure ongoing compliance and prevent unforeseen issues during the contract or at the end of the contract period. In order to ensure attention to the compliance and efforts of the contractors, all service contracts and construction-based contracts that have specific terms and



schedules for performance that exceed 90 days are **expected to be compliant at 50% completion and then 100% prior to contract close-out**. More specifically, when the contract's progress or periodic schedule of payments meets or exceeds 50% of the total contract amount or billing exceeds 50% of the contract total, a contractor must also meet at least 50% of their Section 3 obligation to be considered compliant. If the contractor is not compliant at that midterm evaluation, SNRHA will follow the progressive non-compliance sanctions outlined in its comprehensive Section 3 Plan.

Contracts with specific terms and schedules that are 90 days or less in length will be monitored throughout their contract and must meet their obligations by the end of the initial term of the contract. All other contracts, such as indefinite quantities, task order and as needed professional services that do not have specific terms or schedules for performance will be evaluated for compliance throughout, but are expected to be compliant by the end date set in the contract. Multi-year contracts must achieve Section 3 compliance no less than annually.

These requirements apply to all four (4) ways a contractor may fulfill the Section 3 requirement. Contractors will not be able to request final payment or close-out their contract with SNRHA without Section 3 compliance. It is also the contractor's responsibility to request final compliance evaluation at contract close-out with the Section 3 Coordinator. Furthermore, those contractors who do achieve contract close-out while non-compliant will be fined per the sanctions outlined in the Section 3 Plan, and unable to receive a SNRHA contract award for the period of one (1) year following contract close-out.

**A complete copy of the SNRHA's Section 3 Plan & Policies is available in our website at  
[www.snrha.org](http://www.snrha.org)  
(Click Residents Link, Section 3 Program link)**



**SECTION 3 – CONTRACTOR INITIAL RESPONSE**

**Failure to complete this document will lead to your bid being deemed non-responsive.**

**Contractor Information**

\_\_\_\_\_  
Company Name (Contractor)

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip Code

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Fax

\_\_\_\_\_  
E-mail

**Section 3 Commitment**

To meet the requirements of Section 3 of the Housing Act of 1968 [12 U.S.C. 1701u], as amended, the terms of the contract, and pursuant to Southern Nevada Regional Housing Authority’s policies outlined in the Section 3 Plan, the Contractor hereby agrees to provide the following opportunity or opportunities to low-income and low-skilled persons particularly those persons who are recipients of public housing:  
(select all that apply)

- Joint venture with a SNRHA Resident-Owned Business (ROB). The business must be 51% or more owned by OHA public housing residents and receive 51% or more of the contract award
- Direct hiring of SNRHA’s Public Housing residents, Housing Choice Voucher participants and/or low and very low-income neighborhood residents based on the Section 3 Hiring Scale

Number of Hires Projected: \_\_\_\_\_

- Contractor incurs the cost of providing skilled training for residents in an amount commensurate with the sliding scale set forth in the Section 3 Hiring Scale

Proposed Training Program: \_\_\_\_\_

Proposed Training Cost: \_\_\_\_\_

- Contractor makes a contribution to the SNHRA’s Section 3 Job Development Fund

**Upon award of the contract, the contractor will meet with SNRHA to develop the Section 3 Plan specific to the contract, including scheduled progress and compliance deadlines.**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## ATTACHMENT B

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### DRAWINGS

***(see attached pdf file of drawings which are a part of this IFB package by reference)***



## **ATTACHMENT C**

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### **ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT**

Some building components in this property are known to contain lead-based paint as described in the attached survey report.

Under this Invitation for Bid the Contractor will be responsible for the coordination and abatement of the Lead-based paint materials required for removal in accordance with local, state, and federal regulations.

Contractor must advise all subcontractors and workers of procedures for working around the hazardous materials including lead-based paint which are not scheduled for abatement.

(See specific scope of work).



**SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY  
BIEGGER ESTATES APARTMENT COMPLEX  
5701 MISSOURI AVENUE  
LAS VEGAS, NEVADA 89122**

**ASBESTOS**

ATC field staff utilized semi-destructive sampling methods to collect samples of accessible suspect asbestos-containing building materials. Some areas of the site, e.g. edges of roof, pipes, chases, etc. may not have been accessible at the time of the inspection.

Each sample is placed in a container; the container is sealed, labeled and placed in a storage bag. Samples are documented by entering the sample data on a bulk log, including a description of the material, sample number, location, condition, accessibility, friability, potential for damage, and quantity.

On March 29, 2012, ATC collected approximately 150 bulk samples from the site. The bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining. Results of the testing showed no asbestos containing materials in any of the buildings sampled.

**LEAD-CONTAINING MATERIALS**

**Sampling Methodology and Analysis**

ATC's field technician, Mr. Robert De La Torre conducted visual inspections of the site. During the survey ATC technicians observed evidence of cracking and/or peeling paint finishes within the interior and exterior of the residences. ATC's field staff utilized an X-Ray Fluorescence (XRF) Analyzer device to analyze of suspect lead-based paint materials.

A table detailing materials analyzed and the location from which the samples were collected during the surveys are included in Table 1. Materials identified to be lead based are denoted in bold. The XRF sampling logs of the materials sampled during the field survey are included in Appendix B.

The lead testing was performed on-site using an XRF Analyzer on various surfaces, according to the procedures identified in Chapter 7 of the *Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of LBP in Housing*, 1997 Revision, and the XRF-specific *Performance Characteristic Sheet (PCS)* methodology for the LPA-1 Lead Paint Analyzer.

The LPA-1 Lead Paint Analyzer is a complete lead paint analysis system, which quickly, accurately, and non-destructively measures the concentration of LBP on surfaces. The LPA-1 relies on the measurement of the K-shell X-rays to determine the amount of lead present in the painted surface. K-shell X-rays can penetrate many layers of paint and allow a good measurement of the lead content of paint to be made without being significantly affected by the thickness or number of layers of paint on the surface of the sample.

The LPA-1 has the ability to analyze and compute corrections for the differences in the energy spectrums relating to different substrates. This analysis of the energy spectrum means that the





lead paint reading displayed on the instrument already accounts for any substrate effects and no correction is required by the operator. The LPA-1's field of view is limited to a depth of 3/8", deep enough to handle virtually all painted surfaces, but not prone to detect lead objects located behind the surface.

Upon arrival at the job site, a "calibration test" was performed to assure that the instrument was operating properly. A series of three calibrated readings were taken at the start of the survey, mid shift, and three more calibration check readings were taken near the end of the sampling sequence. Test measurements consisting of 30 seconds per measurement were taken the NIST Paint Film Standard (SRM No. 1332) as required by the instrument's PCS. The individual readings and an average of the three readings were recorded and compared to standards.

In all cases the instrument was functioning within the standard deviation as defined by the manufacturer and the PCS. All validation readings were recorded in a logbook, which accompanies the instrument. If for any reason the XRF does not pass the calibration procedures, it is ATC's policy to replace that instrument with an XRF that passes the above criteria for calibration. HUD developed the PCS for use with the specific instrument used for testing. ATC also utilized a Niton XLP 300 AW hand held analyzer in the beginning of these surveys.

### XRF Analysis Results

ATC analyzed approximately 360 XRF paint and surface samples from site surveyed. The paint and surface samples were analyzed using a Niton XLP 300 AW hand held analyzer.

Paint materials containing greater than 1.0 mg/cm<sup>2</sup> are considered lead-based paint in this report as previously described above.

Table 1 lists the XRF paint and surface sampling results for materials containing greater than 1.0 mg/cm<sup>2</sup>.

<b>TABLE 1: XRF PAINT AND SURFACE RESULTS</b> <b>SOUTHERN NEVADA HOUSING AUTHORITY</b> <b>BIEGGER ESTATES</b> <b>5701 MISSOURI AVENUE</b> <b>LAS VEGAS, NEVADA</b>							
Location	Condition of Paint	Building	Surface	Substrate	Color	Quantity of Lead	Result (mg/cm <sup>2</sup> )
Exterior	Intact	16	Electric Panel	Metal	Tan	1 each	3.6
Staff Restroom	Intact	Leasing Office	Wall Tile	Ceramic	White with Tan	60 sq ft	6.7
Womens Restroom	Intact	Leasing Office	Base Cove	Ceramic	White with Tan	20 linear feet	5.1
Womens	Intact	Leasing	Wall Tile	Ceramic	White with	80 sq ft	5.3



Restroom		Office			Tan		
Mens Bathroom	Intact	Leasing Office	Base Cove	Ceramic	Beige with Brown	18 linear feet	4.8
Mens Bathroom	Intact	Leasing Office	Wall Tile	Ceramic	Beige with Brown	90 sq ft	5.9
Mens Bathroom	Intact	Leasing Office	Sink	Porcelain	White	1 each	3.4

**Lead Sampling Findings**

Based on the ATC survey results, the lead-containing material listed does not meet the definition of lead-based paint. The United States Department of Housing and Urban Development (HUD) define lead-based paint (LBP) as paints containing greater than 1.0 mg/cm<sup>2</sup>, as well as, paints containing greater than or equal to 0.5% lead by weight or 5,000 milligrams per kilogram (mg/kg) or parts per million (ppm) total lead.

Lead is a hazardous substance. Its condition, handling and disposal are regulated by Federal, State, and local agencies. Lead-containing materials, LBP generally do not pose a health risk unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested.

If lead-containing material, LBP will be impacted (activities such as such as demolition, sanding, sand /shot blasting, chipping or any other method of surface preparation which may cause potential airborne lead concentrations to exceed the OSHA action level) during the building renovation, ATC recommends removal\_and/or stabilization of those building materials denoted above that will be disturbed during the upcoming renovation, as well as, other surfaces of similar substrate, color and condition. Contractor must use lead safe work practices when disturbing any of the materials listed above.

OSHA regulations (29 CFR 1926.62, Lead Exposure in Construction) do not provide a definition for “lead-based paint,” but rather provide a Permissible Exposure Limit (PEL) for worker exposure to airborne lead particles of 50 micrograms per cubic meter of air (50 µg/m<sup>3</sup> for an 8-hour time-weighted average). The OSHA Lead Exposure in Construction Standard also lists an Action Level of 30 µg/m<sup>3</sup> for an 8-hour time-weighted average.

Work activities impacting the lead-based paint pose a potential exposure risk for workers and/or building occupants. Workers trained in proper safety and respiratory techniques should perform work activities that may impact the LBP. All construction work where an employee may be occupationally exposed to lead must comply with OSHA requirements. This regulation requires initial employee exposure monitoring to evaluate worker exposure during work that disturbs lead-containing materials (lead present in detectable levels). Any disturbance to LBP surfaces or materials, such as demolition, sanding, sand /shot blasting, chipping or any other method of surface preparation which may cause potential airborne lead concentrations above current regulatory levels are prohibited by state law.



Based on the results of the LBP survey, ATC recommends removal and replacement of those building materials identified as LBP and planned to be disturbed during the upcoming renovation and/or demolition activities, as well as, other surfaces of similar substrate, color, and condition.

If the wall or floor tiles containing LBP are not disturbed, than it is acceptable to leave them in place. However, if removed, ATC recommends that a properly trained person in lead abatement be hired to remove the materials and that they follow proper removal and disposal procedures.



## ATTACHMENT D

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## TECHNICAL SPECIFICATIONS



**Biegger Estates  
UFAS/ADA WHEELCHAIR ACCESSIBILITY**

**Project Manual  
Bid Document No. B12154**

**Bid Set  
RAFI Architecture  
April 03, 2012**



155 S. Water St., Suite 220  
Henderson, NV 89015  
P. 702.435.7234  
F. 702.435.6478  
[www.rafi-nevada.com](http://www.rafi-nevada.com)

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Bid Document No. B12154- 4/2/2012



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**SUMMARY OF THE WORK**

**PART 1 - GENERAL**

**1.01 WORK UNDER THE CONTRACT**

- A. Work includes, but is not necessarily limited to the following:

The "Project" of which the "Work" of the Contract is titled SOUTHERN NEVADA REGIONAL HOUSING AUTHORITY – VCA COMPLIANCE UFAS/WHEELCHAIR ACCESSIBILITY AT BIEGGER ESTATES

Provide labor, equipment and materials to bring Biegger Estates Complex located at 5701 Missouri Avenue, Las Vegas, NV. 89122, into compliance with 504/UFAS/ADA wheelchair accessibility, pursuant to the attached specifications and drawings. The scope of the work includes but is not limited to: Limited lead-based paint abatement as required for the construction work, Install/modify accessible parking spaces, sidewalks/accessible routes, curb cuts, ramps and railings. Modify main entrance, public restrooms, laundry areas, common use buildings, common kitchen area, community room, manager's office and other common areas for wheelchair accessibility, renovate (5) units for persons with mobility impairments, as well as modify (3) units for hearing/visually impaired individuals. Install audible/visual smoke alarm devices in common areas and signage throughout the property. Unit renovations include electrical, mechanical, plumbing, casework floor finish and interior paint work.

Scope of work shall incorporate HUD-mandated Federal requirements and Southern Nevada Regional Housing Authority requirements related to funding, including Davis-Bacon Act prevailing wage requirements as well as all functional, procedural and reporting requirements.

In addition, scope of work shall incorporate HUD-mandated requirements for accessibility verification under the Voluntary Compliance Agreement (VCA).

The scope of the work is pursuant to Article 4 and Article 5, Page 5 of the updated VCA and the Transition Plan dated June 15, 2009 therefore, the design for wheelchair accessibility must meet the Uniform Federal Accessibility Standards (UFAS) and/or Americans with Disabilities Act, whichever is more stringent. The documents are available at:

<http://www.access-board.gov/ufas/ufas-html/ufas.htm>

<http://www.ada.gov/pubs/ada.htm>

**1.02 SITES**

Biegger Estates  
APN: 161-28-603-001  
5701 Missouri Avenue, Las Vegas, NV. 89122

**1.03 CONTRACT DUTIES**

- A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site, unless otherwise noted. The Contractor's use of the premises is limited only to the SNRHA's right to perform construction operations with its own forces or to employ separate contractors on portions of the project.

1. Contractor and all of his/her subcontractors and personnel shall wear identification badges while on SNRHA property.
  2. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed. The Contractor shall indicate and designate each construction location by clearly marking with barriers, rope, or other similar means and signage that establishes each construction area.
  3. Keep driveways and entrances serving the premises clear and available to SNRHA employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
  4. Burial of waste materials on site shall not be permitted.
- B. Restore all site amenities damaged during construction to a minimum of their condition prior to construction. These include, but are limited to:
- Landscaping
  - Irrigation
  - Sidewalks
  - Curbs
  - Paving
- C. Entry into any occupied dwelling unit shall be scheduled by the SNRHA. Contractor shall provide a general schedule of work for the project at least (7) days in advance of any work for review and approval by the SNRHA.
- D. Coordinate all interruptions in utility services with the SNRHA to ensure that tenants remaining on the premises are not impacted by said interruption.
- E. Use of the Existing Building: Maintain the existing building in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

#### **1.04 CONTRACTOR'S DUTIES**

- A. Except as specifically noted, provide and pay for:
1. Labor, materials, and equipment.
  2. Tools, construction equipment, and machinery.
  3. Other facilities and services necessary for proper execution and completion of work.
- B. Give required notices.
- C. Obtain and pay for permits related to City and County, including Business Licenses, hauling and dumping permits, as applicable. Provision of required permits and licenses, whether obtained by the Owner or the Contractor, shall be a part of the Contract requirements and shall be followed by the Contractor.

- D. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities, which bear on performance of work.
- E. Attend job conference meetings, or such special meetings as may be required by the Owner.
- F. Carry on the work as quietly as possible to prevent possible annoyance to adjacent properties. Avoid unnecessary noise at all times.
  - 1. Comply with local noise abatement requirements.
- G. Promptly submit notice in writing to the SNRHA of any observed variance in Contract Documents from legal requirements. It is Contractor's responsibility to make certain the Contract Specifications comply with codes and regulations.
- H. Enforce strict discipline and good order among employees. Do not employ on job:
  - 1. Unfit persons.
  - 2. Persons not skilled in assigned task.

**1.05 SCHEDULE**

- A. The sequence and scheduling of the work to be performed by the Contractor shall be subject to review by the Owner. Submit Progress Schedule in accordance with General Conditions.

**1.06 CONTRACTOR'S USE OF PERMITS**

- A. Confine operations at site to area immediately adjacent to the proposed project. Develop and utilize construction access as shown on the drawing.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Assume full responsibility for protection and safekeeping of products stored on premises.
- D. Limit use of site (and premises) to allow:
  - 1. Use of site shall be available, pending coordination with SNRHA Field Representative, from 8:00 a.m. to 5:00 p.m. Monday through Friday, five (5) days a week.

**1.07 NUISANCE WATER**

- A. It is anticipated that nuisance water, such as rainfall, irrigation water, groundwater, and surface runoff may be encountered within the construction site during the period of construction under this Contract. Contractor shall, at all times, take all due measures to prevent delays in the progress of the work caused by such water. Contractors shall dispose of nuisance water at their own expense and without adverse effects upon the Owner's property, or any other property.

**END OF SECTION**

## SECTION 01 26 00

### CONTRACT CONSIDERATIONS

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Schedule of values.
- B. Application for Payment.
- C. Change procedures – See General Conditions.
- D. Alternates.

##### **1.02 SCHEDULE OF VALUES**

- A. Submit Schedule of Values in duplicate at the Pre-Construction conference and such schedule to be approved by the SNRHA.
- B. Format: Use the instructions given at the Pre-Award conference to establish the format.
- C. Include with each line item, a direct proportional amount of Contractor's overhead and profit.
- D. Revise schedule to list approved Change Orders, with each Application for Payment.

##### **1.03 APPLICATIONS FOR PAYMENT**

- A. Submit three (3) copies of each application on HUD form 51001 "Periodical Estimate for Partial Payment."
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly.
- D. Include forms required by Owner.
- E. These procedures will be discussed during the Pre-Award conference.

##### **1.04 ALTERNATES**

- A. Accepted Alternates will be identified in Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work as required.
- C. Schedule of Alternates: None.

#### **PART 2 – PRODUCTS**

Not Used

#### **PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 26 13

### REQUESTS FOR INTERPRETATION (RFI)

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Administrative and procedural requirements for handling and processing Requests for Interpretation (RFI).
- B. RFI form is attached at the end of this Section.
- C. Do not use RFI form during bidding. Direct questions during bidding phase as indicated in Contract Documents.

##### 1.02 DEFINITIONS

- A. RFI: Formal process used during construction phase to facilitate communication between Contractor and Architect or Owner's Representative with regard to requests for additional information and clarification of intent of Contract Documents (Drawings and Specifications).

##### 1.03 PROCEDURE

- A. When conditions require clarification of Contract Documents, comply with following:
  - 1. Subcontractors, manufacturers, and suppliers shall submit request for additional information and clarification to Contractor.
  - 2. Contractor shall contact Architect with requests for interpretation or additional information using the attached form. Architect will **not** accept requests for interpretation or information submitted directly from subcontractors, manufacturers, or suppliers.
  - 3. Architect will provide response to Contractor.
  - 4. Generate RFI by one source per project and number accordingly.
  - 5. Submit one request for information or clarification per form.
- B. Architect will review RFI from Contractor with reasonable promptness and Contractor will be notified in writing of decisions made.
- C. Architect's written response to RFI shall not be considered as a Pricing Order or Pricing Directive, nor does it authorize changes in Contract Sum or Contract Schedule.
- D. Contractor shall maintain a log of RFIs sent to and responses from Architect.
- E. Contractor shall make every reasonable effort to answer questions pertaining to Construction Documents before submitting an RFI.

##### 1.04 RFI FORM

- A. Submit RFIs on attached form. Architect will not respond unless proper form is used.
- B. If submittal form or format does not provide space needed for complete information, additional sheets may be attached.

**PART 2 PRODUCTS**

Not Used.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**



# REQUEST FOR INTERPRETATION

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Project: \_\_\_\_\_ R.F.I. Number: \_\_\_\_\_  
 \_\_\_\_\_  
 From: \_\_\_\_\_  
 To: \_\_\_\_\_ Date: \_\_\_\_\_  
 \_\_\_\_\_  
 A/E Project Number: \_\_\_\_\_  
 Re: \_\_\_\_\_ Contract For: \_\_\_\_\_

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Specification Section:	Paragraph:	Drawing Reference:	Detail:
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Request:

Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

---

Response:

Attachments

---

Response From:	To:	Date Rec'd:	Date Ret'd:
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Signed by: \_\_\_\_\_ Date: \_\_\_\_\_

---

Copies:  Owner  Consultants  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  File

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## SECTION 01 29 76

### APPLICATIONS FOR PAYMENT

#### **PART 1 - GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to this Section.

##### **1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.
- B. Coordinate the "Schedule of Values" and Periodic Estimate for Partial Payment Applications with the Contractor's "Construction Schedule", list of Subcontracts and "Submittal Schedule".
- C. The Contractor's Construction Schedule and Submittal Schedule are outlined in Section titled "Submittal".

##### **1.03 SCHEDULE OF VALUES**

- A. Coordinate preparation of the "Schedule of Values" with preparation of the Contractor's "Construction Schedule".
- B. Submit the "Schedule of Values" to the SNRHA for approval at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.
- C. Format and Content: Use the instructions given at the Preconstruction meeting to establish the format for the Schedule of Values.
- D. Identification: Include the following Project Identification on the Schedule of Values:

SNRHA's Name and Address  
Project Name and Location  
HUD Project Number  
Contractor's Name and Address  
Date of Submittal

Arrange the Schedule of Values in a tabular form on HUD-51001, "Periodical Estimate for Partial Payment".

Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.

Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.

For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

- E. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.

**1.04 APPLICATIONS FOR PAYMENT:**

- A. Each Application for Payment shall be consistent with The Approved Schedule of Values and previous applications and payments as certified and paid for by the SNRHA. It shall also be accompanied by a certified payroll form.

The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

- B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application for Payment is the period indicated in the General Conditions.
- C. Payment Application Forms: Use HUD-51001 as the form for Application for Payment and form WH-347 to submit certified payroll forms.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

Entries shall match data on the Schedule of Values and Contractor' Construction Schedule. Use updated schedules if revisions have been made.

Payroll forms shall accompany each application for payment (Form WH-347 is included for Contractor's use.) **This payroll form must be submitted on a weekly basis whether or not it is accompanying a payment.**

Include amounts of Change Orders issued prior to the last day of the construction period covered by the application.

- E. Transmittal: Submit one originally executed copy of each Application for Payment to the SNRHA by means ensuring receipt within 24 hours; one copy shall include waivers of lien and similar attachments.

Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to SNRHA.

- F. Waivers of Mechanics Lien: With each application for Payment, submit waivers of mechanics lien from every Subcontractor or entity who may lawfully be entitled to file a mechanics lien arising out of the Contract, and related to the Work covered by the Payment.

Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered b the application.

Submit final Application for Payment with or proceeded by final waiver from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.

Waiver Forms: Submit waiver of lien on forms, and executed in a manner, acceptable to SNRHA.

- G. Initial Application for Payment: Administrative actions and Submittal that must precede or coincide with submittal of the first Application for Payment include the following:

- List of subcontractors
- List of principal suppliers and fabricators
- Schedule of Values
- Contractor's Construction Schedule (preliminary if not final)
- Schedule of principal products
- Submittal Schedule (preliminary if not final)
- List of contractor's staff assignments
- List of Contractor's principal consultants
- Copies of building permits
- Copies of authorizations and licenses from governing authorities for performance of the Work
- Initial progress report
- Any forms or schedules called for in "General Requirements" sections.

- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, (a sample of which is included in this section) submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for SNRHA occupancy of designated portions of the Work.

Administrative actions and Submittals that shall proceed or coincide with this application include:

- Warranties (guarantees) and maintenance agreements
- Maintenance instructions given to Maintenance Supervisor with signed receipt
- Receipt for any additional parts supplied
- Final cleaning sign-off from Maintenance Supervisor
- Application for reduction of retainage, and consent of surety
- Advice on shifting insurance coverage
- List of incomplete work, recognized as exceptions to Architect's Certificate of Substantial Completion

- I. Final Payment Application: Administrative actions and Submittal, which must precede or coincide with submittal of the final payment Application for Payment include the following:

- Completion of Project closeout requirements
- Completion of items specified for completion after Substantial Completion
- Assurance that unsettled claims will be settled
- Assurance that Work not completed and accepted will be completed without undue delay
- Transmittal of required Project construction records to SNRHA
- Certified property survey
- Proof that taxes, fees and similar obligations have been paid
- Removal of temporary facilities and services
- Removal of surplus materials, rubbish and similar elements
- Certificate and Release form (sample included in this Section)

## **PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 31 13

### COORDINATION AND MEETINGS

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Coordination.
- B. Pre-Construction meeting.
- C. Progress meetings.
- D. Examination.
- E. Preparation – See Section 01 51 00 Construction Facility and Temporary Controls and 01 71 33 Protection of Adjacent Construction.
- F. Cutting and patching – See Section 01 73 29 Cutting and Patching.
- G. Alteration project procedures - See Section 01 35 16 Alteration Project Procedures.

##### **1.02 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project to assure efficient and orderly sequence of demolition construction work.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Follow demolition plan for capping of utilities, according to Plan.
- D. Coordinate completion and clean-up of work in preparation for Substantial Completion.

##### **1.03 PRE-CONSTRUCTION MEETING**

- A. SNRHA will schedule a meeting after Notice of Award.
- B. Attendance Required: Owner, Architect, Contractor, and Subcontractors.

##### **1.04 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.
- B. SNRHA will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job Superintendent, major Subcontractors, suppliers, Architect, and Owner, as appropriate to agenda topics for each meeting.

## **PART 2 – PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Beginning new work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in individual specification sections.
- C. Verify that utility services are available, of the correct characteristics, and in the correct location.

**END OF SECTION**

## SECTION 01 32 16

### PROGRESS SCHEDULE

#### PART 1 - GENERAL

##### 1.01 METHODS

- A. The Contractor shall comply with Project progress scheduling by use of one or the other of the two methods as specified herein; the particular method will be indicated elsewhere in the Contract Documents.
  - 1. Critical Path Method
  - 2. Bar Chart Schedule

##### 1.02 PROGRESS SCHEDULE (CPM)

- A. The Contractor shall coordinate the Project through the use of the Critical Path Method (CPM) of planning and scheduling. The Contractor shall utilize this method for the planning and scheduling of the Project and performing the Work in an orderly and expeditious manner. The progress status at various stages of the Project will be monitored by the Progress Schedule. The Project Schedule will be used to analyze delays and evaluate requests for extension of time.
- B. Should the progress of this Work be delayed for any reason other than those mentioned in the General Conditions under Article 9.01 "Termination for Cause" and if such delays being the fault of the Contractor and resulting in the Contractor being unable to comply with the scheduled completion date, the Contractor agrees to take all necessary action, including additional overtime at the Contractor's expense, to ensure that the established completion date will be met. In order to meet the established completion date, the Contractor hereby agrees to employ such techniques as the Work may warrant.

It is not incumbent upon the SNRHA or its Architect to notify the Contractor when to begin, to cease or resume work, nor give early notice of rejection of faulty work, nor in any way to superintend so as to relieve the Contractor of responsibility of any consequence of neglect or carelessness of the Contractor's employees. All materials and labor shall be furnished at such time that all Contract work may be properly and fully completed on Contract time. No claim for Contractor interference, direction or acceleration will be recognized from the CM's coordination and/or on site implementation of the Contract schedule activities.

##### C. SCHEDULING REQUIREMENTS

- 1. The Contractor will be required to utilize the Critical Path Method (CPM) of planning and scheduling. The Contractor will be required to submit five (5) sets of the CPM schedule. The schedule will include as many activities as necessary to make the schedule an effective tool for construction planning and monitoring the performance of each Subcontractor. The Contractor's schedule will include all pertinent activities, including, but not limited to milestone dates, submittal dates, required approval dates for shop drawings, purchasing activities, ordering and delivery dates, and activities interfacing or interacting with Subcontractor or services. The Contractor will update the schedule at every job meeting and will show a comparison between actual progress and scheduled progress. The schedule will be revised as required by the condition of the Work.

2. If, in the opinion of the SNRHA or the Mod Coordinator, the Work falls behind schedule, the Contractor will be required to submit, within one week, a revised schedule demonstrating its proposed plan to make up the slippage in the schedule and ensure the completion of Work within the Contract time. If the SNRHA finds the proposed plan not acceptable, the Contractor will be required to resubmit a revised schedule for approval. The revised schedule will require the Contractor to increase the work force, the construction plan and equipment, or the number of work shifts at no additional cost to the SNRHA. The Contractor will also bear all the cost for the producing of the preliminary schedule and any subsequent schedule.
3. The Contractor shall provide a preliminary schedule within one week from the award of the Contract and a final schedule one-week after approved schedule. The Contractor will then schedule a meeting with the Subcontractors, the SNRHA, and/or Architect to review the schedule. Any adjustments required based upon review will be made to the schedule as recommended to eliminate conflicts and to comply with the Contract dates and Project completion dates.
4. The Contractor's detailed schedule of work will include, but not be limited to, the following:
  - a. Milestone dates
  - b. Mandatory Sequencing (e.g., Excavation Must Precede Foundations) will be separate from desirable sequencing (i.e., crew movement, construction equipment constraints and other logic restraints).
  - c. Testing Activities/Required Inspections (where applicable)
  - d. Shop Drawing Preparation and Approval Activities
  - e. Procurement Schedule (Order Dates, Deliveries, etc.)
  - f. Requirement for any on Site Shutdown that may impact work
  - g. Training or Instruction of School Personnel
  - h. Anticipated Start and Completion Dates for each activity
  - i. Anticipated durations in work days of each activity
  - j. Final Inspection/Beneficial Occupancy

After all networks and data are reviewed and this schedule agreed to, the Contractor shall process the information through a computer to develop the indicated early and late start and finish dates and float of the activities. The Contractor shall make adjustments to the Master (CPM) Network Schedule and the computer run to eliminate conflicts and to comply with the milestone dates and the Project completion date. After all adjustments have been made, the Contractor shall submit the final CPM Network Schedule and computer schedules to the SNRHA and/or Architect. This will be the official Project Schedule and shall be signed off by the Contractor and the Contractor's Subcontractors.

The Contractor will update this schedule at monthly schedule meetings with the Subcontractors. This meeting will be attended by the SNRHA and/or Architect. The update will determine the actual status of the Project and will act as a tool in the decision making necessary to keep the Project on schedule.



5. The Contractor shall schedule a meeting to update the schedule at the end of the first month following issuance of the Official Project Schedule and every month thereafter as required (or at lesser intervals if deemed necessary). The Contractor shall have in attendance at these meetings the individual Subcontractors/Vendors who are intimately familiar with the Project and its current status and who have decision-making authority. These representatives will assist the SNRHA and CM in every manner to determine the actual status of the Project and make such decisions as may be necessary to keep the Project on schedule. The bi-weekly progress report forms must be filled in by the Subcontractor prior to the meeting to indicate the status of each activity as of the end of the month by indicating the remaining duration and the actual start and finish dates of all activities started and/or completed since the last update. This includes shop drawings, procurement of material, etc., as well as actual on-site construction activities.
6. All Subcontractors shall meet with the Contractor, the SNRHA and/or Architect and provide the information necessary to prepare a revised (updated) arrow diagram and computer-generated schedule listing showing:
  - a. Approved changes in activity sequencing to reflect agreed upon schedule impact of either excusable delays, change orders, acknowledged differing site conditions or suspensions of Work.
  - b. Changes in activity durations for unstarted or partially complete activities where agreed upon.
  - c. The effect to the network of any delays to any activities in progress and/or the impact of known delays which are expected to affect future work.
  - d. Changes to activity logic, where agreed upon, to reflect revision in the Contractor's plan, i.e., changes in activity duration, and activity sequence for the purpose of regaining lost time or improving progress, mitigating the effect of excusable delays or Contractor's preference.
  - e. Changes to milestones, due dates and the overall Contract Completion Date, which have been agreed upon by the SNRHA since the last revision of the CPM schedule.
  - f. Proposed effects (not approved) to the schedule of any delays, Change Orders or Contractor requested changes, which are being negotiated as to the extent, if any, of a Contract adjustment reflecting any increases or decreases in the cost or time of performance of the Contract. The Contract late completion date will not be adjusted due to any changes not approved by the SNRHA.

The CPM Network Schedule shall accurately reflect the manner in which the Contractor intends to proceed with the Project and shall incorporate the impact of all delays and Change Orders as soon as these factors can be defined. All changes made to the schedule shall be subject to approval by the SNRHA prior to inclusion in the CPM Network Schedule.

7. When the SNRHA and the Contractor are unable to agree as to the amount of time to be allowed for delays and Change Order Work, or the manner in which this work is to be reflected on the arrow diagram, the scheduling shall reflect the logic and time durations furnished by the Contractor for the delays and Change Orders pending final decision by the SNRHA. If unapproved Contractor logic and time durations are used, the Contractor

agrees that any time delays to the Project; i.e., those which affect the time and performance of any of the Contracts as a responsibility of the Contractor until a final agreement has been made or a final decision rendered by the SNRHA regarding the manner in which the delays and Change Order work is to be reflected on the schedule. When this final decision has been made by the SNRHA, the CPM Network Schedule shall be revised in accordance with such decision and issued with a final analysis of the effect of the change on the Project.

8. If the Contractor desires to revise the logic of the approved CPM schedule so as to reflect a sequence of construction which differs from that originally agreed to, the Contractor must first obtain the approval, in writing, of all the Subcontractors whose work may be affected by the change and then must obtain the approval of the SNRHA.
9. Once each month, at the same time the network is updated, the Contractor shall make entries to identify those activities started by date and those completed by date during the previous period, to show the estimated time required to complete each activity started but not yet completed, to show activity percent completed and to reflect any changes in the arrow diagram approved in accordance with the preceding paragraph. After completion of the joint review, an updated Computer Schedule will be transmitted to all Subcontractors. The resultant monthly Computer Schedule and Network Schedule shall be recognized by the Contractor as solely the updated construction schedule to complete all remaining Contract work. In addition, once each month the Contractor shall furnish a narrative report. The narrative report will include a description of the amount of progress during the previous month in terms of completed activities in the plan currently in effect, a description of problem areas, current and anticipated delaying factors and their estimated impact on the performance of other activities and completion dates, and recommendations on corrective action for the Contractor. The SNRHA will review the Contractor's proposed corrective action for conformance with the Contract requirements. Approved corrective actions for Contractor are to be incorporated into the next schedule update. Failure of the Contractor to propose acceptable corrective actions for Contractor delays or slippages will be construed as a failure to properly schedule and prioritize the work in accordance with the requirements of the Contract Documents and it may cause the SNRHA to recommend corrective actions to maintain the overall project schedule. If the Contractor believes that the SNRHA direction constitutes a change, the Contractor shall furnish, within ten days, in writing, its own plan for corrective action. This plan is subject to approval by the SNRHA.
10. In addition, to this schedule, the Contractor, at every biweekly job meeting will be required to submit a two week schedule showing all scheduled activities for the following two weeks and a report of progress in the previous two weeks. It will be the responsibility of the Contractor to review these schedules and implement the coordination of the Subcontractors. The schedule will be submitted in a format approved by the SNRHA.

### **1.03 SCHEDULING REQUIREMENTS (BAR CHART)**

- A. The successful Contractor will be required to submit five (5) sets of a detailed Bar Chart Schedule. The schedule will include as many activities as necessary to make the schedule an effective tool for construction planning and monitoring the performance of each Subcontractor. The Contractor's schedule will include all pertinent activities, including, but not limited to, submittal dates, required approval dates of Shop Drawings, purchasing activities, ordering and delivery dates, and activities interfacing or interacting with Subcontractor or services. The Contractor will update the schedule at every job meeting and will show a comparison between actual progress and scheduled progress. The schedule will be revised as required by the condition of the Work.

- B. If, in the opinion of the SNRHA or its Designated Representative, the Work falls behind schedule, the Contractor will be required to submit a revised schedule within one week demonstrating its proposed plan to make up the slippage in the schedule and ensure the completion of Work within the Contract time. If the SNRHA finds the proposed plan not acceptable the Contractor will be required to resubmit a revised schedule for approval. The revised schedule will require the Contractor to increase the work force, the construction plan and equipment or the number of work shifts at no additional cost to the SNRHA. The Contractor will also bear all the cost for the producing of the preliminary schedule and any subsequent schedules.
- C. The Contractor will provide a preliminary schedule within one week from the award of the Contract and a final schedule one-week after approved schedule. The Contractor will then schedule a meeting with the Subcontractors, the SNRHA, to review the preliminary schedule. Any adjustment required based upon review will be made to the schedule as recommended to eliminate conflicts and to comply with the Contract dates and Project completion dates.
- D. The Contractor's detailed schedule of work will include, but not be limited to, the following:
1. Crew movements/Construction Equipment and Manpower
  2. Sequencing (e.g., Excavation Must Precede Foundations)
  3. Testing Activities/Required Inspections (where applicable)
  4. Shop Drawings Preparation and Approval Activities
  5. Procurement Schedule (Order Dates, Deliveries, etc.)
  6. Requirement for any on-Site Shutdowns that may impact work
  7. Training or Instruction of School Personnel
  8. Anticipated Start and Completion Dates for each activity
  9. Anticipated Durations in work days of each activity
  10. Final Inspection/Beneficial Occupancy
- E. In addition to this schedule, the Contractor at every biweekly job meeting will be required to submit a two week schedule showing all scheduled activities for the following two weeks and a report of progress in the previous two weeks. It will be the responsibility of the Contractor to review these schedules and implement the coordination of the Subcontractors. The schedule will be submitted in a format approved by the SNRHA.

#### **1.04 CONTRACTOR'S DAILY REPORTS**

- A. As soon as the Contractor has started work on the project, the Contractor shall submit to the SNRHA's Field Representative reports of the Work performed the previous day by any of the Contractor's employees, including the employees of the Subcontractors.
- B. The reports shall be prepared by the Contractor's Superintendent and shall bear his signature. Each report shall contain the following information:

1. The type of materials and/or major equipment being installed by the Contractor and the total number of employees worked in each category on that particular day.
2. The names of the Subcontractors working and the type of materials and/or major equipment being installed, together with the total number of employees working for each subcontractor on that particular day.
3. The major construction equipment being used by each contractor and/or Subcontractor.
4. Work pertaining to a Change Order and/or work being performed under protest.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

**SECTION 01 32 33**

**CONSTRUCTION PHOTOGRAPHS**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Record digital photography for archival and pay request purposes.
- B. Daily digital photography to define when construction visits are appropriate and for discussion.
- C. Camera
- D. Compact Disc
- E. Technique
- F. Submittals

**1.02 RELATED SECTIONS**

- A. Section 01 29 76 - Applications for Payment
- B. Section 01 33 00 – Submittals
- C. Section 01 77 00 - Contract Close-Out: Project record documents.

**1.03 DIGITAL PHOTOGRAPHY**

- A. Provide digital photographs of the site before any construction is started and throughout the progress of The Work. Digital photographs shall be of a quality acceptable to the Owner and Architect.
- B. Digital Photographs should be taken within seven days of each monthly Application for Payment and should represent work completed during the period preceding the Application for Payment. Photographs should be taken throughout the progress of the Work, up to and including Substantial Completion. Include as a minimum, 24 photographs of the following construction milestones:
  - 1. Site clearing
  - 2. Excavations
  - 3. Foundations
  - 4. Framing
  - 5. Stored Materials
  - 6. Site Improvements
  - 7. Enclosure of building
  - 8. Interior views

9. Contractor's completion of any segment of the Work.
  10. Substantial completion
- C. Daily Digital photography should be taken daily and e-mailed to the Owner and Architect at the end of each construction day.

**1.04 CAMERA**

- A. Digital: 1024 x 768 pixels minimum. Digital Camera shall have a minimum resolution of five (5) mega pixels with accurate time and date encoder.
1. Daily photographs shall be 2 megapixels minimum.
  2. Pay request photographs shall be 4 megapixels minimum.

**1.05 COMPACT DISC**

- A. Deliver two (2) Compact Discs with the close-out document submittals.
- B. Catalog and index disc in chronological sequence; provide typed table of contents with pay request.

**1.06 TECHNIQUE**

- A. Provide factual presentation.
- B. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

**1.07 VIEWS**

- A. Daily Digital Photographs:
1. Show work done that day only.
  2. Show two (2) photographs minimum per dwelling unit each work day.
  3. Show additional views to describe questions for discussion, discovery or as-built issues.

**1.08 SUBMITTALS**

- A. Deliver two (2) Compact Discs (CD) with each Application for Payment.
1. Each photo to be identified with the project name, number, subject/phase of work, orientation of view, approximate time of view, date.
  2. Store the digital photographs in JPEG format.
  3. One (1) disc will be retained by Architect for file record.
- B. Pay request pictures will be taken at approximately the same time of the month, each month.

**1.09 CONCEALED CONDITIONS**

- A. Where concealed conditions not indicated on the Contract Documents result in contractor's request for additional cost and time, completely depict those conditions using photography.
- B. Photograph before closing up walls showing piping, wiring and insulation.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 33 00

### SUBMITTALS

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed Products list.
- D. Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Manufacturer's installation instructions.
- H. Manufacturers' certificates.

##### **1.02 RELATED SECTIONS**

- A. Section 01 77 00 - Contract Close-Out: Contract warranties, bonds, manufacturers' certificates, and closeout submittals.
- B. Section 01 78 36 – Warranties and Bonds: Contract warranties, bonds, manufacturers' certificates, and closeout submittals.

##### **1.03 SUBMITTAL PROCEDURES**

- A. Transmit each submittal with Architect/Engineer accepted form.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Architect/Engineer at business address. Coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from the contractor.
- G. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Architect/Engineer review stamps.



- I. Revise and resubmit, identify all changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.
- K. Submittals not requested will not be recognized or processed.

#### **1.04 CONSTRUCTION PROGRESS SCHEDULES**

- A. Submit initial schedule in duplicate within 15 days after date of Owner-Contractor Agreement.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a computer-generated horizontal bar chart with separate line for each major section of Work or operation, identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by Allowances.

#### **1.05 PROPOSED PRODUCTS LIST**

- A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, model number of each product, and identify specification section number, as appropriate.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, reference standards, and identify specification section number, as appropriate.
- C. Include itemized listing of required submittals under each product and/or specification number, as appropriate.

#### **1.06 SHOP DRAWINGS**

- A. Submit the number of opaque reproductions, which Contractor requires, plus three copies, which will be retained by Architect/Engineer.
- B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTALS article above and for record documents purposes described in Section 01 77 00 - Contract Close-Out.
- C. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

### **1.07 PRODUCT DATA**

- A. Submit the number of copies, which the Contractor requires, plus two copies, which will be retained by the Architect/Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01 77 00 - Contract Close-Out.

### **1.08 SAMPLES**

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect/Engineer selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number of samples specified in individual specification sections; one of which will be retained by Architect/Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual specification sections.

### **1.09 MANUFACTURER INSTALLATION INSTRUCTIONS**

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer in quantities specified for Product Data. Provide duplicate copies for project close-out as described in Section 01 78 36 Warranties and Bonds: Form of Submittals.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

### **1.10 MANUFACTURER CERTIFICATES**

- A. When specified in individual specification sections, submit certification by manufacturer to Architect/Engineer, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

## **PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 34 00

### SHOP DRAWINGS AND SAMPLES

#### PART 1 - GENERAL

##### **1.01 CONTRACTOR SUBMITTAL**

- A. The Contractor shall submit the Shop Drawings, technical data, and Samples required by the Contract. The Contractor shall adhere to all submittal and scheduling requirements for Shop Drawings and Samples. After examination of such Shop Drawings and samples by the SNRHA, or the SNRHA's Designated Representative, and the return of such items by the SNRHA to the Contractor, the Contractor shall make corrections indicated and shall furnish to the SNRHA the required number of corrected copies of Shop Drawings and Samples. Paint and carpet color selection must be approved by the SNRHA prior to installation.

##### **1.02 SHOP DRAWINGS**

- A. Shop Drawings shall be accompanied by a letter of transmittal to the SNRHA or the SNRHA's Representative requesting approval and date approval is desired.
- B. Each Shop Drawings and letter of transmittal shall be identified with the following information:
  - 1. Project title.
  - 2. Contract name.
  - 3. Date of the drawing, including dates of any revisions.
  - 4. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable.
  - 5. Name of person or firm preparing Shop Drawings.
  - 6. Contract Drawing numbers and Specifications, Section Division and Paragraph numbers used as references in preparing Shop Drawings, and titles of items to which the Shop Drawings refer.
- C. Shop Drawings shall show the design, dimensions, connections and other details necessary to ensure that the Shop Drawings accurately interpret the Contract Documents and shall also show adjoining Work in such Detail as required to provide proper connections with said adjoining Work. Where adjoining connected Work requires Shop Drawings, such Shop Drawings shall be submitted to the SNRHA or the SNRHA's Representative for approval at the same time so that connections can be checked.
- D. The Contractor shall verify all field measurements. Measurements available prior to submittal of Shop Drawings shall be shown and so noted on the Shop Drawings. Measurements not available prior to submission of Shop Drawings shall be noted on the Shop Drawings as not available and such measurements shall be obtained prior to fabrication.
- E. The Contractor shall submit manufacturer's drawings and specifications when necessary to

fully explain apparatus and equipment required by the Work. These manufacturer's drawings and specifications shall be treated as Shop Drawings. Manufacturer's catalog numbers alone are not acceptable as sufficient information for compliance with this requirement.

### **1.03 PROCEDURE FOR SUBMITTAL AND APPROVAL OF ALL SHOP DRAWINGS**

- A. After approval of the required Shop Drawings Schedule, the Contractor shall submit one clear sepia transparency and two prints of Shop Drawings to the SNRHA, or designated Representative for review and approval. A satisfactory Shop Drawing will be stamped "Approved" or "Approved As Noted", and dated; the sepia transparency and one copy hereof will be returned to the Contractor.
- B. Should the Shop Drawings not be approved by the SNRHA or designated Representative it will be stamped "Revise and Resubmit" and one set of such Shop Drawings will be returned to the Contractor with the necessary corrections and changes to be made indicated thereon.
- C. The Contractor shall make such corrections and changes and again submit one sepia transparency and two prints of Shop Drawings for the approval of the SNRHA. The Contractor shall revise and resubmit the Shop Drawings as required by the SNRHA or designated Representative until approval thereof is obtained. However, Shop Drawings which have been stamped "Approved As Noted" shall be considered "Approved" Shop Drawings and need not be revised and resubmitted.
- D. The Sepia transparency of any approved Shop Drawing will be returned to the Contractor for the Contractor's distribution; such approved sepia transparency will be stamped and dated by the SNRHA or the SNRHA's Representative.

### **1.04 DISTRIBUTION OF APPROVED SHOP DRAWINGS**

- A. Approved Shop Drawings shall be distributed as follows by the Contractor:
  - 1. One (1) copy for the SNRHA's Field Representative.
  - 2. One (1) copy for the SNRHA's main office.
  - 3. One (1) copy for the SNRHA's designated Review Representative.
- B. Copies of Transmittals - Copies of all Shop Drawing transmittal letters from the Contractor shall be sent to the SNRHA's Field Representative.
- C. No work called for by the Shop Drawings shall be accomplished until approval of the said Drawings by the SNRHA or Designated Representative is given.
- D. Variations - If the Shop Drawings show variations from the Contract requirements because of standard shop practice, or other reasons, the Contractor shall make specific mention of such variations in the letter of transmittal.
- E. Responsibility of Contractor - The approval of Shop Drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the Work, nor of the furnishing of materials or Work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings shall not be construed as approving departures from the Contract Drawings,

Supplementary Drawings or Specifications.

- F. Shop Drawing Schedule - To enable the Work to be transacted in an orderly and expeditious manner, the Contractor shall within seven (7) days after the Notice to Proceed, unless otherwise directed by the SNRHA or Designated Representative, submit a proposed progress schedule showing the anticipated time of commencement and completion of the submission of Shop Drawings for each of the various operations to be performed under the Contract.

The Shop Drawing schedule shall be interfaced with the Construction Progress Schedule required by another Article in the General Requirements.

- G. Procedure for preparing, forwarding, checking and returning of all Shop Drawings shall be generally as follows:

1. The Contractor shall make available to the Contractor's Subcontractors the necessary Contract Documents and have them determine dimensions and conditions in the field, particularly with reference to coordination with other trades or work under other contracts;
2. The Contractor shall direct the Subcontractors to prepare Shop Drawings for submission to the SNRHA or the SNRHA's Representative, in accordance with the requirements of these "General Requirements".
3. The Contractor shall also direct the Contractor's Subcontractors to flag or circle corrections made on all resubmissions for approval, so as to be readily seen, and that the symbol "Sub" be used to identify the source of correction or information that has been added.
4. The Contractor shall:
  - a. Review and be responsible to the SNRHA for information shown on Subcontractor's shop and installation drawings and manufacturer's data, and also for conformity to Contract Documents.
  - b. Flag corrections made on all submissions for approval, so as to be readily seen, use the symbol "GC", "PL", "MECH" and "EL" to indicate that the correction and/or information added was made by the respective Subcontractor.
  - c. Clearly designate which trade is to perform the work when the use of "Work by Others" or other similar phrases are indicated on the Drawings before submission to the SNRHA's Representative.
  - d. Stamp submissions "Recommended for Approval", date and forward required copies to the SNRHA's Representative.
5. In order to expedite shop drawing procedures, the Contractor shall write a bi-weekly Shop Drawing status letter to the SNRHA, with copies to the Field Representative, containing the following subject matter:
6. A list of all Shop Drawings which have been sent to but not returned by the SNRHA, giving name of the Subcontractor, Drawing number, title and date of submission.

7. An indication of the desired priority of the return, if necessary.

Note: The status letter shall be prepared and sent at a given time, preferably Friday afternoon, to enable the SNRHA to receive the letter on Monday morning. This procedure shall be maintained throughout the active Shop Drawing period of construction.

#### **1.05 SAMPLES**

- A. Samples shall be accompanied by a letter of transmittal to the SNRHA's Representative requesting approval, and date approval is desired.
- B. Each sample shall be labeled with the following information:
  1. Project title.
  2. Contract name.
  3. Date of submission.
  4. Name and quality of the material.
  5. Name of Contractor, name of Subcontractor, Material Supplier and Manufacturer, as applicable.
  6. Contract Drawing numbers and Specification Section, Division and Paragraph numbers used as reference in preparing samples.
- C. Samples on Display - When Samples are specified to be equal to samples in the office of the SNRHA, they shall be carefully compared to such samples for verification that they are equal in all respects.
- D. Samples shall be of sufficient size and quantity to show the quality, type, color, finish and texture of the material required to be furnished by the Contractor pursuant to the Contract. Furnish specific sizes and quantities where indicated in the respective technical Sections.
- E. Valuable samples, such as hardware, plumbing and electrical fixtures, not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the Work after all questions of acceptability have been settled, providing suitable permanent records are made as to location of the samples, their properties, and other pertinent information.

#### **1.06 CONTRACTOR REVIEW**

- A. The Contractor shall review, verify and determine all field measurements, field construction criteria, materials, catalog numbers and similar data, shall coordinate each Shop Drawing and sample with the requirements of the Contract and shall determine whether or not such Shop Drawings are in conformity with the provisions of the Contract before submitting the Shop Drawings to the SNRHA, or the SNRHA's Designated Representative, for approval.

#### **1.07 CONTRACTOR RESPONSIBILITY**

- A. The SNRHA's approval, or review by the SNRHA's Designated Representative, of Shop

Drawings and samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract. The Contractor shall be responsible for the accuracy of the Shop Drawings and Samples and for the conformity of Shop Drawings and Samples with the Contract unless the Contractor has notified the SNRHA of the deviation in writing at the time of submission and has received from the SNRHA written approval of the specified deviations. The SNRHA's approval shall not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings and Samples.

**1.08 COMMENCEMENT OF WORK**

- A. No portion of the Work shall be commenced until required Shop Drawings and Samples are approved by the SNRHA.

**PART 2 – PRODUCTS**

Not Used

**PART 3 – EXECUTION**

Not Used

**END OF SECTION**



## SECTION 01 35 16

### ALTERATION PROJECT PROCEDURES

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Products for patching and extending Work.
- B. Examination and Preparation.
- C. Installation.
- D. Transitions and Adjustments.
- E. Repair of damaged surfaces.
- F. Finishes and Cleaning.

#### **PART 2 PRODUCTS**

##### **2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK**

- A. New Materials: As specified in Product sections. Match existing Products and Work for patching and extending Work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing Products where necessary, referring to existing Work as a standard.

#### **PART 3 EXECUTION**

##### **3.01 EXAMINATION**

- A. Verify that demolition is complete and areas are ready for installation of new Work.
- B. Beginning of restoration Work means acceptance of existing conditions.

##### **3.02 PREPARATION**

- A. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.
- E. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

### **3.03 INSTALLATION**

- A. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.
- B. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material with a neat transition to adjacent finishes.
- D. Recover and refinish exposed mechanical and electrical work exposed accidentally during the work.
- E. Install Products as specified in individual sections.

### **3.04 TRANSITIONS**

- A. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Owner.

### **3.05 ADJUSTMENTS**

- A. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect's review.
- C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.

### **3.06 REPAIR OF DAMAGED SURFACES**

- A. Patch or replace portions of existing surfaces that are damaged, lifted, discolored or showing other imperfections.
- B. Repair substrate prior to patching finish.

### **3.07 FINISHES**

- A. Finish surfaces as specified in individual Product sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

### **3.08 CLEANING:**

- A. In addition to final cleaning specified in Section 01 77 00 Contract Close-Out, clean areas of work daily as specified in Section 01 51 00 Construction Facility and Temporary Controls.

**END OF SECTION**

## SECTION 01 35 33

### ENVIRONMENTAL PROCEDURES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Indoor Air Quality (IAQ) Requirements.
- B. Carcinogenic and Toxic Materials.
- C. Emission Rate Test Methods.
- D. Dry Materials.
- E. Emission Rate Standards.

##### 1.02 REFERENCES

- A. National Ambient Air Quality Standard (U.S. EPA, Code of Federal Regulations, Title 40, Part 50).
- B. Industrial Workplace Standard (Reference: American Conference of Governmental Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, OH 45211-4438).
- C. International Agency for Research on Cancer list of Chemical Carcinogens.
- D. Carcinogen List of the National Toxicology Program.
- E. Reproductive Toxin List of the Catalog of Teratogenic Agents.
- F. U.S. Environmental Protection Agency (EPA-600/8-89-074).

##### 1.03 INDOOR AIR QUALITY (IAQ) REQUIREMENTS

- A. Interior construction materials, finishes, and furnishing including partitions, partition coverings, insulation, flooring, floor coverings, wall covering, ceiling tiles, adhesives, sealants, glazes, paints, and similar materials shall be designed, manufactured, handled, and installed in such a manner to produce the least harmful or annoying effects on the occupants of the building.
- B. Make written notification of these requirements to all appropriate suppliers of these materials to ensure that compliance is obtained from the manufacturers.
- C. All materials shall emit the lowest, yet technologically achievable, emissions of particles and chemical vapors.
  - 1. As a minimum, materials shall meet emission rate standards set forth below.
  - 2. All emission rate calculations shall assume 900 ft<sup>3</sup> (25.49 m<sup>3</sup>) to be the work station volume for determination of Product loading.

## **1.04 EMISSION RATE STANDARDS**

- A. Formaldehyde Emission Rate Standard: Product emission rate measured in mg/m<sup>2</sup>/hr shall not result in an indoor air concentration level of formaldehyde greater than 0.1 ppm at the anticipated loading (m<sup>2</sup>/m<sup>3</sup> within the building) within 30 days of installation.
- B. Total Volatile Organic Content (VOC) Emission Rate Standard: Product emission rate measured in mg/m<sup>2</sup>/hr shall not result in an indoor air concentration level greater than 0.5 mg/m<sup>3</sup> of the total volatile organic compounds at the anticipated loading (m<sup>2</sup>/m<sup>3</sup> within the building) within 30 days of installation.
- C. 4 Phenyl Cyclohexene (4-PC) Emission Rate Standard: Product emission rate measured in mg/m<sup>2</sup>/hr shall not result in an indoor air concentration level of 4-PC greater than 0.1 ppb at the anticipated loading (m<sup>2</sup>/m<sup>3</sup> within the building) within 30 days of installation.
- D. Regulated Pollutant Standard: Any pollutant regulated as a primary or secondary outdoor air pollutant shall meet an emission rate that will not generate an air concentration greater than that promulgated by the National Ambient Air Quality Standard.
- E. Otherwise Unmentioned Pollutant Standard: Any pollutant not specified above shall meet an emission rate standard that will not produce an air concentration level greater than 1/10 the Threshold Limit Value (TLV) Industrial Workplace Standard at the anticipated loading (m<sup>2</sup>/m<sup>3</sup> within the building) within thirty (30) days of installation.

## **PART 2 PRODUCTS**

### **2.01 CARCINOGENIC AND TOXIC MATERIALS**

- A. For all interior design materials, furnishings, and finishes, disclose in writing to Owner prior to installation of such materials, furnishings, and finishes any detectable amounts of substances emitted into the indoor air which are listed on any of the following.
  - 1. International Agency for Research on Cancer List of Chemical Carcinogens, or
  - 2. Carcinogen List of the National Toxicology Program, or
  - 3. Reproductive Toxin List of the Catalog of Teratogenic Agents.

### **2.02 DRY MATERIALS**

- A. "Dry" Materials:
  - 1. Do not install "dry" furnishing and finishing materials, such as carpet, acoustical panels, textiles, and so forth, until "wet" materials (adhesives, sealants, glazes, caulks, paint, and so forth) have been applied and allowed to dry to the extent feasible and in accordance with good building practices.
  - 2. Choose drying times so that pollutant emission rates as specified for IAQ are achieved prior to installation of the "dry" furnishing and finishing materials.
- B. Pre-Conditioning: All dry furnishing and finishing materials shall be allowed to "air out" or pre-condition prior to installation in the building.

### **2.03 EMISSION RATE TEST METHODS**

- A. All emission rate testing specified shall be completed according to the dynamic environmental chamber technology as prescribed by the U.S. EPA.
- B. Make data available to Owner for review and approval.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**

## SECTION 01 42 00

### REFERENCE STANDARDS AND STATUTORY REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS IN GENERAL

- A. Comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.
- B. It is not Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if Contractor observes that portions of the Contract Documents are at variance therewith, Contractor shall promptly notify Owner in writing, and necessary changes shall be accomplished by appropriate Modification.
- C. If Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to Architect and Owner, Contractor shall assume full responsibility for such Work and shall bear the attributable costs.
- D. Permits and Fees: Comply with requirements specified in the General Conditions.
- E. Taxes: Comply with requirements specified in the General Conditions.
- F. Business Regulations:
  - 1. Comply with all federal, state, and local laws relative to conducting business in Clark County including, but not limited to, licensing, labor, and health laws, and including NRS 338.010 through 338.180, as amended, if applicable.
  - 2. The laws of the State of Nevada will govern as to the interpretation, validity, and effect of this bid, its award, and any contract entered into.

##### 1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents unless a date is specified in a technical section.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

##### 1.03 SCHEDULE OF REFERENCES

- A. The following are definitions of abbreviations that occur, or may occur, elsewhere in these general requirements and technical requirements. Inclusion here of a reference to an industry standards group is for the purpose of the definition of the abbreviation. Inclusion in the work of this construction contract industry's standards group is referenced elsewhere in these general requirements and/or technical requirements.

AA	Aluminum Association 818 Connecticut Avenue N. W. Washington, DC 20006
AABC	Associated Air Balance Council 1518 "K" Street N. W. Washington, DC 20005
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street N. W. Washington, DC 20001
ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
ADC	Air Diffusion Council 230 North Michigan Avenue Chicago, IL 60601
AGC	Associated General Contractors of America 1957 "E" Street N. W. Washington, DC 20006
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AIA	American Institute of Architects 1735 New York Avenue N. W. Washington, DC 20006
AISC	American Institute of Steel Construction 400 North Michigan Avenue, Eighth Floor Chicago, IL 60611
AISI	American Iron and Steel Institute 1000 16th Street N. W. Washington, DC 20036
AITC	American Institute of Timber Construction 333 W. Hampden Avenue Englewood, CO 80110
AMA	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Association Box 11700 Tacoma, WA 98411
ARI	Air-Conditioning and Refrigeration Institute



	1501 Wilson Boulevard Arlington, VA 22209
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers 1791 Tullie Circle N. E. Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASPA	American Sod Producers Association 4415 West Harrison Street Hillside, IL 60162
ASTM	American Society for Testing and Materials. 1916 Race Street Philadelphia, PA 19103
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206
AWPA	American Wood-Preservers' Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 550 LeJeune Road N. W. Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
BIA	Brick Institute of America 11490 Commerce Park Drive Reston, VA 22091
CDA	Copper Development Association 57th Floor, Chrysler Building 405 Lexington New York, NY 10174
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue N. W. Washington, DC 20036
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
DHI	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102
EJCDC	Engineers' Joint Contract Documents Committee

	American Consulting Engineers Council 1015 15th Street N. W. Washington, DC 20005
EJMA	Expansion Joint Manufacturers Association 25 North Broadway Tarrytown, NY 10591
FGMA	Flat Glass Marketing Association White Lakes Professional Building 3310 Harrison Topeka, KS 66611
FM	Factory Mutual System 1151 Boston-providence Turnpike P. O. Box 688 Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information, Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
ICBO	International Conference of Building Officials 5360 S. Workman Mill Road Whittier, CA 90601
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street New York, NY 10017
IMIAC	International Masonry Industry All-Weather Council - International Masonry Institute 815 15th Street N. W. Washington, DC 20005
MBMA	Metal Building Manufacturer's Association 1230 Keith Building Cleveland, OH 44115
MFMA	Maple Flooring Manufacturers Association 60 Revere Drive Northbrook, IL 60062
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers

221 North LaSalle Street  
Chicago, IL 60601

NCMA National Concrete Masonry Association  
P. O. Box 781  
Herndon, VA 22070

NEBB National Electrical Manufacturer's Association  
2101 "L" Street N. W.  
Washington, DC 20037

NFPA National Fire Protection Association  
Battery March Park  
Quincy, MA 02269

NFPA National Forest Products Association  
1619 Massachusetts Avenue N. W.  
Washington, DC 20036

NSWMA National Solid Wastes Management Association  
1730 Rhode Island Ave. N. W.  
Washington, DC 20036

NTMA National Terrazzo and Mosaic Association  
3166 Des Plaines Avenue  
Des Plaines, IL 60018

NWMA National Woodwork Manufacturers Association  
205 W. Touhy Avenue  
Park Ridge, IL 60068

PCA Portland Cement Association  
5420 Old Orchard Road  
Skokie, IL 60077

PCI Prestressed Concrete Institute  
201 North Wells Street  
Chicago, IL 60606

PS Product Standard US Department of Commerce  
Washington, DC 20203

RIS Redwood Inspection Service  
One Lombard Street  
San Francisco, CA 94111

RCSHSB Red Cedar Shingle and Handsplit Shake Bureau  
515 116th Avenue  
Bellevue, WA 98004

SDI Steel Deck Institute  
P. O. Box 9506  
Canton, OH 44711

SDI Steel Door Institute  
712 Lakewood Center North  
14600 Detroit Avenue  
Cleveland, OH 44107

SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive Chicago, IL 60601
SJI	Steel Joist Institute 1205 48th Avenue North, Suite A Myrtle Beach, SC 29577
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 8224 Old Court House Road Vienna, VA 22180
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213
TCA	Tile Council of America, Inc. Box 326 Princeton, NJ 08540
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
WCLIB	West Coast Lumber Inspection Bureau 6980 S. W. Varns Road, Box 23145 Portland, OR 97223
WWPA	Western Wood Products Association 1500 Yeon Building Portland, OR 97204

#### **1.04 STATUTORY REQUIREMENTS FOR CONSTRUCTION CONTRACTS AND SUBCONTRACTS**

- A. All terms and conditions are governed by Southern Nevada Regional Housing Authority **Bid # B12154**
- B. Each Contractor or subcontractor shall comply with laws and all applicable standards, orders, or regulations issued pursuant thereto; including but not limited to the following:
1. The Copeland "Anti-Kickback" Act, as amended (18 USC 874) as supplemented in Department of Labor regulations (41 CFR Chapter 60).
  2. Nondiscrimination, Title VI of the Civil Rights Act of 1964 (PL 88-352), as amended, (42 USC 2000d) and the requirements imposed by the regulations of the Department of Commerce (15 CFR Part 8) issued pursuant to that title.
  3. The Flood Disaster Protection Act of 1973 (PL 93-234), as amended.
  4. Architectural Barriers Act (PL 90-480), 42 USC 4151, as amended.
  5. Rehabilitation Act of 1973, 29 USC 794, Executive Order 11914.
  6. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646, as amended) 15 CFR Part 916.
  7. The National Environmental Policy Act of 1979 (PL 90-1890); the National Historic Preservation Act of 1966 (80 Stat 915, 16 USC 470); and Executive Order No. 11593 of May 31, 1971.
  8. Equal Employment Opportunity, Executive Order 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Chapter 60).
  9. Certification of Nonsegregated Facilities as Required by the May 9, 1967, Order (32 FR 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor.

10. The Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.
11. The Power Plant and Industrial Fuel Use Act of 1978 (92 Stat. 3318. PL 95-620) relating to the conservation of petroleum and natural gas.

**PART 2 PRODUCTS**

Not Used.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**

## SECTION 01 51 00

### CONSTRUCTION FACILITY AND TEMPORARY CONTROLS

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Temporary Utilities: Electricity, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures, and fencing, protection of the work and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings.

##### **1.02 TEMPORARY ELECTRICITY**

- A. Cost: By Contractor, provide and pay for power service required from utility source to field office.
- B. Provide power outlets for construction operations. Provide flexible power cords as required.
- C. Provide main service disconnect and over current protection at convenient location.
- D. Provide adequate distribution equipment, wiring, and outlets to provide single-phase branch circuits for power and lighting to accomplish the work.

##### **1.03 TELEPHONE SERVICE**

- A. Provide, maintain, and pay for telephone service to field office at time of project mobilization.

##### **1.04 TEMPORARY WATER SERVICE**

- A. Cost: by Contractor, provide, maintain and pay for water service required

##### **1.05 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures.

##### **1.06 BARRIERS**

- A. Provide barricades required by governing authorities for public right-of-way.
- B. Provide protection for plant life designated to remain.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- D. If necessary, provide and maintain temporary chain link fence 6'-0" high minimum to prevent unauthorized entry to construction areas to allow for Owner's use or site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

##### **1.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic from landscaped areas.
- D. Prevent erosion and sedimentation. Provide water barriers as required to protect site from soil erosion. Provide temporary measures such as berms, dikes, and drains to prevent water flow. Apply corrective measures as required for any erosion or sedimentation.
- E. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

**1.03 PROGRESS CLEANING AND WASTE REMOVAL**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

**1.04 FIELD OFFICES – N/A**

**1.05 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, and materials prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work or access/storage areas.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 60 00

### MATERIAL AND EQUIPMENT

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Products
- B. Transportation and handling
- C. Storage and protection
- D. Product options
- E. Substitutions

##### **1.02 PRODUCTS**

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacture, for components being replaced.

##### **1.03 TRANSPORTATION AND HANDLING**

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

##### **1.04 STORAGE AND PROTECTION**

- A. Store and protect Products in accordance with manufacturers' instructions with seals and labels intact and legible.
- B. Store sensitive Products in weather tight, climate controlled enclosures.
- C. For exterior storage of fabricated Products, place on sloped supports, above ground.
- D. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Product.
- F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.



- H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

#### **1.05 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

#### **1.06 SUBSTITUTIONS**

- A. SNRHA/Architect/Engineer will consider requests for Substitutions only within 15 days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Bidder or Contractor:
  - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
  - 2. Will provide the same warranty for the Substitution as for the specified Product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
  - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
  - 3. The SNRHA/Architect/Engineer will notify Contractor in writing of decision to accept or reject request.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

## SECTION 01 71 33

### PROTECTION OF ADJACENT CONSTRUCTION

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Protect existing utilities and improvements not designated for removal.
- B. Restore damaged or temporarily relocated utilities and improvements to condition equal to or better than condition prior to such damage or temporary relocation in accordance with Contract Documents.
- C. Verify exact locations and depths of utilities shown and make exploratory excavations of utilities that may interfere with Work.
  - 1. Perform exploratory excavations as soon as practicable after award of Contract and in sufficient time in advance of construction to avoid possible delays to Contractor's Work.
  - 2. When exploratory excavations show utility location as shown to be in error, notify Owner.
- D. Number of exploratory excavations shall be sufficient to determine alignment and grade of existing utilities.

##### 1.02 REFERENCES

- A. Standard Specifications: *Uniform Standard Specifications for Public Works' Construction, Off-Site Improvements, Clark County Area, Nevada*, most recent edition.
  - 1. Comply with referenced sections and subsections of Standard Specifications.
  - 2. Contractual, measurement, and payment provisions of Standard Specifications do not apply.

#### PART 2 PRODUCTS

Not Used.

#### PART 3 EXECUTION

##### 3.01 CONSTRUCTION INTERFERENCES

- A. Contractor's responsibilities regarding existing utilities and construction interferences shall be in accordance with Subsection 105.06 of the Standard Specifications, with the following additional provisions.
- B. Construction interferences include:
  - 1. Utility or service connections within limits of excavation or over-excavation required for Work under Contract.
  - 2. Utility or service connections located in space required by Work under Contract.
  - 3. Utility or service connections required to be disturbed or removed to permit construction as specified under Contract.
    - a. Disturb or remove only with approval of Owner and following notification to owner of interfering utility or service connection.
    - b. Promptly reconstruct removed or disturbed utility or service connections in original or other authorized location in condition at least as good as prior to such removal or disturbance, subject to inspection of owner of same.

- C. Contractor's responsibility to remove or replace shall apply even in event damage or destruction occurs after backfilling. Notify owner of utility or service connection immediately after damage or destruction occurs or is discovered.
- D. During performance of Work, owner of utility affected by Work shall have right to enter when necessary upon any portion of Work for purpose of maintaining service and of making changes in or repairs to said utility.
- E. Contractor shall not be held responsible for failure to complete Work on time to extent that such delay was caused by failure of owner or of agency having jurisdiction over utility or service connection to authorize or otherwise provide for its removal, relocation, protection, support, repair, maintenance, or replacement.
- F. Exercise extreme care so as not to damage existing utilities and/or new and existing facilities that do not physically constitute construction interference.
  - 1. Use equipment of such weights throughout construction operations that existing buried utilities and/or new and existing facilities are not damaged by excessive loadings thereon.
  - 2. Be responsible for costs of repair and/or replacement of new or existing facilities damaged by operations, as determined by Owner.
- G. Prior to trenching, contact "CALL BEFORE YOU DIG" 1-800-227-2600 to determine location of existing utilities.
  - 1. Repairs to be made shall include appropriate warranties for that portion of utility deemed damaged.
  - 2. Costs for repair of damaged utilities: Responsibility of Contractor.
- H. Contractor acknowledges that utility companies may not be members of USA System and, therefore, not automatically contacted by referenced telephone number.
  - 1. Be aware of utility company facilities not reported by USA System, and bear damages stemming from repair or delay costs or other expenses resulting from unanticipated discovery of underground utilities.
  - 2. Notify the following utilities at least two working days in advance of commencement of Work at site to examine construction site and mark location of utilities' respective facilities. Verify that each utility has responsibly responded to notification.
    - a. NV ENERGY - Engineering Dept., phone 367-5232.
    - b. SOUTHWEST GAS CORPORATION - Line Locator Dispatcher, phone 365-2269.
    - c. EMBARQ - Cable Locator, phone 385-3651.
    - d. AT&T COMMUNICATIONS - Supervisor of Operations, phone 736-6676.
    - e. SOUTHERN NEVADA WATER SYSTEM - Location Supt., phone 565-9763.
    - f. CITY OF LAS VEGAS - Electrical Dept., phone 386-6333; Traffic Engineering Dept., phone 386-6327; Sanitation Division, phone 457-1233.
    - g. COX COMMUNICATIONS (CABLE TV) - phone 385-3339.
    - h. LAS VEGAS VALLEY WATER DISTRICT - Engineering Dept., phone 258-3118.
    - i. CITY OF HENDERSON – Water and Sewer Service, Customer Care Center phone (702) 267-5900.
    - j. KERN RIVER GAS TRANSMISSION COMPANY - phone 399-1612.
  - 3. If above telephone numbers are changed, Contractor is not relieved of responsibility for notifying various utilities.

### **3.02 OVERHEAD POWER LINE SAFETY LAW**

- A. Overhead Power Line Safety Law: The Nevada Legislature enacted NRS 455.200 to 455.250 requiring utilities be notified and give consent before Work is performed near overhead power lines.

- B. Call NV Energy at 593-6111 prior to working with hand tools or operating equipment near overhead power lines.
- C. If necessary, additional conditions may be required by NV Energy before consent to do the Work is given; these could include:
  - 1. Reasonable limits on the time, place, and manner of the Work.
  - 2. Placing barriers to prevent contact with the lines.
  - 3. Temporarily disconnecting the power to the lines.
- D. Work to be done by NV Energy as a result of these conditions shall be started within 5 working days of:
  - 1. Receiving notice of Work planned near an overhead line, or
  - 2. Executing an agreement on payment for preventative work needed to meet these conditions.
- E. Penalties of up to \$1,000 per day could be imposed for violation of this law. Contact Scott Paris at 227-2671 with questions regarding this law.
- F. Contractor performing the Work in the vicinity of the overhead line carrying high voltage shall pay actual expenses incurred by the public utility in carrying out the preventative measures required.

### **3.03 PROTECTION OF STREET OR ROADWAY MARKERS**

- A. Do not destroy, remove, or otherwise disturb existing survey markers or other existing street or roadway markers without proper authorization.
- B. Do not start pavement breaking or excavation until survey or other permanent marker points that will be disturbed by construction operations have been properly referenced for easy and accurate restoration.
- C. Survey markers or points disturbed by Contractor without proper authorization shall be accurately restored at Contractor's expense after street or roadway resurfacing has been completed.

### **3.04 RESTORATION OF PAVEMENT**

- A. Replace paved areas, including asphaltic concrete berms cut or damaged during construction, with similar materials and of equal thickness to match existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in Contract Documents or in requirements of agency issuing permit.
- B. Temporary and permanent pavement shall conform to requirements of owner of affected pavement.
- C. Neatly saw cut in straight lines pavements which are subject to partial removal.
- D. Comply with Subsection 208.03.05 of the Standard Specifications.

**END OF SECTION**

## SECTION 01 73 29

### CUTTING AND PATCHING

#### **PART 1 GENERAL**

##### **1.01 SECTIONS INCLUDES**

- A. Cutting, fitting, and patching required to complete the Work or to make its parts fit together properly.

##### **1.02 SUBMITTALS**

- A. Submit written request in advance of cutting or alteration which affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate contractor.
- B. Include in request:
  - 1. Identification of Project.
  - 2. Location and description of affected Work.
  - 3. Necessity for cutting or alteration.
  - 4. Description of proposed Work and Products to be used.
  - 5. Alternatives to cutting and patching.
  - 6. Effect on work of Owner or separate contractor.
  - 7. Written permission of affected separate contractor.
  - 8. Date and time Work will be executed.

##### **1.03 REQUIREMENTS AND LIMITATIONS**

- A. Do not damage or endanger a portion of the Work or fully or partially completed construction of Owner or separate contractors by cutting, patching, excavation, or otherwise altering such construction.
- B. Do not cut or otherwise alter such construction by Owner or a separate contractor except with written consent of Owner and of such separate contractor.
  - 1. Such consent will not be unreasonably withheld.
  - 2. Do not unreasonably withhold from Owner or a separate contractor, Contractor's consent to cutting or otherwise altering the Work.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Primary Products: Those required for original installation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
- B. After uncovering existing Work, assess conditions affecting performance of Work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Provide protection from elements for areas that may be exposed by uncovering Work.
- B. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project.
- C. Maintain excavations free of water.

### **3.03 CUTTING**

- A. Execute cutting and fitting including excavation and fill to complete the Work.
- B. Uncover Work to install improperly sequenced Work.
- C. Remove and replace defective or non-conforming Work.
- D. Remove samples of installed Work for testing when requested.
- E. Provide openings in the Work for penetration of mechanical and electrical Work.
- F. Employ original installer to perform cutting for weather exposed and moisture resistant elements and sight-exposed surfaces.
- G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

### **3.04 PATCHING**

- A. Execute patching to complement adjacent Work.
- B. Fit Products together to integrate with other Work.
- C. Execute Work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- D. Employ original installer to perform patching for weather exposed and moisture resistant elements and sight exposed surfaces.
- E. Restore Work with new Products in accordance with requirements of Contract Documents.
- F. Fit Work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

- G. At penetrations of walls, partitions, ceiling, or floor construction completely seal voids with fire-rated material to full thickness of penetrated element.
- H. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

**END OF SECTION**



**SECTION 01 77 00**  
**CONTRACT CLOSE-OUT**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Close-out procedures.
- B. Final cleaning.
- C. Project record documents.
- D. Warranties – See Section 01 78 36 Warranties and Bonds.

**1.02 RELATED SECTIONS**

- A. Section 01 78 36 – Warranties and Bonds.
- B. Section 01 32 33 – Construction Photographs.

**1.03 CLOSE-OUT PROCEDURES**

- A. Submit written certification that Contract Documents have been reviewed, work has been inspected and that work is complete in accordance with Contract Documents and ready for Owner's review.
- B. Provide submittals to SNRHA that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

**1.03 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
- B. Clean site: sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from site.

**1.04 PROJECT RECORD DOCUMENTS**

- A. Maintain on site, one set of the following record documents; record actual revisions to the work:
  - 1. Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Change Orders and other modifications to the Contract.
  - 5. Permits and Licensing

- B. Store record documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
  - 2. Field changes of dimension and detail.
  - 3. Details not on original Contract drawings.
  - 4. Accurately record actual locations of capped utilities, subsurface obstructions, etc.
- E. Construction photographs.
- F. Submit documents to SNRHA with claim for final Application for Payment.
- G. Final payment application (10% retention) can not be released until the punch-list has been completed and all close-out documents have been received and approved by the Housing Authority.

**PART 2 – PRODUCTS**

Not Used

**PART 3 – EXECUTION**

Not Used

**FINAL PAYMENT DOCUMENTATION**

(Per CIAP 7485.1 Section 9-30)

<b>Project #</b>	<b>Purchase Order #</b>
<b>CFP/SNRHA RESERVE #</b>	<b>Contract #C</b>
<b>Project Name</b>	<b>Pre-Construction Meeting</b>
<b>Contractor</b>	<b>Construction Completion Date</b>
<b>NTP Date</b>	<b>IFB #</b>
<b>Contract Amount</b>	

**C H E C K L I S T**

<b>ITEM #</b>	<b>FORM REFERENCE</b>	<b>ITEM DESCRIPTION</b>	<b>DATE REC'D.</b>
1	Contractors Letterhead	Any time extensions applied for ( <b>See Change Orders</b> )	
2	Daily Construction rpt.	Sign-off of Final Punch List (incl. As-Built Dwgs./Reviewed by City)	
		Set of As-Built Drawings and Specs	
		Set of City-Reviewed Drawings and Specs	
3	LiabRel.con	Release of Liability	
4	CertComp.pre <sup>A</sup>	Certificate of Completion	
5	Cert&Rel.con	Certification and Release	
6	Contractor's Letterhead	Approved Construction Progress Schedule	
7	CChgOrd.frm	Any Executed Change Orders	
8	Contractor's Letterhead	Any warranties or guarantees of items called for	
9	Contractor's Transmittal	Any signed receipts for material turned over to SNRHA	
10	Building Department	Certificate of Occupancy (when appropriate)	
11	HUD51001/HUD51002	"Final" Periodical Estimate for Partial Payment	
12	Mechanic.Wav	Subcontractor/Supplier Final Waiver of Mechanics Lien	
13	SIIS.frm	"Final Certificate" OF Insurance on GC or Subs	
14	Bond.frm	Request for Final Clearance for Claims & Outstanding Balance of Bond	
15	HUD-60002	Section 3 Summary Report	
16	Section 3	Certification of Compliance by Section 3 Coordinator	SNRHA
17	ARRA	Jobs created or retained	N/A
18	Quality Assurance	Contractor Evaluation	SNRHA
19	Certified Payroll form	Hours, Manpower and Schedule	
20	SNRHA	Letter to HUD about Final	SNRHA

<sup>A</sup> Any contract exceeding \$50,000 needs prior HUD approval before processing final payment (see section 9-31 for items needed in submission). Contracts of \$2,000 and subject to Davis Bacon need to submit the "Certificate of Completion" to the Labor Relations staff at HUD

**END OF SECTION**

## SECTION 01 78 36

### WARRANTIES AND BONDS

#### **PART 1 - GENERAL**

##### **1.01 RELATED SECTIONS**

- A. Invitation to Bid: Instruction to Bidders: Bid Bonds.
- B. General Conditions: Performance Bond and labor and material payment bonds, warranty, and corrections of work.
- C. Section 01 77 00 – Contract Close-Out.
- D. Individual Specification Sections: Warranties, and Operations and Maintenance data, required for specific products or work.

##### **1.02 FORM OF SUBMITTALS**

- A. Bind in commercial quality 8 ½" x 11 inch, three 'D' size ring binders with durable covers.
- B. Cover: Identify each binder with typed or printed titles WARRANTIES AND BONDS, with title of project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- E. Separate Operations and Maintenance data for each product or work item with index tab sheets keyed to the Table of Contents listing.

##### **1.03 PREPARATION OF SUBMITTALS**

- A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
- B. Verify that documents are in proper form and contain full information.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until specified for submittal.

**1.04 TIME OF SUBMITTALS**

- A. For equipment or component parts of equipment put into service during construction with owner's permission, submit documents within ten (10) days after acceptance.
  
- B. Make other submittals with ten (10) days after date of Substantial Completion, prior to final Application for Payment.

For items of work for which acceptance is delayed beyond date of Substantial Completion, submit within ten (10) days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 – PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

**END OF SECTION**

**SECTION 02 41 00  
DEMOLITION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Selective demolition of built site elements.
- B. Selective demolition of building elements for alteration purposes.

**1.02 REFERENCE STANDARDS**

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2009.

**1.03 SUBMITTALS**

- A. Site Plan: Showing:
  - 1. Vegetation to be protected.
  - 2. Areas for temporary construction and field offices.
  - 3. Areas for temporary and permanent placement of removed materials.
- B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
  - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
  - 2. Identify demolition firm and submit qualifications.
  - 3. Include a summary of safety procedures.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

**1.04 QUALITY ASSURANCE**

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Fill Material: As indicated on the drawings.

**PART 3 EXECUTION**

**3.01 SCOPE**

- A. Remove paving and curbs as required to accomplish new work.

- B. Remove concrete slabs on grade as indicated on drawings.
- C. Remove other items indicated, for salvage, relocation, and recycling.
- D. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

### **3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
  - 1. Obtain required permits.
  - 2. Comply with applicable requirements of NFPA 241.
  - 3. Use of explosives is not permitted.
  - 4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  - 5. Provide, erect, and maintain temporary barriers and security devices.
  - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
  - 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  - 8. Do not close or obstruct roadways or sidewalks without permit.
  - 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
  - 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Do not begin removal until built elements to be salvaged or relocated have been removed.
- D. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.
- E. Protect existing structures and other elements that are not to be removed.
  - 1. Provide bracing and shoring.
  - 2. Prevent movement or settlement of adjacent structures.
  - 3. Stop work immediately if adjacent structures appear to be in danger.

- F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- G. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- H. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.
- I. Perform demolition in a manner that maximizes salvage and recycling of materials.
  - 1. Comply with requirements of Section 01 74 19 - Waste Management.
  - 2. Dismantle existing construction and separate materials.
  - 3. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.
- J. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

### **3.03 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
  - 2. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on drawings.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
  - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.



2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
  3. See Section 01 10 00 for other limitations on outages and required notifications.
  4. Verify that abandoned services serve only abandoned facilities before removal.
- F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.
  4. Patch as specified for patching new work.

#### **3.04 DEBRIS AND WASTE REMOVAL**

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; do not burn or bury.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 03 20 00  
CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

**1.02 RELATED REQUIREMENTS**

Section 03 30 00 - Cast-in-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- B. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.
- C. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement; 2009b.
- D. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; 2001.
- E. CRSI (P1) - Placing Reinforcing Bars; Concrete Reinforcing Steel Institute; Eighth Edition.

**1.04 SUBMITTALS**

- A. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- B. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301.
  - 1. Maintain one copy of each document on project site.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
  - 1. Deformed billet-steel bars.
  - 2. Unfinished.
- B. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage.
2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

## **2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
- B. Welding of reinforcement is not permitted.
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

## **PART 3 EXECUTION**

### **3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing as follows:
  1. Slabs on Fill: 2" inch.
- E. Conform to applicable code for concrete cover over reinforcement.

**END OF SECTION**

**SECTION 03 30 00  
CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete formwork.
- B. Floors and slabs on grade.
- C. Joint devices associated with concrete work.
- D. Miscellaneous concrete elements, including equipment pads.
- E. Concrete curing.

**1.02 RELATED REQUIREMENTS**

Section 03 20 00 - Concrete Reinforcing.

Section 07 90 05 - Joint Sealers: Sealants for saw cut joints and isolation joints in slabs.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- G. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.
- I. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.
- J. ASTM C33 - Standard Specification for Concrete Aggregates; 2011.

- K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2010.
- L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2011.
- M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2010a.
- N. ASTM C150 - Standard Specification for Portland Cement; 2011.
- O. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.
- P. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).
- Q. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2009.

#### **1.04 SUBMITTALS**

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Samples: Submit samples of underslab vapor retarder to be used.
- C. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  - 1. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
  - 2. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

#### **2.02 REINFORCEMENT**

- A. Comply with requirements of Section 03 20 00.

### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type V - Sulfate Resistant Portland type.
  - 1. Acquire all cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
  - 1. Acquire all aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Water: Clean and not detrimental to concrete.

### **2.04 ACCESSORY MATERIALS**

- A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
  - 1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
  - 2. Products:
    - a. Insulation Solutions, Inc; Viper VaporCheck II 15-mil (Class A):  
[www.insulationsolutions.com](http://www.insulationsolutions.com).
    - b. Stego Industries, LLC; Stego Wrap Vapor Barrier 15-mil (Class A):  
[www.stegoindustries.com](http://www.stegoindustries.com).

### **2.05 BONDING AND JOINTING PRODUCTS**

- A. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
  - 1. Material: ASTM D1751, cellulose fiber.

### **2.06 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
  - 1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Normal Weight Concrete:

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi.
2. Maximum Slump: 3 inches.
3. Maximum Aggregate Size: 3/4 inch.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### **3.02 PREPARATION**

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

### **3.03 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Ensure reinforcement will not be disturbed during concrete placement.
- D. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- E. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### **3.04 SLAB JOINTING**

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

### **3.05 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. An independent testing agency, as specified in Section 01 40 00, will inspect finished slabs for conformance to specified tolerances.
- B. Maximum Variation of Surface Flatness:
  1. Exposed Concrete Floors: 1/4 inch in 10 ft.
  2. Under Seamless Resilient Flooring: 1/4 inch in 10 ft.
  3. Under Carpeting: 1/4 inch in 10 ft.
- C. Correct the slab surface if tolerances are less than specified.
- D. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

### **3.06 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 301.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
  2. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

### **3.07 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- D. Surfaces Not in Contact with Forms:



1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
3. Final Curing: Begin after initial curing but before surface is dry.

### **3.08 DEFECTIVE CONCRETE**

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

### **3.09 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

**SECTION 05 12 00**  
**STRUCTURAL STEEL FRAMING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural steel framing members, support members, suspension cables, sag rods, and struts, as required for shade structure.
- B. Base plates, shear stud connectors and expansion joint plates.
- C. Grouting under base plates.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

- A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2005.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.
- D. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2007.
- E. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2006a.
- F. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2011.
- G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

**1.04 SUBMITTALS**

- A. Shop Drawings:
  - 1. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
- B. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- C. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

**1.05 QUALITY ASSURANCE**

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Steel Angles and Plates: ASTM A36/A36M.
- B. Steel W Shapes and Tees: ASTM A992/A992M.
- C. Shear Stud Connectors: Made from ASTM A 108 Grade 1015 bars.
- D. Suspension Cable: wire rope.
- E. Sag Rods: ASTM A 36/A 36M.
- F. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C1107/C1107M and capable of developing a minimum compressive strength of 7,000 psi at 28 days.

### **2.02 FABRICATION**

- A. Shop fabricate to greatest extent possible.

### **2.03 FINISH**

## **PART 3 EXECUTION**

### **3.01 ERECTION**

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

### **3.02 TOLERANCES**

- A. Maximum Offset From True Alignment: 1/4 inch.

**END OF SECTION**

**SECTION 06 10 00  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Non-structural dimension lumber framing.
- B. Miscellaneous framing and sheathing.
- C. Concealed wood blocking, nailers, and supports.
- D. Miscellaneous wood nailers, furring, and grounds.

**1.02 REFERENCE STANDARDS**

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2001.
- B. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2010.
- C. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.
- D. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004, and supplements.

**1.03 SUBMITTALS**

- A. Product Data: Provide technical data on wood preservative materials and application instructions.
- B. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.
- C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Douglas Fir-Larch, unless otherwise indicated.

2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
  3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
  4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
- B. Lumber fabricated from old growth timber is not permitted.

## **2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Stud Framing (2 by 2 through 2 by 6 ):
  1. Species: Any allowed under referenced grading rules.
  2. Species: Douglas Fir-Larch.
  3. Grade: No. 2.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  1. Lumber: S4S, No. 2 or Standard Grade.
  2. Boards: Standard or No. 3.

## **2.03 ACCESSORIES**

- A. Fasteners and Anchors:
  1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
  2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
  3. Anchors: Toggle bolt type for anchorage to hollow masonry.
- B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

## **2.04 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 FRAMING INSTALLATION**

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

### **3.04 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Specifically, provide the following non-structural framing and blocking:
  - 1. Cabinets and shelf supports.
  - 2. Wall brackets.
  - 3. Grab bars.
  - 4. Towel and bath accessories.
  - 5. Wall-mounted door stops.
  - 6. Wall paneling and trim.

### **3.05 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

### **3.06 CLEANING**

- A. Waste Disposal: Comply with the requirements of Section 01 74 19.
  - 1. Comply with applicable regulations.
  - 2. Do not burn scrap on project site.
  - 3. Do not burn scraps that have been pressure treated.
  - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

**END OF SECTION**

**SECTION 06 20 00  
FINISH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Finish carpentry items.
- B. Wood door frames, glazed frames.
- C. Wood casings and moldings.

**1.02 REFERENCE STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- C. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

**1.04 SUBMITTALS**

- A. Product Data:
  - 1. Provide instructions for attachment hardware and finish hardware.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
  - 1. Minimum Scale of Detail Drawings: 1-1/2 inch to 1 foot.
  - 2. Provide the information required by AWI/AWMAC/WI Architectural Woodwork Standards.
  - 3. Include certification program label.
- C. Samples: Submit two samples of wood trim 6 inch long.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.



1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.
2. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
3. Single Source Responsibility: Provide and install this work from single fabricator.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect work from moisture damage.

### **PART 2 PRODUCTS**

#### **2.01 FINISH CARPENTRY ITEMS**

- A. Surface Burning Characteristics: Provide materials having fire and smoke properties as required by applicable code.
- B. Interior Woodwork Items:
  1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine; prepare for paint finish.

#### **2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.

#### **2.03 LUMBER MATERIALS**

- A. Softwood Lumber: pine species, maximum moisture content of 6 percent; .
  1. Grading: In accordance with rules certified by ALSC; [www.alsc.org](http://www.alsc.org).

#### **2.04 PLASTIC LAMINATE MATERIALS**

- A. Plastic Laminate: NEMA LD 3, VGS ; finish as selected ; 204 Butcherblock Maple manufactured by Formica.
- B. Laminate Adhesive: Type recommended by laminate manufacturer to suit application; not containing formaldehyde or other volatile organic compounds.

#### **2.05 FASTENINGS**

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

#### **2.06 ACCESSORIES**

- A. Lumber for Shimming, and Blocking: Softwood lumber of fir species.
- B. Wood Filler: Solvent base, tinted to match surface finish color.

## **2.07 WOOD TREATMENT**

- A. Factory-Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Wood Preservative by Pressure Treatment (PT Type): AWPA U1 Treatment using water borne preservative with 0.25 percent retainage.
- C. Shop pressure treat wood materials requiring fire rating to concealed wood blocking.
- D. Provide identification on fire retardant treated material.
- E. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

## **2.08 FABRICATION**

- A. Cap exposed plastic laminate finish edges with plastic trim.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.
- C. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
- D. Apply laminate backing sheet to reverse face of plastic laminate finished surfaces.

## **2.09 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. Prime paint surfaces in contact with cementitious materials.
- D. Back prime woodwork items to be field finished, prior to installation.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### **3.02 INSTALLATION**

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.

- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

### **3.03 PREPARATION FOR SITE FINISHING**

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

### **3.04 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 07 90 05**  
**JOINT SEALERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Sealants and joint backing.

**1.02 REFERENCE STANDARDS**

- A. ASTM C834 - Standard Specification for Latex Sealants; 2010.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2010.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with other sections referencing this section.

**1.04 SUBMITTALS**

- A. Product Data: Provide data indicating sealant chemical characteristics.
- B. Samples: Submit two samples, 1/2 x 6 inch in size illustrating sealant colors for selection.
- C. Manufacturer's Installation Instructions: Indicate special procedures.

**1.05 QUALITY ASSURANCE**

- A. Maintain one copy of each referenced document covering installation requirements on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

**1.06 FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

**1.07 WARRANTY**

- A. Correct defective work within a one year period after Date of Substantial Completion.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Silicone Sealants:

1. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  2. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com](http://www.momentive.com).
  3. Pecora Corporation; 890NST Ultra Low Modulus Architectural Silicone Sealant - Class 100: [www.pecora.com](http://www.pecora.com).
  4. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  5. BASF Construction Chemicals-Building Systems: [www.buildingsystems.basf.com](http://www.buildingsystems.basf.com).
  6. Red Devil; 100% Silicone Industrial Grade RTV Sealant: [www.reddevil.com](http://www.reddevil.com).
  7. Tremco Global Sealants: [www.tremcosealants.com](http://www.tremcosealants.com).
  8. Sherwin-Williams Company; Silicone Rubber All Purpose Sealant: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  9. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Polyurethane Sealants:
1. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  2. Pecora Corporation: [www.pecora.com](http://www.pecora.com).
  3. BASF Construction Chemicals-Building Systems: [www.buildingsystems.basf.com](http://www.buildingsystems.basf.com).
  4. Sherwin-Williams Company; Stampede-1/-TX Polyurethane Sealant: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  5. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Acrylic Sealants (ASTM C920):
1. Tremco Global Sealants: [www.tremcosealants.com](http://www.tremcosealants.com).
  2. Red Devil; Siliconized Acrylic Construction Grade (35 Year) Sealant: [www.reddevil.com](http://www.reddevil.com).
  3. Sherwin-Williams Company; Shermax Urethanized Elastomeric Sealant: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  4. Substitutions: See Section 01 60 00 - Product Requirements.

## 2.02 SEALANTS

- A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content as specified in Section 01 61 16.
- B. Type 1 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
1. Color: Match adjacent finished surfaces.

2. Applications: Use for:
  - a. Interior wall and ceiling control joints.
  - b. Joints between door and window frames and wall surfaces.
  - c. Other interior joints for which no other type of sealant is indicated.
- C. Type 2 - Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
  1. Applications: Use for:
    - a. Joints between plumbing fixtures and floor and wall surfaces.
    - b. Joints between kitchen and bath countertops and wall surfaces.
- D. Type 3 - Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.
  1. Color: Gray.
  2. Applications: Use for:
    - a. Joints in sidewalks and vehicular paving.

### **2.03 ACCESSORIES**

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

### **3.02 PREPARATION**

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

### **3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
  - E. Install bond breaker where joint backing is not used.
  - F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
  - G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
  - H. Tool joints concave.
- I. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.
- J. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

### **3.04 CLEANING**

- A. Clean adjacent soiled surfaces.

### **3.05 PROTECTION**

- A. Protect sealants until cured.

**END OF SECTION**

**SECTION 08 14 16**  
**FLUSH WOOD DOORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flush wood doors; flush configuration; non-rated.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 20 00 - Finish Carpentry.

**1.03 REFERENCE STANDARDS**

- A. ANSI A135.4 - American National Standard for Basic Hardboard; 2004.
- B. ASTM E413 - Classification for Rating Sound Insulation; 2010.
- C. ASTM E1408 - Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems; 1991 (Reapproved 2000).
- D. AWI (QCP) - Quality Certification Program, [www.awiqcp.org](http://www.awiqcp.org); current edition at [www.awiqcp.org](http://www.awiqcp.org).
- E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- F. AWMAC (GIS) - Guarantee and Inspection Services Program; current edition at [www.awmac.com/gis.php](http://www.awmac.com/gis.php).
- G. ICC (IBC) - International Building Code; 2009.
- H. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association; 2008.
- I. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.
- J. WDMA I.S.1-A - Architectural Wood Flush Doors; Window and Door Manufacturers Association; 2004.
- K. WI (CCP) - Certified Compliance Program (CCP); current edition at [www.woodworkinstitute.com/certification](http://www.woodworkinstitute.com/certification).
- L. WI (MCP) - Monitored Compliance Program (MCP); current edition at [www.woodworkinstitute.com/certification](http://www.woodworkinstitute.com/certification).

**1.04 SUBMITTALS**

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.



1. Provide the information required by AWI/AWMAC/WI Architectural Woodwork Standards.
  2. Include certification program label.
- C. Specimen warranty.
- D. Test Reports: Show compliance with specified requirements for the following:
1. Sound-retardant doors and frames; sealed panel tests are not acceptable.
  2. Electrostatic shielded doors and frames.
  3. Bullet resistant doors and frames.
- E. Warranty, executed in Owner's name.

### **1.05 QUALITY ASSURANCE**

### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

### **1.07 WARRANTY**

- A. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Wood Veneer Faced Doors:
1. Graham Wood Doors: [www.grahamdoors.com](http://www.grahamdoors.com).
  2. Eggers Industries: [www.eggersindustries.com](http://www.eggersindustries.com).
  3. Haley Brothers: [www.haleybros.com](http://www.haleybros.com).
  4. Marshfield DoorSystems, Inc: [www.marshfielddoors.com](http://www.marshfielddoors.com).
  5. Substitutions: See Section 01 60 00 - Product Requirements.

### **2.02 DOORS AND PANELS**

- A. All Doors: See drawings for locations and additional requirements.

1. Quality Level: Economy Grade, in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.
- B. Interior Doors: 1-3/8 inches thick unless otherwise indicated; flush construction.
  1. Provide solid core doors at all locations .
  2. Wood veneer facing for field opaque finish .

### **2.03 DOOR AND PANEL CORES**

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.

### **2.04 DOOR FACINGS**

- A. Veneer Facing for Opaque Finish: Hardboard.
- B. Hardboard Facing for Opaque Finish: AHA A135.4, Class 1 - Tempered, S2S (smooth two sides) hardboard, composition face, 1/8 inch thick.

### **2.05 DOOR CONSTRUCTION**

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
  1. Provide solid blocks at lock edge for hardware reinforcement.
  2. Provide solid blocking for other throughbolted hardware.
- C. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.
- D. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- E. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
  1. Exception: Doors to be field finished.
- F. Provide edge clearances in accordance with the quality standard specified.

### **2.06 FACTORY FINISHING - WOOD VENEER DOORS**

- A. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
  1. Opaque:
    - a. Color: As selected by Architect.
    - b. Sheen: Semigloss.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### **3.02 INSTALLATION**

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Field-Finished Doors: Trimming to fit is acceptable.
  - 1. Adjust width of non-rated doors by cutting equally on both jamb edges.
  - 2. Trim maximum of 3/4 inch off bottom edges.
- D. Use machine tools to cut or drill for hardware.
- E. Coordinate installation of doors with installation of frames and hardware.

### **3.03 TOLERANCES**

- A. Conform to specified quality standard for fit and clearance tolerances.
- B. Conform to specified quality standard for telegraphing, warp, and squareness.

### **3.04 ADJUSTING**

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

### **3.05 SCHEDULE - SEE DRAWINGS**

**END OF SECTION**

SECTION 08 71 00  
DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:

1. Swinging doors.

- B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Cylinders specified for doors in other sections.

- C. Related Sections:

1. Section 06 10 00 – Rough Carpentry.
2. Section 06 20 00 – Finish Carpentry.
3. Section 08 06 10 – Door Schedule..
4. Section 08 14 16 – Flush Wood Doors.
5. Section 09 90 00 – Painting and Coating.

- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
3. ASTM E1886 - Test Method for Performance of Exterior Windows, Curtin Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
5. ASTM E1996 - Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.
6. FEMA 361 2008 - Design and Construction Guidance for Community Safe Rooms.

7. ICC 500 - ICC/NSSA Standard for the Design and Construction of Storm Shelters.
8. ICC/IBC - International Building Code.
9. NFPA 70 - National Electrical Code.
10. NFPA 80 - Fire Doors and Windows.
11. NFPA 101 - Life Safety Code.
12. NFPA 105 - Installation of Smoke Door Assemblies.
13. TAS-201-94 - Impact Test Procedures.
14. TAS-202-94 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.
15. TAS-203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
16. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

### 1.4 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

## 1.5 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
  - 1. Ten years for mortise locks and latches.
  - 2. Seven years for heavy duty cylindrical (bored) locks and latches.
  - 3. Five years for standard duty cylindrical (bored) locks and latches.
  - 4. Five years for exit hardware.
  - 5. Ten years for manual door closers.

## 1.6 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

## PART 2 - PRODUCTS

### 2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
1. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
    - a. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
  2. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
    - a. Permanent cylinders, cores, and keys to be installed by Owner.
- B. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

### 2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.
1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
    - a. Two Hinges: For doors with heights up to 60 inches.
    - b. Three Hinges: For doors with heights 61 to 90 inches.
    - c. Four Hinges: For doors with heights 91 to 120 inches.
    - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
  2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
    - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
    - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
  - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing hinges unless Hardware Sets indicate standard weight.
  - b. Interior Doors: Standard weight, steel, ball bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
  - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
    - 1) Out-swinging exterior doors.
    - 2) Out-swinging access controlled doors.
5. Acceptable Manufacturers:
  - a. McKinney Products (MK).

B. Continuous Geared Hinges: ANSI/BHMA A156.26 certified continuous geared hinge with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Provide concealed flush mount (with or without inset), full surface, or half surface, in standard and heavy duty models, as specified in the Hardware Sets. Concealed continuous hinges to be U.L. listed for use on up to and including 90 minute rated door installations and U.L. listed for windstorm components where applicable. Factory cut hinges for door size and provide with removable service power transfer panel where indicated at electrified openings.

1. Acceptable Manufacturers:
  - a. McKinney Products (MK).
  - b. Pemko Manufacturing (PE).

## 2.3 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified automatic, self-latching, and manual flush bolts and surface bolts. Manual flush bolts to be furnished with top rod of sufficient length to allow bolt location approximately six feet from the floor. Furnish dust proof strikes for bottom bolts. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

1. Acceptable Manufacturers:



- a. Rockwood Manufacturing (RO).
- B. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified below or in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
- 1. Push/Pull Plates: Minimum .050 inch thick, 4-inches wide by 16-inches high, with square corners and beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Straight Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection from face of door unless otherwise indicated.
  - 3. Offset Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection and offset of 90 degrees unless otherwise indicated.
  - 4. Push Bars: Minimum 1-inch round diameter horizontal push bars with minimum clearance of 2 1/2-inch projection from face of door unless otherwise indicated.
  - 5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
- a. Acceptable Manufacturers:
    - 1) Rockwood Manufacturing (RO).

## 2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- 1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU).
    - b. Yale Locks and Hardware (YA).
- C. Cylinders: Original manufacturer cylinders complying with the following:
- 1. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
  - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
  - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

- D. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Incorporate decisions made in keying conference, and as follows:
1. Master Key System: Cylinders are operated by a change key and a master key.
- E. Key Quantity: Provide the following minimum number of keys:
1. Top Master Key: One (1)
  2. Change Keys per Cylinder: Two (2)
  3. Master Keys (per Master Key Group): Two (2)
  4. Construction Control Keys (where required): Two (2)
  5. Permanent Control Keys (where required): Two (2)
- F. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".
- G. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

## 2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified mortise locksets furnished in the functions as specified in the Hardware Sets. Locksets to be manufactured with a corrosion resistant, stamped 12 gauge minimum formed steel case and be field-reversible for handing without disassembly of the lock body. Lockset trim (including knobs, levers, escutcheons, roses) to be the product of a single manufacturer. Furnish with standard 2 3/4" backset, 3/4" throw anti-friction stainless steel latchbolt, and a full 1" throw stainless steel bolt for deadbolt functions.
1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) – ML2000 Series.
    - b. Yale Locks and Hardware (YA) – 8800FL Series.
- B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified cylindrical (bored) locksets furnished in the functions as specified in the Hardware Sets. Lock chassis fabricated of heavy gauge steel, zinc dichromate plated, with through-bolted application. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt. Locks are to be non-handed and fully field reversible.

1. Acceptable Manufacturers:

- a. Corbin Russwin Hardware (RU) – CL3300 Series.
- b. Yale Locks and Hardware (YA) 5400LN Series.

C. Cylindrical Locksets, Grade 1 (Commercial Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified cylindrical (bored) locksets furnished in the functions as specified in the Hardware Sets. Lock chassis fabricated steel, zinc dichromate plated, with through-bolted application. Furnish with standard 2 3/4" backset and 1/2" throw brass or stainless steel latchbolt. Locks are to be non-handed and fully field reversible.

1. Acceptable Manufacturers:

- a. Corbin Russwin Hardware (RU) – CL3500 Series.
- b. Yale Locks and Hardware (YA) 4700LN Series.

D. Lock Trim Design: As specified in Hardware Sets.

## 2.6 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

- 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
- 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
- 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

B. Standards: Comply with the following:

- 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
- 2. Strikes for Bored Locks and Latches: BHMA A156.2.
- 3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
- 4. Dustproof Strikes: BHMA A156.16.

## 2.7 DOOR CLOSERS

A. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units and high impact, non-corrosive plastic covers standard.

1. Acceptable Manufacturers:

- a. Corbin Russwin Hardware (RU) - DC8000 Series.
- b. Norton Door Controls (NO) - 7500 Series.
- c. Yale Locks and Hardware (YA) - 4400 Series.

B. Door Closers, Surface Mounted (Unitrol): ANSI/BHMA 156.4, Grade 1 certified surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Unitrol arms to have door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width. Provide high impact, non-corrosive plastic covers standard.

1. Acceptable Manufacturers:

- a. Corbin Russwin Hardware (RU) - Unitrol DC8000 Series.
- b. Norton Door Controls (NO) - Unitrol 7500 Series.
- c. Yale Locks and Hardware (YA) - Unitrol 4400 Series.

## 2.8 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.
  - a. Stainless Steel: .050-inch thick, with countersunk screw holes (CSK).
  - b. Brass or Bronze: .050-inch thick, with countersunk screw holes (CSK).
  - c. Laminate Plastic or Acrylic: 1/8-inch thick, with countersunk screw holes (CSK).
4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets.
5. Metal Door Edging: Door protection edging fabricated from a minimum .050-inch thick metal sheet, formed into an angle or "U" cap shapes, surface or mortised mounted onto edge of door. Provide appropriate leg overlap to account for protection plates as required. Height to be as specified in the Hardware Sets.

6. Acceptable Manufacturers:
  - a. Rockwood Manufacturing (RO).

## 2.9 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Acceptable Manufacturers:
  - a. Rockwood Manufacturing (RO).

- C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Acceptable Manufacturers:
  - a. Rixson Door Controls (RF).
  - b. Rockwood Manufacturing (RO).

## 2.10 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
  1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: :Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Acceptable Manufacturers:
  1. Pemko Manufacturing (PE).

## 2.11 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## 2.12 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### 3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

### 3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
  - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

### 3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

### 3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

### 3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. and provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

### 3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### 3.8 DOOR HARDWARE SCHEDULE

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. Manufacturer's Abbreviations:

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1. MK - McKinney



2. PE - Pemko
  3. AD - Adams Rite
  4. RO - Rockwood
  5. YA - Yale
  6. RF - Rixson
  7. NO - Norton
  8. SU - Securitron
- 

C. Please refer to sheet A9.01 for door and hardware schedule

END OF SECTION 08 71 00

**SECTION 09 05 61**  
**COMMON WORK RESULTS FOR FLOORING PREPARATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
  - 1. Resilient tile and sheet.
  - 2. Thin-set ceramic tile and stone tile.
- B. Removal of existing floor coverings.
- C. Preparation of new and existing concrete floor slabs for installation of floor coverings.
- D. Testing of concrete floor slabs for moisture and pH.
- E. Remediation of concrete floor slabs due to unsatisfactory moisture or pH conditions.
  - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-In-Place Concrete: Limitations on curing requirements for new concrete floor slabs.

**1.03 REFERENCES**

- A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2008.
- B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2009).
- C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.
- D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2010.
- E. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; May 2011.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

## **1.05 SUBMITTALS**

- A. Visual Observation Report: For existing floor coverings to be removed.
- B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
  - 1. Moisture and pH limits and test methods.
  - 2. Manufacturer's required bond/compatibility test procedure.
- C. Adhesive Bond and Compatibility Test Report.
- D. Copy of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings.

## **1.06 QUALITY ASSURANCE**

- A. Contractor may perform adhesive and bond test with his own personnel or hire a testing agency.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
  - 1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
  - 2. Latex or polyvinyl acetate additions are permitted; gypsum content is prohibited.
  - 3. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
- B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.
- C. Remedial Floor Coating: Coating intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of pH found, and suitable for adhesion of flooring without further treatment or with only the addition of a skim coat of patching compound or adhesive.

## **PART 3 EXECUTION**

### **3.01 CONCRETE SLAB PREPARATION**

- A. Perform following operations in the order indicated:

1. Preliminary cleaning.
  2. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
  3. pH tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
  4. Specified remediation, if required.
  5. Patching, smoothing, and leveling, as required.
  6. Other preparation specified.
  7. Adhesive bond and compatibility test.
  8. Protection.
- B. Remediations:
1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
  2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating over entire suspect floor area.
  3. Excessive pH: If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

### **3.02 REMOVAL OF EXISTING FLOOR COVERINGS**

- A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.
- B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

### **3.03 PRELIMINARY CLEANING**

- A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.
- B. Do not use solvents or other chemicals for cleaning.

### **3.04 MOISTURE VAPOR EMISSION TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
- C. Test in accordance with ASTM F1869 and as follows.
- D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.
- E. Report: Report the information required by the test method.

### **3.05 PH TESTING**

- A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
- B. Note: This procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.
- C. Use a wide range pH paper, its associated chart, and distilled or deionized water.
- D. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the pH paper into the water, remove it, and compare immediately to chart to determine pH reading.
- E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value is over 10.

### **3.06 PREPARATION**

- A. See individual floor covering section(s) for additional requirements.
- B. Comply with requirements and recommendations of floor covering manufacturer.
- C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
- D. Do not fill expansion joints, isolation joints, or other moving joints.

### **3.07 ADHESIVE BOND AND COMPATIBILITY TESTING**

- A. Comply with requirements and recommendations of floor covering manufacturer.

### **3.08 APPLICATION OF REMEDIAL FLOOR COATING**

- A. Comply with requirements and recommendations of coating manufacturer.

### **3.09 PROTECTION**

- A. Cover prepared floors with building paper or other durable covering.

**END OF SECTION**

**SECTION 09 29 00**  
**GYPSUM BOARD**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. Section Includes:
  - 1. Interior gypsum board.
  - 2. Texture finishes.

**1.03 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples: For the following products:
  - 1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.

**1.04 QUALITY ASSURANCE**

- A. Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Install mockups for the following:
    - a. Each level of gypsum board finish indicated for use in exposed locations.
    - b. Each texture finish indicated.
  - 2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
  - 3. Simulate finished lighting conditions for review of mockups.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

**1.05 DELIVERY, STORAGE AND HANDLING**

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

## **1.06 FIELD CONDITIONS**

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

## **PART 2 PRODUCTS**

### **2.01 GYPSUM BOARD, GENERAL**

- A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Regional Materials: Gypsum panel products shall be manufactured within 500 miles (800 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.
- C. Regional Materials: Gypsum panel products shall be manufactured within 500 miles (800 km) of Project site.
- D. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### **2.02 INTERIOR GYPSUM BOARD**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. American Gypsum.
  - 2. CertainTeed Corp.
  - 3. Georgia-Pacific Gypsum LLC.
  - 4. Lafarge North America Inc.
  - 5. National Gypsum Company.
  - 6. PABCO Gypsum.
  - 7. Temple-Inland.
  - 8. USG Corporation.



- B. Gypsum Wallboard: ASTM C 1396/C 1396M.
  - 1. Thickness: 5/8 inch.
  - 2. Long Edges: Tapered.
- C. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
  - 1. Thickness: 5/8 inch.
  - 2. Long Edges: Tapered.
- D. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
  - 1. Core: 5/8 inch, Type X.
  - 2. Long Edges: Tapered.
  - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

### **2.03 TRIM ACCESSORIES**

- A. Interior Trim: ASTM C 1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
  - 2. Shapes:
    - a. Cornerbead.
    - b. Bullnose bead.
    - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
    - d. L-Bead: L-shaped; exposed long flange receives joint compound.
    - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. Pittcon Industries.
  - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221 (ASTM B 221M), Alloy 6063-T5.

3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

#### **2.04 JOINT TREATMENT MATERIALS**

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
  1. Interior Gypsum Board: Paper.
- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound

#### **2.05 AUXILIARY MATERIALS**

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
- C. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
    - b. Grabber Construction Products; Acoustical Sealant GSC.
    - c. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
    - d. USG Corporation; SHEETROCK Acoustical Sealant.
    - e. <Insert manufacturer's name; product>.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
3. Acoustical joint sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

## **2.06 TEXTURE FINISHES**

- A. Primer: As recommended by textured finish manufacturer.
- B. Non-Aggregate Finish: Pre-mixed, vinyl texture finish for spray application.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. CertainTeed Corp.; ProRoc Easi-Tex Spray Texture.
    - b. National Gypsum Company; Perfect Spray EM Texture.
    - c. USG Corporation; BEADEX FasTex Wall and Ceiling Spray Texture.
  2. Texture: To match existing adjacent texture.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 APPLYING AND FINISHING PANELS, GENERAL**

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.

- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### **3.03 APPLYING INTERIOR GYPSUM BOARD**

- A. Install interior gypsum board in the following locations:
  - 1. Wallboard Type: Vertical surfaces unless otherwise indicated.
  - 2. Ceiling Type: Ceiling surfaces.
- B. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
  - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

### **3.04 INSTALLING TRIM ACCESSORIES**

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners unless otherwise indicated.
  - 2. LC-Bead: Use at exposed panel edges.
- D. Aluminum Trim: Install in locations indicated on Drawings.

### **3.05 FINISHING GYPSUM BOARD**

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 2: Panels that are substrate for tile.
  - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

### **3.06 APPLYING TEXTURE FINISHES**

- A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
- B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.
- C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

### **3.07 PROTECTION**

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

**END OF SECTION**

**SECTION 09 30 00**  
**TILING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Tile for shower receptors.
- D. Ceramic accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 90 05 - Joint Sealers.

**1.03 REFERENCE STANDARDS**

- A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2009.
- B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2010.
- C. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (R2010).
- D. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2010.
- E. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2010.
- F. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (R2005).
- G. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.
- H. TCNA (HB) - Handbook for Ceramic Tile Installation; 2011.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

**1.05 SUBMITTALS**

- A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

- B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 x 18 inches in size illustrating pattern, color variations, and grout joint size variations.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Tile: 1 percent of each size, color, and surface finish combination, but not less than 5 of each type.

#### **1.06 QUALITY ASSURANCE**

- A. Maintain one copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum 5 years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not install adhesives in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

### **PART 2 PRODUCTS**

#### **2.01 TILE**

- A. Manufacturers: All products by the same manufacturer.
  - 1. American Olean: [www.americanolean.com](http://www.americanolean.com).
  - 2. Dal-Tile Corporation: [www.daltile.com](http://www.daltile.com).
  - 3. Summitville Tiles, Inc: [www.summitville.com](http://www.summitville.com).
  - 4. Substitutions: See Section 01 60 00 - Product Requirements.



- B. Ceramic Mosaic Tile Type CT-2: ANSI A137.1 , and as follows:
  - 1. Permabrites manufactured by Dal-Tile or approved equivalent product.
  - 2. Size and Shape: 2 inch square.
  - 3. Edges: Square.
  - 4. Surface Finish: Gloss.
  - 5. Colors: As shown on drawings.
  
- C. Glazed Wall Tile Type CT-1: ANSI A137.1 , and as follows:
  - 1. To match existing manufactured by Dal -Tile .
  - 2. Size and Shape: 4-1/4 inch square.
  - 3. Edges: Cushioned.
  - 4. Surface Finish: Gloss.
  - 5. Colors: To match existing or White K101.
  - 6. Pattern: To match existing.
  - 7. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.

## **2.02 TRIM AND ACCESSORIES**

- A. Ceramic Accessories: Glazed finish, same color and finish as adjacent field tile; same manufacturer as tile.
  
- B. Ceramic Trim: Matching bullnose, double bullnose, cove base, and cove ceramic shapes in sizes coordinated with field tile.
  - 1. Applications: Use in the following locations:
    - a. Open Edges: Bullnose.
    - b. Inside Corners: Jointed.
    - c. Floor to Wall Joints: Cove base.
  - 2. Manufacturer: Same as for tile.

## **2.03 SETTING MATERIALS**

- A. Provide setting materials made by the same manufacturer as grout.

## **2.04 ADHESIVE MATERIALS**

- A. Manufacturers:

1. ProSpec, an Oldcastle brand; B-4050 Multi-Purpose Adhesive: [www.prospec.com](http://www.prospec.com).
  2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  3. Custom Building Products; OmniGrip: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
  4. LATICRETE International, Inc; LATICRETE 254 Platinum: [www.laticrete.com](http://www.laticrete.com).
  5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Tile Setting Adhesive: Elastomeric, waterproof, liquid applied.
- C. Mortar Bond Coat Materials for Thin-Set Installations:

## **2.05 GROUTS**

- A. Manufacturers:
1. ProSpec, an Oldcastle brand; ProColor Sanded Tile Grout: [www.prospec.com](http://www.prospec.com).
  2. Bostik Inc: [www.bostik-us.com](http://www.bostik-us.com).
  3. Custom Building Products; Prism SureColor Grout: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
  4. LATICRETE International, Inc; LATICRETE SpectraLOCK PRO Grout: [www.laticrete.com](http://www.laticrete.com).
  5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Standard Grout: Any type specified in ANSI A118.6 or A118.7.
1. Colors: White.

## **2.06 THICK-BED MATERIALS**

- A. Mortar Bed Materials: Portland cement, sand, latex additive, and water.
1. Products:
    - a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: [www.laticrete.com](http://www.laticrete.com).

## **2.07 THIN-SET ACCESSORY MATERIALS**

- A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
1. Type: Fluid-applied.
  2. Material: PVC sheet membrane, 40 mils, thick, minimum.
  3. Material: SBS rubber.
  4. Products:

- a. Compotite Corporation; Composeal Gold: [www.compotite.com](http://www.compotite.com).
  - b. Custom Building Products; RedGard Waterproofing & Crack Prevention Membrane, with fiberglass mesh reinforcement at changes of plane and gaps: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
  - c. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Waterproofing Membrane at Showers and Tiled Tubs: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
- 1. Type: Fluid-applied.
  - 2. Material: SBS rubber.
  - 3. Thickness: 25 mils, minimum, dry film thickness.
  - 4. Products:
    - a. AVM Industries, Inc; System 750 with polyester fabric reinforcing at edges, corners, joints, and cracks: [www.avmindustries.com](http://www.avmindustries.com).
    - b. Compotite Corporation; Composeal Blue Shower Pan: [www.compotite.com](http://www.compotite.com).
    - c. Custom Building Products; RedGard Waterproofing & Crack Prevention Membrane, with fiberglass mesh reinforcement at changes of plane and gaps: [www.custombuildingproducts.com](http://www.custombuildingproducts.com).
    - d. Parex USA, Inc.; Merkrete Hydro Guard 2000: [www.merkrete.com](http://www.merkrete.com).
    - e. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Mesh Tape: 2-inch wide self-adhesive fiberglass mesh tape.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
- D. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.

- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

### **3.03 INSTALLATION - GENERAL**

- A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Form internal angles square and external angles square.
- F. Install ceramic accessories rigidly in prepared openings.
- G. Sound tile after setting. Replace hollow sounding units.
- H. Allow tile to set for a minimum of 48 hours prior to grouting.
- I. Grout tile joints. Use standard grout unless otherwise indicated.
- J. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

### **3.04 INSTALLATION - FLOORS - MORTAR BED METHODS**

- A. Over exterior concrete substrates, install in accordance with The Tile Council of North America F101, bonded, with standard grout.
- B. Mortar Bed Thickness: 1-1/4 inch , unless otherwise indicated.

### **3.05 INSTALLATION - SHOWERS AND BATHTUB WALLS**

- A. At tiled shower receptors install in accordance with The Tile Council of North America Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.
- B. Grout with standard grout as specified above.
- C. Seal joints between tile work and other work with sealant Type specified in Section 07 90 05.

### **3.06 INSTALLATION - WALL TILE**

- A. Over coated glass mat backer board on studs, install in accordance with The Tile Council of North America Handbook Method W245.

### **3.07 CLEANING**

- A. Clean tile and grout surfaces.

### **3.08 PROTECTION**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

**END OF SECTION**

**SECTION 09 65 00  
RESILIENT FLOORING**

**PART 1 GENERAL**

- A. Resilient base.
- B. Installation accessories.

**1.01 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
- B. Section 09 05 61 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

**1.02 REFERENCE STANDARDS**

- A. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.
- B. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2010)e1.
- C. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008.
- D. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; [www.baaqmd.gov](http://www.baaqmd.gov); 2002.
- E. CAL (CHPS LEM) - Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at [www.chps.net/](http://www.chps.net/).
- F. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at [www.greenguard.org](http://www.greenguard.org).
- G. RFCI - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; 1998.
- H. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).
- I. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at [www.scs-certified.com](http://www.scs-certified.com).

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plan.

- D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- E. Verification Samples: Submit two samples, \_\_\_\_x\_\_\_\_ inch in size illustrating color and pattern for each resilient flooring product specified.
- F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

#### **1.04 DELIVERY, STORAGE, AND HANDLING**

#### **1.05 FIELD CONDITIONS**

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

### **PART 2 PRODUCTS**

#### **2.01 TILE FLOORING**

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness, and:
  - 1. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
  - 2. Size: 12 x 12 inch.
  - 3. VOC Content: Certified as Low Emission by one of the following :
    - a. GreenGuard Children and Schools; [www.greenguard.org](http://www.greenguard.org).
    - b. SCS Floorscore; [www.scs-certified.com](http://www.scs-certified.com).
    - c. Product listing in the CHPS Low-Emitting Materials Product List at; [www.chps.net/manual/lem\\_table.htm](http://www.chps.net/manual/lem_table.htm).
  - 4. Thickness: 0.125 inch.
  - 5. Pattern: As indicated on the drawings.
  - 6. Manufacturers:
    - a. Armstrong World Industries, Inc; Product Overlook II Sandstone 25315: [www.armstrong.com](http://www.armstrong.com).
    - b. Mannington Mills, Inc: [www.mannington.com](http://www.mannington.com).
    - c. Tarkett Inc: [www.tarkett.com](http://www.tarkett.com).

- d. Substitutions: See Section 01 60 00 - Product Requirements.

## **2.02 RESILIENT BASE**

- A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
  - 1. Height: 4 inch.
  - 2. Thickness: 0.125 inch thick.
  - 3. Finish: Satin.
  - 4. Length: Roll.
  - 5. Color: To match existing adjacent rubber base..
  - 6. Accessories: Premolded external corners, internal corners, and end stops.
  - 7. Manufacturers:
    - a. Burke Flooring: [www.burkemerger.com](http://www.burkemerger.com).
    - b. Johnsonite, Inc: [www.johnsonite.com](http://www.johnsonite.com).
    - c. Roppe Corp: [www.roppe.com](http://www.roppe.com).
    - d. Substitutions: See Section 01 60 00 - Product Requirements.

## **2.03 ACCESSORIES**

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
  - 1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Filler for Coved Base: Plastic.
- E. Sealer and Wax: Types recommended by flooring manufacturer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.



- B. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
  - 1. Test in accordance with Section 09 05 61.
  - 2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- C. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.

### **3.03 INSTALLATION**

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### **3.04 TILE FLOORING**

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

### **3.05 RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

### **3.06 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean, seal, and wax in accordance with manufacturer's instructions.

### **3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**

**SECTION 09 81 00  
ACOUSTIC INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Acoustical Insulation .
- B. Acoustical sealant.

**1.03 REFERENCE STANDARDS**

ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

**1.04 SUBMITTALS**

- A. Product Data: Provide data on product characteristics, performance criteria, and product limitations..
- B. Manufacturer's Instructions: Include information on special environmental conditions required for installation and installation techniques.

**1.05 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Batt Acoustical Insulation: ASTM C665, Type I; unfaced glass fiber batts, blankets, or rolls; minimum fire hazard classification rating of 25/50 per ASTM E84; 2-3/4 inches thick for installation in 2-1/2 inch stud cavities; 3-5/8 to 4 inches thick for installation in 3-5/8 inch stud cavities; 6-1/2 inches thick for installation in 6 inch stud cavities; widths to friction-fit between studs, where indicated for installation in stud walls; formaldehyde free.
- B. Acoustical Sealant: Non-hardening, low-shrinkage; for use in conjunction with gypsum board; similar to USG "Sheetrock Brand Acoustical Sealant," Tremco "Acoustical Sealant 30CTG," Quiet Solution (Sunnyvale CA; ; 408-541-8000) "QuietSeal QS-350," or approved.
- C. Accessories: Furnish other accessories such as fasteners and retainers, not specifically described, but required for a complete installation.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this Section may properly commence.
- B. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.

- C. Do not begin work until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.

### **3.03 PROTECTION**

- A. Protect installed insulation from subsequent construction operations.

**END OF SECTION**

**SECTION 09 90 00  
PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
  - 1. Interior walls.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Marble, granite, slate, and other natural stones.
  - 6. Floors, unless specifically so indicated.
  - 7. Ceramic and other tiles.
  - 8. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
  - 9. Acoustical materials, unless specifically so indicated.
  - 10. Concealed pipes, ducts, and conduits.

**1.02 DEFINITIONS**

- A. Conform to ASTM D16 for interpretation of terms used in this section.

**1.03 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2011.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

- D. GreenSeal GS-11 - Paints; 1993.
- E. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

#### **1.04 SUBMITTALS**

- A. Product Data: Provide data on all finishing products, including VOC content.
- B. Samples: Submit two paper chip samples, 8 x 10 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
- C. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.
- D. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.
- E. Manufacturer's Instructions: Indicate special surface preparation procedures.
- F. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. Extra Paint and Coatings: 1 gallon of each color; store where directed.
  - 2. Label each container with color in addition to the manufacturer's label.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

#### **1.07 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- B. Paints:
  - 1. Color Wheel Paint, a Comex Group company: [www.colorwheel.com](http://www.colorwheel.com).
  - 2. Comex Group (Color Wheel, Frazee, General Paint, Kwal, or Parker): [www.thecomexgroup.com](http://www.thecomexgroup.com).
  - 3. Diamond Vogel Paints: [www.diamondvogel.com](http://www.diamondvogel.com).
  - 4. Duron, Inc: [www.duron.com](http://www.duron.com).
  - 5. Frazee Paint, a Comex Group Company: [www.frazee.com](http://www.frazee.com).
  - 6. General Paint, a Comex Group company: [www.generalpaint.com](http://www.generalpaint.com).
  - 7. Glidden Professional: [www.gliddenprofessional.com](http://www.gliddenprofessional.com).
  - 8. Kwal Paint, a Comex Group company: [www.kwalpaint.com](http://www.kwalpaint.com).
  - 9. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 10. Parker Paint Mfg Co Inc., a Comex Group company: [www.parkerpaint.com](http://www.parkerpaint.com).
  - 11. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  - 12. Pratt & Lambert Paints: [www.prattandlambert.com](http://www.prattandlambert.com).
  - 13. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).

### **2.02 PAINTS AND COATINGS - GENERAL**

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  4. Supply each coating material in quantity required to complete entire project's work from a single production run.
  5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.
- D. Volatile Organic Compound (VOC) Content:
1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
    - b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; [www.otcair.org](http://www.otcair.org); specifically:
      - 1) Opaque, Flat: 50 g/L, maximum.
    - c. Architectural coatings VOC limits of Nevada.
  2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- E. Chemical Content: The following compounds are prohibited:
1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- F. Flammability: Comply with applicable code for surface burning characteristics.
- G. Colors: As indicated on drawings



## **2.03 PAINT SYSTEMS - INTERIOR**

- A. Paint WI-OP-3A - Wood, Opaque, Alkyd, 3 Coat:
  - 1. One coat alkyd primer sealer.
  - 2. Eggshell: Two coats of alkyd enamel; \_\_\_\_\_.
- B. Paint MI-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
  - 1. One coat of alkyd primer.
  - 2. Semi-gloss: Two coats of alkyd enamel; \_\_\_\_\_.
- C. Paint GI-OP-3LA - Gypsum Board/Plaster, Latex-Acrylic, 3 Coat:
  - 1. One coat of alkyd primer sealer.
  - 2. Eggshell: Two coats of latex-acrylic enamel; \_\_\_\_\_.

## **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Gypsum Wallboard: 12 percent.
  - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing coatings that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- I. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

### **3.03 APPLICATION**

- A. Apply products in accordance with manufacturer's instructions.
- B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection.
- B. Owner will provide field inspection.

### **3.05 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

### **3.06 PROTECTION**

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

### **3.07 SCHEDULE - PAINT SYSTEMS**

- A. Wood: Finish all surfaces exposed to view.
  - 1. Interior trim and frames: WI-OP-3A, semi-gloss.
- B. Wood Doors: Factory-finished.
- C. Steel Doors and Frames: Finish all surfaces exposed to view; MI-OP-3A, gloss.

**END OF SECTION**

**SECTION 10 14 00**  
**SIGNAGE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Room and door signs.
- B. Interior directional and informational signs.
- C. Building identification signs.

**1.02 REFERENCE STANDARDS**

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; 2002.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
  - 1. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
  - 2. Submit for approval by Owner through Architect prior to fabrication.
- D. Samples: Submit two samples of each type of sign, of size similar to that required for project, illustrating sign style, font, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- F. Verification Samples: Submit samples showing colors specified.
- G. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

#### **1.06 FIELD CONDITIONS**

- A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.
- B. Maintain this minimum temperature during and after installation of signs.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Flat Signs:
  - 1. Best Sign Systems, Inc: [www.bestsigns.com](http://www.bestsigns.com).
  - 2. InPro Corporation; Aspen : [www.inprocorp.com](http://www.inprocorp.com).
  - 3. Mohawk Sign Systems, Inc; Product \_\_\_\_: [www.mohawksign.com](http://www.mohawksign.com).
  - 4. Seton Identification Products; Product \_\_\_\_: [www.seton.com/aec](http://www.seton.com/aec).
  - 5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Other Signs:

#### **2.02 SIGNAGE APPLICATIONS**

- A. Accessibility Compliance: All signs are required to comply with ADAAG and ANSI/ICC A 117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
  - 1. Sign Type: Flat signs with engraved panel media as specified.
  - 2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
  - 3. Character Height: 1 inch.
  - 4. Sign Height: 2 inches, unless otherwise indicated.

5. Office Doors: Identify with room numbers to be determined later, not the numbers shown on the drawings ; in addition, provide "window" section for replaceable occupant name.
  6. Conference and Meeting Rooms: Identify with room numbers to be determined later, not the numbers shown on the drawings ; in addition, provide "window" section with sliding "In Use/Vacant" indicator.
  7. Service Rooms: Identify with room names and numbers to be determined later, not those shown on the drawings.
  8. Rest Rooms: Identify with pictograms, the names "MEN" and "WOMEN", room numbers to be determined later, and braille.
- C. Interior Directional and Informational Signs:
1. Sizes: As indicated on the drawings.
- D. Building Identification Signs:
1. Mount on outside wall in location shown on drawings.
- E. Traffic Signs: To match campus standards; locate where indicated on the drawings.

### **2.03 SIGN TYPES**

- A. Flat Signs: Signage media without frame.
1. Edges: Square.
  2. Corners: Radiused.
  3. Wall Mounting of One-Sided Signs: Tape adhesive.
- B. Color and Font: Unless otherwise indicated:
1. Character Font: Helvetica, Arial, or other sans serif font.
  2. Character Case: Upper case only.
  3. Background Color: Clear.
  4. Character Color: Contrasting color.

### **2.04 TACTILE SIGNAGE MEDIA**

- A. Engraved Panels: Laminated colored plastic; engraved through face to expose core as background color:
1. Total Thickness: 1/8 inch.
- B. Injection Molded Panels: One-piece acrylic plastic, with raised letters and braille.
1. Total Thickness: 1/8 inch.

- C. Applied Character Panels: Acrylic plastic base, with applied acrylic plastic letters and braille.
  - 1. Total Thickness: 1/8 inch.
  - 2. Letter Thickness: 1/8 inch.
  - 3. Letter Edges: Square.

## **2.05 ACCESSORIES**

- A. Tape Adhesive: Double sided tape, permanent adhesive.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs where indicated:
  - 1. Room and Door Signs: Locate on wall at latch side of door with centerline of sign at 60 inches above finished floor.
  - 2. If no location is indicated obtain Owner's instructions.
- D. Protect from damage until Substantial Completion; repair or replace damage items.

**END OF SECTION**

**SECTION 10 28 00**  
**TOILET, BATH, AND LAUNDRY ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Accessories for toilet rooms, showers, and residential bathrooms.
- B. Grab bars.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry : Concealed supports for accessories, including in wall framing and plates.

**1.03 REFERENCE STANDARDS**

- A. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2010.
- B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.
- C. ASTM C1036 - Standard Specification for Flat Glass; 2006.
- D. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

**1.05 SUBMITTALS**

- A. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- B. Samples: Submit two samples of each accessory, illustrating color and finish.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Products listed are made by Bobrick.
- B. Other Acceptable Manufacturers:
  - 1. A & J Washroom Accessories Inc: [www.ajwashroom.com](http://www.ajwashroom.com).
  - 2. American Specialties, Inc: [www.americanspecialties.com](http://www.americanspecialties.com).



3. Bradley Corporation: [www.bradleycorp.com](http://www.bradleycorp.com).
  4. Substitutions: Section 01 60 00 - Product Requirements.
- C. All items of each type to be made by the same manufacturer.

## 2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
1. Grind welded joints smooth.
  2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Keys: Provide two keys for each accessory to Owner ; master key all lockable accessories.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269, Type 304 or 316.
- E. Mirror Glass: Float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- F. Adhesive: Two component epoxy type, waterproof.
- G. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof , security type.

## 2.03 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.

## 2.04 TOILET ROOM ACCESSORIES

- A. Toilet Paper Dispenser: Single roll, recessed, chrome-plated zinc alloy brackets .
1. Product: B-663 manufactured by Bobrick.
- B. Toilet Paper Dispenser: Double roll, semi-recessed, stainless steel unit with pivot hinge, tumbler lock.
1. Product: B-3888 manufactured by Bobrick.
- C. Grab Bars: Stainless steel, 1-1/2 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar.
1. Length and configuration: As indicated on drawings.
  2. Product: B-6806.99 manufactured by Bobrick.
- D. Mirrors: 1/4" Tempered glass channel framed mirror, size as indicated on the drawings.
1. Product: B-2908 manufactured by Bobrick

## **2.05 SHOWER AND TUB ACCESSORIES**

- A. Folding Shower Seat: Wall-mounted surface; welded tubular seat frame, structural support members, hinges and mechanical fasteners of Type 304 stainless steel, L-shaped, right hand and L-shaped, left hand seat.
  - 1. Seat: Phenolic or polymeric composite one-piece seat or seat slats, of \_\_\_\_ color.
  - 2. Product: B-5181 manufactured by \_\_\_\_\_.

## **2.06 RESIDENTIAL ACCESSORIES**

- A. Medicine Cabinet: One-piece construction of heavy-gage steel with factory-applied, gloss white, baked enamel finish, surface-mounted, satin finish stainless steel mirror frame, reversible type.
  - 1. Shelves: Adjustable, aluminum or glass; provide not less than 3 shelves.
  - 2. Door: Fitted with continuous piano-type hinge, shock-absorbing spring-and-rod door stop, magnetized catch, right-hand swing.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.

### **3.02 PREPARATION**

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

### **3.03 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights and Locations: as indicated on drawings

**END OF SECTION**

**SECTION 11 31 00  
RESIDENTIAL APPLIANCES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Kitchen appliances.

**1.02 RELATED REQUIREMENTS**

- A. Section 22 10 05 - Plumbing Piping: Plumbing connections for appliances.
- B. Section 26 27 17 - Equipment Wiring: Electrical connections for appliances.

**1.03 REFERENCE STANDARDS**

- A. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; Underwriters Laboratories Inc.; current edition.

**1.04 SUBMITTALS**

- A. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- B. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Electric Appliances: Listed and labeled by UL and complying with NEMA standards.
- C. Gas Appliances: Bearing design certification seal of AGA.

**1.06 WARRANTY**

- A. Provide five (5) year manufacturer warranty on refrigeration system of refrigerators.

**PART 2 PRODUCTS**

**2.01 KITCHEN APPLIANCES**

- A. All Equipment Eligible for Energy Star Rating: Energy Star Rated.
- B. Refrigerator Type GE Energy Star Model GTH17JBDWW: Free-standing, top-mounted freezer, frost-free.
  - 1. Capacity: Total minimum storage of 16.5 cubic ft; minimum 15 percent freezer capacity.
  - 2. Energy Usage: Minimum 20 percent more energy efficient than energy efficiency standards set by DOE.

3. Features: Include glass shelves, automatic icemaker, and light in freezer compartment.
  4. Finish: Porcelain enameled steel , color white .
  5. Manufacturers:
    - a. Frigidaire Home Products: [www.frigidaire.com](http://www.frigidaire.com).
    - b. GE Appliances: [www.geappliances.com](http://www.geappliances.com).
    - c. Whirlpool Corp: [www.whirlpool.com](http://www.whirlpool.com).
    - d. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Range Type GE 30" Free-Standing Self-Clean Gas Range Model JGBP27DEMWW: Natural gas, slide-in, with standard burners and removable drip pans.
1. Size: 30 inches.
  2. Oven: Self-cleaning with electronic ignition.
  3. Elements: 4.
  4. Controls: Solid state electronic Push-to-turn knobs with analog timer.
  5. Finish: Porcelain enameled steel , color as indicated.
  6. Manufacturers:
    - a. Frigidaire Home Products: [www.frigidaire.com](http://www.frigidaire.com).
    - b. GE Appliances: [www.geappliances.com](http://www.geappliances.com).
    - c. Whirlpool Corp: [www.whirlpool.com](http://www.whirlpool.com).
    - d. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Cooking Exhaust : Range hood.
1. Size: 30 inches.
  2. Exhaust: Recirculating .
  3. Features: Include cooktop light and removable grease filter.
  4. Finish: Painted steel , color white.
  5. Manufacturers:
    - a. Frigidaire Home Products: [www.frigidaire.com](http://www.frigidaire.com).
    - b. GE Appliances; Product JN327HWW: [www.geappliances.com](http://www.geappliances.com).
    - c. Whirlpool Corp: [www.whirlpool.com](http://www.whirlpool.com).

- d. Substitutions: See Section 01 60 00 - Product Requirements.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify utility rough-ins are present and correctly located.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Anchor built-in equipment in place.

#### **3.03 ADJUSTING**

- A. Adjust operating equipment to efficient operation.

#### **3.04 CLEANING**

- A. Remove packing materials from equipment.
- B. Wash and clean equipment.

**END OF SECTION**

**SECTION 11 68 13  
PLAYGROUND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Playground layout (staking).
- B. Concrete footings for playground equipment.
- C. Playground equipment.
- D. Location of each item of playground equipment is indicated on the drawings.

**1.02 RELATED REQUIREMENTS**

- A. Section 32 18 16.13 - Playground Protective Surfacing: Protective surfacing in playground area.
- B. Section 03 30 00 - Cast-in-Place Concrete: Footings for playground equipment.

**1.03 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- B. ASTM A135/A135M - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2009.
- C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.
- D. ASTM A513 - Standard Specification for Electric-Welded Carbon and Alloy Steel Mechanical Tubing; 2008a.
- E. ASTM B26/B 26M - Standard Specification for Aluminum-Alloy Sand Castings; 2009.
- F. ASTM B108/B 108M - Standard Specification for Aluminum-Alloy Permanent Mold Castings; 2008.
- G. ASTM B179 - Standard Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from All Casting Processes; 2010.
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2008.
- I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2007.
- J. ASTM C94/C94M - Specification for Ready-Mixed Concrete; 2011.
- K. ASTM D648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position; 2007.
- L. ASTM D3363 - Test Method for Film Hardness by Pencil Test; 2005.

- M. ASTM D6662 - Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards; 2009.
- N. ASTM F1292 - Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment; 2009.
- O. ASTM F1487 - Standard Consumer Safety Performance Specification for Playground Equipment for Public Use; 2007a.
- P. AWWA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2010.
- Q. CPSC Pub. No. 325 - Handbook for Public Playground Safety; Consumer Products Safety Commission; 2008.

#### **1.04 DEFINITIONS**

- A. Play Event: A piece of playground equipment that supports one or more play activities.
- B. Use Zone: The area under and around a play event within which the ground surfacing must meet fall impact attenuation requirements of ASTM F1292 when tested at the fall height specified for the play event.
- C. Fall Height: The vertical distance between the finished elevation of the designated play surface and the finished elevation of the protective surfacing beneath it, as defined in ASTM F1487.
- D. Protective Surfacing: Resilient ground surfacing; specified in Section 32 18 16.13 - Playground Surfacing. The characteristics of the protective surfacing are based on the fall height of the playground equipment. Changes in either the surfacing or the fall height, particularly reducing the resilience of the protective surfacing or increasing the fall height, will reduce safety-related performance.
- E. Subgrade: The surface of the ground on which the protective surfacing is installed .

#### **1.05 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a meeting one week before starting earthwork for playground to discuss coordination between various installers.
  - 1. Require attendance by personnel responsible for grading and installers of playground equipment, protective surfacing, footings, and adjacent work.
  - 2. Include representatives of Contractor.
  - 3. Notify Architect at least 2 weeks prior to meeting.

#### **1.06 SUBMITTALS**

- A. Proposals for Substitutions: Substitutions that will increase the fall height, platform height, or maximum equipment height will not be considered; submit shop drawings with proposed modifications clearly identified and sufficient information to determine compliance with specified criteria.

- B. Product Data: For all manufactured equipment, provide manufacturer's product data showing materials of construction, compliance with specified standards, installation procedures, safety limitations, and the number of users permitted.
  - 1. Certifications: Provide International Play Equipment Manufacturers Association (IPEMA) certification that product complies with ASTM F1487, excluding section 10 and 12.6.1.
- C. Product Data: For fabricated items, provide the following:
  - 1. Galvanized Steel: Certification of galvanized coating thickness.
- D. Shop Drawings: Detailed scale drawings showing play event layout, Use Zone perimeters, and fall height for each play event.
  - 1. Show locations and dimensions of footings and anchorage points.
  - 2. Clearly identify mounting elevations in relation to a fixed survey point on site and to subgrade elevation and depth of protective surfacing.
  - 3. Show locations of underground utilities, storm drainage system and irrigation system.
  - 4. Show locations of related construction such as walkways and roadways, fences, site furnishings, and plantings.
- E. Samples: For each item for which color must be selected provide color chart showing full range of colors and finishes.
- F. Maintenance Data: Provide manufacturer's recommended maintenance instructions and list of replaceable parts for each equipment item, with address and phone number of source of supply.
- G. Manufacturer's Field Report.
- H. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

#### **1.07 QUALITY ASSURANCE**

- A. Maintain one copy of the latest edition of ASTM F1487 and CPSC Pub. No. 325 at project site.
- B. Manufacturer Qualifications: Company regularly engaged in manufacturing materials and products specified in this section, with not less than three years of experience.
  - 1. Provide documentation showing that playground equipment similar to that specified has been installed in minimum 10 sites and been in successful service for minimum of 5 years; provide addresses.
  - 2. Provide certificate of Insurance AA rated for minimum 1,000,000 dollars covering both product and general liability.
  - 3. Manufacturer's Representative: Provide name, company name and address, and playground safety training certificate.



- C. Installer Qualifications: Company certified by manufacturer for training and experience installing play events and equipment.

## **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, handle, and store equipment to project site in accordance with manufacturer's recommendations.
- B. Store materials in a dry, covered area, elevated above grade.

## **PART 2 PRODUCTS**

### **2.01 PLAYGROUND EQUIPMENT - GENERAL**

- A. Design Assumptions: Because the safety of the playground depends on strict conformance to the design criteria, this information is provided for Contractor's information.
  - 1. Playground has been designed for children ages 2 through 5.
  - 2. If deviations from specified dimensions, especially fall heights, is required, obtain approval prior to proceeding; follow approval request procedure as specified for substitutions.
- B. Mount all equipment on concrete footings, unless otherwise indicated.
  - 1. The playground protective surfacing constitutes a resilient layer installed over a subbase (non-resilient) that is installed over the subgrade; the top of footings and anchorage devices is to be covered by full depth of the resilient portion of the protective surfacing.
  - 2. Protective Surfacing Depth: See Section 32 18 16.13.
  - 3. Provide supports as required to mount equipment at proper height above finish and subgrades to allow installation of sufficient depth of protective surfacing; portion of support below top of surfacing must comply with specified requirements for equipment.
  - 4. Paint the portion of the support that is intended to be installed below the top surface of the protective surfacing a different color, or mark in other permanent way, so that installers and maintainers of protective surfacing can easily determine whether sufficient depth has been installed.
- C. Label each equipment item with permanent labels stating age group that equipment was designed for, manufacturer identification, and warning labels in accordance with ASTM F1487.

### **2.02 PLAYGROUND EQUIPMENT**

- A. Comply with ASTM F1487 and CPSC Pub. No. 325; provide equipment complying with specific requirements for the relevant age group(s).
  - 1. Provide components having factory-drilled holes. Do not use components with extra holes that will not be filled by hardware or covered by other components.
  - 2. See Drawings for basis of design and equipment layout.

## 2.03 MATERIALS

- A. Steel Pipe and Tube: Conforming to ASTM A135/A135M, ASTM A500, or ASTM A513; hot-dipped galvanized and free of excess weld and spatter.
  - 1. Tensile Strength: 45,000 psi, minimum.
  - 2. Yield Point: 33,000 psi, minimum.
  - 3. Galvanizing: Hot-dip metal components in zinc after fabrication, in accordance with ASTM A123/A123M; remove tailings and sharp protrusions and burnish edges.
- B. Extruded Aluminum: ASTM B221 or ASTM B221M, Alloy 6061, 6062, or 6063.
  - 1. Tensile Strength: 39,000 psi, minimum.
  - 2. Yield Point: 36,500 psi, minimum.
- C. Rope Cable: Strands of steel cable with UV-stabilized polypropylene synthetic covering; ends capped to prevent fraying.
- D. Hardware: Of design without hazardous protrusions, corners, or finishes, and requiring tools for removal after installation; countersunk fasteners are preferred.
  - 1. Use stainless steel for metal-to-metal connections; select type to minimize galvanic corrosion of materials connected by hardware.
  - 2. Use stainless steel for wood-to-wood and wood-to-metal connections.
  - 3. Use stainless steel with plastic components.
  - 4. Bearings: Self lubricating.
  - 5. Hooks, Including S-Hooks: Closed loop; maximum gap 0.04 inches , less than the thickness of a dime.
  - 6. Rails, Loops, and Hand Bars: Same metal as item is mounted on or ; with powder coating.
  - 7. Anchors: In accordance with manufacturer's recommendations.
- E. Opaque Plastic: Molded homogeneous plastic or wood-polymer composite lumber; do not use plastic as major load bearing members; use as deck boards, panels, and railings is acceptable.
  - 1. Homogeneous Plastic: Ultraviolet and color stabilized polyethylene without applied surface coating; color through entire thickness.
  - 2. Wood-Polymer Composite Lumber: Complying with ASTM D6662; factory finished.
  - 3. Decks and Platforms: Non-slip surface texture.
  - 4. Maximum Deflection: 1/360 of span, when tested in accordance with ASTM D648, with a uniform live load of 40 pounds/ft.
  - 5. Deck Board Span: 12 inches on center, maximum, spanning minimum of 3 joists.

6. Panel Thickness: 3/16 inch, minimum.
7. Panel Edges: 3/16 inch radius, minimum.

### **PART 3 EXECUTION**

#### **3.01 LAYING OUT THE WORK**

- A. Stake the location of all playground elements, including Use Zone perimeters, perimeter of protective surfacing, access and egress points, hard surfaces, walls, fences, and structures, and planting locations.

#### **3.02 EXAMINATION**

- A. Verify that playground area has been graded to subgrade elevations required and that excess soil, rocks, and debris have been removed.
- B. Verify that playground equipment footings have been installed in proper locations and at proper elevations.
- C. Verify location of underground utilities and facilities in the playground area. Damage to underground utilities and facilities will be repaired at Contractor's expense.

#### **3.03 INSTALLATION**

- A. Coordinate work with preparation for and installation of protective surfacing specified in Section 32 18 16.13. The resilient portion of the protective surfacing is to be installed after playground equipment installation.
- B. Install in accordance with CPSC Pub. No. 325, ASTM F1487, manufacturer's instructions, and requirements of authorities having jurisdiction.
- C. Anchor equipment securely below the bottom elevation of the resilient surfacing layer.
- D. Install without sharp points, edges, or protrusions; entanglement hazards; or pinch, crush, or shear points.
- E. Do not modify play events on site without written approval of manufacturer.
- F. Install required signage if not factory-installed.

#### **3.04 FIELD QUALITY CONTROL**

- A. Obtain the services of the equipment manufacturer's field representative to review the finished installation for compliance with specified requirements and with design criteria to the extent known to the Contractor; submit report of field review.
- B. Owner or Owner's representative will inspect playground equipment after installation to verify that playground meets specified design safety and accessibility requirements.
- C. Repair or replace rejected work until compliance is achieved.

### **3.05 CLEANING**

- A. Restore adjacent existing areas that have been damaged from the construction.
- B. Clean playground equipment of construction materials, dirt, stains, filings, and blemishes due to shipment or installation. Clean in accordance with manufacturer's instructions, using cleaning agents as recommended by manufacturer.
- C. Clean playground area of excess construction materials, debris, and waste.
- D. Remove excess and waste material and dispose of off-site in accordance with requirements of authorities having jurisdiction.

### **3.06 PROTECTION**

- A. Protect installed products until Substantial Completion.
- B. Replace damaged products before Substantial Completion.

**END OF SECTION**

**SECTION 12 35 30  
RESIDENTIAL CASEWORK**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Kitchen cabinets.
- B. Kitchen countertops.
- C. Vanity countertops.
- D. Casework hardware.

**1.02 REFERENCE STANDARDS**

- A. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).
- B. ANSI/KCMA A161.1 - Performance and Construction Standard for Kitchen and Vanity Cabinets; Kitchen Cabinet Manufacturers Association; 2000 (R2006).
- C. KCMA (DIR) - Directory of Certified Cabinet Manufacturers; Kitchen Cabinet Manufacturers Association; current edition, online.

**1.03 SUBMITTALS**

- A. Product Data: Provide component dimensions and construction details.
- B. Shop Drawings: Indicate casework locations, large scale plans, elevations, clearances required, rough-in and anchor placement dimensions and tolerances.
- C. Samples: Submit two finish samples, 12 x 12 inch in size, illustrating each color of finish.

**1.04 QUALITY ASSURANCE**

- A. Products: Complying with KCMA A161.1 and KCMA Certified.
- B. Manufacturer: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

**1.05 MOCK-UP**

- A. Provide full size mock-up of casework base unit.
- B. Locate as indicated on drawings.
- C. Mock-up may remain as part of the Work.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Residential Casework:
  - 1. Kraftmaid Cabinetry, Inc: [www.kraftmaid.com](http://www.kraftmaid.com).
  - 2. Wellborn Cabinet, Inc; Product Home Concepts: [www.wellborn.com](http://www.wellborn.com).
  - 3. Substitutions: See Section 01 60 00 - Product Requirements.

### **2.02 COMPONENTS**

- A. Cabinet Construction: Softwood lumber framing and particle board.
- B. Kitchen Countertop: Post formed plastic laminate over particle board, coved to back splash.
- C. Vanity Countertop: Post formed plastic laminate over particle board, coved to back splash.
- D. Door and Drawer Fronts: Solid wood.
- E. Bolts, Nuts, Washers and Screws: Of size and type to suit application.
- F. Concealed Joint Fasteners: Threaded steel.

### **2.03 HARDWARE**

- A. Hardware: Manufacturer's standard.
- B. Drawer and Door Pulls: Chrome Amerock 128MM pull number BP 19541CSG9 or equal, 7.5 inches
- C. Catches: Magnetic.
- D. Drawer Slides: Extension arms, steel and ball bearing construction.
- E. Hinges: Offset pin.

### **2.04 FABRICATION**

- A. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- B. Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.
- C. Fabricate each unit to be rigid and not dependent on building structure for rigidity.
- D. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
- E. Form smooth edges. Form material for countertops, shelves, and drain boards from continuous sheets.

- F. Provide cutouts for plumbing fixtures, appliances, and fixtures and fittings. Prime paint contact surfaces of cut edges.
- G. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

## **2.05 FINISHES**

- A. Exposed To View Surfaces of base and wall cabinets: Plastic laminate of Natural Maple color and Metro Laminate pattern as selected.
- B. Interior Surfaces of base and wall cabinets: Plastic Laminate of Natural Maple color .
- C. Kitchen Countertops: PL-1: Plastic laminate of Wilsonart Black Alicante 4926.
- D. Vanity Countertops: PL-2: Plastic laminate of Wilsonart Calcutta Marble 4925.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of support framing.

### **3.02 INSTALLATION**

- A. Install casework, components and accessories in accordance with manufacturer's instructions.
- B. Use anchoring devices to suit conditions and substrate materials encountered.
- C. Set casework items plumb and square, securely anchored to building structure.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Use filler strips; not additional overlay trim for this purpose.
- E. Close ends of units, back splashes, shelves and bases.

### **3.03 ADJUSTING**

- A. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

### **3.04 CLEANING**

- A. Clean casework, countertops, shelves, and hardware.

### **3.05 PROTECTION**

- A. Do not permit finished casework to be exposed to continued construction activity.

**END OF SECTION**

**SECTION 12 93 00  
SITE FURNISHINGS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. Section Includes:
  - 1. Seating.
- B. Related Requirements:
  - 1. Section 033000 "Cast-in-Place Concrete" for concrete footings.

**1.03 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.
- C. Samples for Initial Selection: For units with factory-applied finishes.
- D. Samples for Verification: For each type of exposed finish, not less than 6-inch- (152-mm-) long linear components and 4-inch- (102-mm-) square sheet components.
- E. Product Schedule: For site furnishings. Use same designations indicated on Drawings.

**1.04 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For site furnishings to include in maintenance manuals.

**1.05 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Bench Replacement Planks: No fewer than two full-size units for each size indicated.

**PART 2 PRODUCTS**

**2.01 SEATING**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. BRP Enterprises, Inc.



2. Country Casual.
  3. Creative Pipe, Inc.
  4. Gardenside, Ltd.
  5. Huntco Supply, LLC.
  6. Keystone Ridge Designs, Inc.
  7. Landscape Structures Inc.
  8. L. A. Steelcraft.
  9. Playworld Systems, Inc.
  10. Sitecraft.
  11. SportsPlay Equipment, Inc.
  12. Urban Accessories, Inc.
- B. Frame: Steel
- C. Seat and Back]:
1. Material:
    - a. Recycled Plastic Planks: Evenly spaced, parallel.
  2. Seat Height: As indicated
  3. Seat Surface Shape: Flat.
  4. Arms: Where indicated on drawings provide, Two, one at each end.
    - a. Arm Material: Match frame.
  5. Seating Configuration: Multiple units as indicated.
    - a. Straight shape.
- D. Steel Finish: Galvanized and color coated.
1. Color: As indicated in a playground equipment schedule.
- E. HDPE Color: As indicated in a playground equipment schedule.

## **2.02 MATERIALS**

- A. Steel and Iron: Free of surface blemishes and complying with the following:
1. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2. Steel Pipe: Standard-weight steel pipe complying with ASTM A 53/A 53M, or electric-resistance-welded pipe complying with ASTM A 135/A 135M.
  3. Tubing: Cold-formed steel tubing complying with ASTM A 500/A 500M.
  4. Mechanical Tubing: Cold-rolled, electric-resistance-welded carbon or alloy steel tubing complying with ASTM A 513, or steel tubing fabricated from steel complying with ASTM A 1011/A 1011M and complying with dimensional tolerances in ASTM A 500/A 500M; zinc coated internally and externally.
  5. Sheet: Commercial steel sheet complying with ASTM A 1011/A 1011M.
  6. Perforated Metal: From steel sheet not less than [0.075-inch (1.9-mm)] [0.090-inch (2.3-mm)] [0.120-inch (3.0-mm)] <Insert dimension> nominal thickness; manufacturer's standard perforation pattern.
  7. Expanded Metal: Carbon-steel sheets, deburred after expansion, and complying with ASTM F 1267.
  8. Malleable-Iron Castings: ASTM A 47/A 47M, grade as recommended by fabricator for type of use intended.
  9. Gray-Iron Castings: ASTM A 48/A 48M, Class 200.
- B. Plastic: Color impregnated, color and UV-light stabilized, and mold resistant.
1. Polyethylene: Fabricated from virgin plastic HDPE resin.
  2. Recycled Content of Polyethylene: Postconsumer recycled content plus one-half of preconsumer recycled content not less than <Insert number> percent.
- C. Galvanizing: Where indicated for steel and iron components, provide the following protective zinc coating applied to components after fabrication:
1. Zinc-Coated Tubing: External, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. (0.27 kg/sq. m) of zinc after welding, a chromate conversion coating, and a clear, polymer film. Internal, same as external or consisting of 81 percent zinc pigmented coating, not less than 0.3 mil (0.0076 mm) thick.
  2. Hot-Dip Galvanizing: According to ASTM A 123/A 123M, ASTM A 153/A 153M, or ASTM A 924/A 924M.

## 2.03 FABRICATION

- A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
- B. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
- C. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of

member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

- D. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
- E. Factory Assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

#### **2.04 GENERAL FINISH REQUIREMENTS**

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

#### **2.05 STEEL AND GALVANIZED-STEEL FINISHES**

- A. Baked-Enamel, Powder-Coat Finish: Manufacturer's standard, baked, polyester, powder-coat finish complying with finish manufacturer's written instructions for surface preparation, including pretreatment, application, baking, and minimum dry film thickness.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.02 INSTALLATION, GENERAL**

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- C. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
- D. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

**END OF SECTION**

**SECTION 13 31 00  
FABRIC STRUCTURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Custom tensioned fabric structure, including fabric, structural steel supporting members, fittings, and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete foundations.
- B. Section 05 12 00 - Structural Steel Framing: Additional requirements for support steel.

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2011.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.
- C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.
- D. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2010.
- E. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.
- F. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.
- G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a.
- H. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.
- I. SSPC-SP 6 - Commercial Blast Cleaning; Society for Protective Coatings; 2006.
- J. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- K. SSPC-Paint 22 - Epoxy-Polyamide Paints (Primer, Intermediate, and Topcoat); Society for Protective Coatings; 1982 (Ed.2004).

**1.04 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data, including test reports on fabric showing compliance with specified properties.
- B. Samples: Submit 6 by 6 inch sample of fabric.

- C. Erection/Stressing Plan: Submit a compressive erection and stressing plan, including drawings and sketches that clearly show the proposed erection procedure for the fabric roof elements, cables, and structural steel during each stage of construction.
- D. Quality Control: Submit outline of manufacturer's Quality Control Program.
- E. Safety Program: Submit copy of manufacturer's safety manual for installation.
- F. Operating and Maintenance Data: Manufacturer's instructions for fabric repair, re-tensioning cables, and cleaning fabric.

### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Firm that is capable of assuming complete responsibility for design, engineering, fabrication, delivery, preparation, installation, adjusting, and cleaning of structure, and:
  1. Having minimum of 5 years experience in design and fabrication of tensioned fabric structures of similar size and complexity to that specified.
  2. Employing a licensed professional engineer with minimum of 5 years experience in tensioned fabric structures using large displacement finite element techniques to perform or supervise the structural design and licensed in Nevada .
  3. Employing a professional staff and qualified consultants experienced with tensioned fabric structures of similar size and complexity to that specified.
  4. Employing integrated CAD and finite element computer software programs to ensure adequacy of design and accurate 3-dimensional computer generated models for fabrication of structure; using the CAD system to prepare construction drawings and interface with the plotting and cutting process, ensuring high precision fabric cutting.
  5. Providing installation directly supervised by a superintendent, directly employed by the contractor, with 5 years of experience in installation of tensioned fabric structures of similar size and complexity to that specified.
- B. Installer Qualifications: Manufacturer or authorized by manufacturer.
- C. Pre-installation Meeting: Convene a pre-installation meeting two (2) weeks before start of installation of tensioned fabric structure. Require attendance of parties directly affecting work of this section, including Architect, Owner, Contractor, and installation superintendent. Review proper handling of fabric, preparation, installation, adjusting, cleaning, and coordination with other work.

### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in accordance with manufacturer's instructions, in a clean, dry, well ventilated area, above ground on blocking, and do not allow materials to become wet, stained, or dirty.
- C. Handle materials so as to protect materials, coatings, and finishes during handling and installation to prevent damage or staining.

1. Handle fabric in accordance with manufacturer's instructions.
2. Use care in handling of fabric to avoid damage to fabric material and coating.
3. Do not damage, crush, or kink cables.

#### **1.07 WARRANTY**

- A. Provide manufacturer's standard 10 year fabric warranty.
- B. Provide installer's written 1 year workmanship warranty.

#### **1.08 GEO-TECHNICAL REPORT**

- A. Provide geo-technical investigation and report with a Wet Stamp seal of a Professional Engineer with a license in Nevada.

#### **1.09 DESIGN DRAWINGS**

- A. Include plans, elevations, sections, mounting heights, and frame assembly details.
- B. Preliminary member sizes with wall thickness TBD.
- C. Preliminary footing layout and foundation design with final depth TBD.
- D. Show intended fabric attachment hardware and details.
- E. Identify direction, details and locations of fabric seams.
- F. Show details of fabric membrane dimensions including length of spans, sag in curvature and actual shaded area.

#### **1.10 ENGINEERED DRAWINGS (SUBMIT AFTER DESIGN DRAWINGS HAVE BEEN APPROVED):**

- A. Engineering Drawings with Wet Stamp seal of a Professional Engineer with a license in Nevada.
- B. Include plans, elevations, sections, mounting heights, and frame assembly details with the following information:
  1. Provide frame member sizes and required wall thicknesses.
  2. Identify all welding requirements.
  3. Detail all bolted and/or pin connections for frame assembly.
  4. Identify required sizes of bolts, pins, plates and tubing.
  5. Detail fabric attachment methods and identify thickness of all membrane plates, clamps and other attachment components.
  6. Call out all cable sizes and pretension requirements.

- C. Submit anchor-bolt plans before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach the tensioned fabric structures to foundation. Indicate column reactions at each location.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Tensioned Fabric Structures:
  - 1. Birdair, Inc: [www.taiyobirdair.com](http://www.taiyobirdair.com).
  - 2. Membrane Structure Solutions, Inc: [www.membranestructuresolutions.com](http://www.membranestructuresolutions.com).
  - 3. Span Systems, Inc: [www.spansystemsinc.com](http://www.spansystemsinc.com).
  - 4. Skyspan Structures: [www.skyspanstructures.com](http://www.skyspanstructures.com)

### **2.02 TENSIONED FABRIC STRUCTURES**

- A. Tensioned Fabric Structure: Provide a custom tensioned fabric structure consisting of fabric stretched on steel structural supports, with the following characteristics:
  - 1. Capable of withstanding the loads specified in ASCE 7 and local building code without damage or failure. For designer's information, the project falls under the following design categories:
    - a. Basic Wind Speed: 90 mph.
    - b. Exposure Category: B.
    - c. Importance Factor: 1.0.
  - 2. Capable of maintaining structural integrity in event of a tear propagating in fabric, without endangering occupants.
  - 3. Shape geometry selected for equilibrium based on stress in fabric.
  - 4. Having a smooth uniform fabric surface with even curved edges and interfaces and without wrinkles, cuts, abrasions, stains, marks, surface defects, or seaming aberrations.
  - 5. Configuration as indicated on the drawings.
  - 6. Made of prefabricated components ready for installation.

### **2.03 MATERIALS**

- A. Supporting Steel Members: As specified in Section 05 12 00, unless otherwise specified in this section; all steel members hot-dipped galvanized after fabrication.
  - 1. Structural Steel: ASTM A36/A36M.
  - 2. Structural Pipe: ASTM A53/A53M, Type E or S, Grade B.

3. Structural Tubing: ASTM A500, Grade B.
  4. High-Strength Bolts: ASTM A325 (A 325M).
  5. Common Bolts: ASTM A307.
  6. Threaded Rod: ASTM A36/A36M.
  7. Anchor Bolts, Non-Headed: ASTM A307.
  8. Anchor Bolts, Threaded Rod: ASTM A36/A36M.
  9. Welding: Perform in accordance with AWS D1.1.
- B. Paint for Structural Steel Members, Tensioning Nuts, and Fabric Plates:
1. Surface Preparation: Commercial blast cleaning complying with SSPC-SP6.
  2. Primer: SSPC-Paint 20; minimum dry film thickness of 3 to 5 mils.
  3. Intermediate Coat: SSPC-Paint 22; minimum dry film thickness of 3 to 5 mils.
  4. Finish Coat: Aliphatic polyurethane; minimum dry film thickness of 10 mils.
  5. Color as selected by Architect.
- C. Cables and End Fittings: Provide all cables of same type having same modulus of elasticity.
1. Cables: Stainless steel, Type 304 or 316.
  2. Cables in Contact with Fabric: PVC sleeved.
  3. Cable Length Tolerance: As indicated on the drawings.
  4. Swaged and Speltered Fittings: Design and install to develop full breaking strength of cable.
  5. Thimble End Fittings: Design and install to develop a minimum of 90 percent of breaking strength of cable.
  6. Swaged End Fittings, Pins, Nuts, and Washers: Stainless steel.
  7. Tensioning Nuts and Fabric Plates: Galvanized steel, finished with 2 coats of epoxy paint.
- D. Shackles, Rigging Screws, Clamps, and Tensioning Hardware: Stainless steel architectural finished material only.
- E. Interior Lighting: Pre-drill base plates to allow conduit to be installed and cabling to run inside support steel for mounting lights under canopy.



## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine area to receive structure. Notify Architect if area is not acceptable. Do not begin installation until unacceptable conditions have been corrected.
- B. Examine foundations and anchor bolts for location and elevation. Notify Architect of inaccuracies. Do not begin installation until unacceptable conditions have been corrected.

### **3.02 PREPARATION**

- A. Prepare an erection plan for all structural and fabric installation activity, including a detailed sequence of the work.
- B. Prepare a clear, flat, smooth, and clean layout area on ground of sufficient size for assembly of fabric panels. Prepare area adjacent to location of structure installation.
- C. Check contact surfaces to remove sharp objects, dirt, grease, oil, and other causes for rips, scratching, or other damage to fabric panels during installation.
- D. Use temporary ground sheets where fabric panels are to be dragged across a surface. Prevent chaffing or other damage to fabric panel surface.

### **3.03 INSTALLATION**

- A. Conform to pre-established erection plan.
- B. Do not undertake erection of fabric during inclement weather conditions. The installer has sole responsibility to determine when conditions are safe for erection.
- C. Install structure in accordance with manufacturer's instructions at location indicated on the drawings.
- D. Install structure in the necessary sequence and with sufficient bracing to ensure stability at all times.
- E. Architect will inspect installed concrete foundations, support steel, cables, and fittings before installation of fabric only to ensure compliance with data submittals.
- F. Install and tension fabric in accordance with manufacturer's instructions.
  - 1. Use care in installation of fabric to avoid damage to base material, coating, and surface treatment.
  - 2. Ensure surfaces of fabric are smooth, uniform, and clean, with even curved edges and interfaces, and with no cuts, scratches, abrasions, stains, marks, blemishes, or welding irregularities.
- G. Repair or replace defective or damaged materials, coatings, and finishes as directed by Architect.

### **3.04 ADJUSTING**

- A. Make final adjustments to structure as required for structural integrity, geometric shape, and free from objectionable wrinkles when viewed from the normally occupied space.

### **3.05 CLEANING**

- A. Clean structure in accordance with fabric manufacturer's instructions.

**END OF SECTION**

# SECTION 220010 GENERAL PLUMBING REQUIREMENTS

## PART 1 - GENERAL REQUIREMENTS

### 1.1 DESCRIPTION OF WORK

- A. This Division requires the furnishing and installing of complete functioning systems, and each element thereof, as specified or indicated on the Drawings and Specifications or reasonably inferred; including every article, device or accessory (whether or not specifically called for by item) reasonably necessary to facilitate each system's functioning as indicated by the design and the equipment specified. Elements of the work include materials, labor, supervision, supplies, equipment, transportation, and utilities.
- B. Division 22 of the Specifications and Drawings numbered with prefixes P, MP and EP generally describe these systems, but the scope of the Plumbing work includes all such work indicated in the Contract Documents: Instructions to Bidders; Proposal Form; General Conditions; Supplementary General Conditions; Architectural, Structural, Mechanical, Plumbing and Electrical Drawings and Specifications; and Addenda.
- C. The Drawings have been prepared diagrammatically intended to convey the scope of work, indicating the intended general arrangement of the equipment, fixtures, piping, etc. without showing all the exact details as to elevations, offsets, control lines, and other installation requirements. The Contractor shall use the Drawings as a guide when laying out the work and shall verify that materials and equipment will fit into the designated spaces, and which, when installed per manufacturers requirements, will ensure a complete, coordinated, satisfactory and properly operating system.

### 1.2 QUALITY ASSURANCE

- A. All work under this division shall be executed in a thorough professional manner by competent and experienced workmen licensed to perform the Work specified.
- B. All work shall be installed in strict conformance with manufacturers requirements and recommendations. Equipment and materials shall be installed in a neat and professional manner and shall be aligned, leveled, and adjusted for satisfactory operation.
- C. Material and equipment shall be new, shall be of the best quality and design, shall be current model of the manufacturer, shall be free from defects and imperfections and shall have markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. Material and equipment of the same type shall be made by the same manufacturer whenever practicable.
- D. Unless specified otherwise, manufactured items shall have been installed and used, without modification, renovation, or repair for not less than one year prior to date of bidding for this project.

### 1.3 CODES, REFERENCES AND STANDARDS

- A. Execute Work in accordance with the National Fire Protection Association and all Local, State, and National codes, ordinances and regulations in force governing the particular class of Work involved. Obtain timely inspections by the constituted authorities, and upon final completion of the Work obtain and deliver to the Owner executed final certificates of acceptance from the Authority Having Jurisdiction.
- B. Any conflict between these Specifications and accompanying Drawings and the applicable Local, State and Federal codes, ordinances and regulations shall be reported to the Architect in sufficient time, prior to the opening of Bids, to prepare the Supplementary Drawings and Specification Addenda required to resolve the conflict.
- C. The governing codes are minimum requirements. Where these Drawings and Specifications exceed the code requirements, these Drawings and Specification shall prevail.
- D. All material, manufacturing methods, handling, dimensions, method or installation and test procedure shall conform to but not be limited to the following industry standards and codes:

BOCA	Building Officials Code Administration
UBC	Uniform Building Code
UMC	Uniform Mechanical Code

UPC	Uniform Plumbing Code
IBC	International Building Code
IMC	International Mechanical Code
IPC	International Plumbing Code
IFGC	International Fuel Gas Code
ADA	American Disabilities Act
AIA	Guidelines for Design and Construction of Hospital and Healthcare Facilities
AMCA	Air Movement and Control Association, Inc.
ANSI	American National Standards Institute
ASHRAE	American Society of Heating Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
CISPI	Cast Iron Soil Pipe Institute
MSS	Manufacturer's Standardization Society of the Valve and Fitting Industry
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NFPA	National Fire Protection Association
NEMA	National Electrical Manufacturers' Association
OSHA	Occupational Safety and Health Act
PDI	Plumbing and Drainage Institute
UL	Underwriter's Laboratories

- E. Contractor shall comply with rules and regulations of public utilities and municipal departments affected by connections of services.
- F. All Plumbing work shall be performed in compliance with applicable safety regulations, including OSHA regulations. Safety lights, guards, shoring and warning signs required for the performance of the Plumbing work shall be provided by the Contractor.

#### 1.4 DEFINITIONS

##### A. General:

1. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."
  2. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
  3. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
  4. Furnished by Owner or Furnished by Others: The item will be furnished by the Owner or Others. It is to be installed and connected under the requirements of this Division, complete and ready for operation, including items incidental to the Work, including services necessary for proper installation and operation. The installation shall be included under the guarantee required by this Division.
  5. Engineer: Where referenced in this Division, "Engineer" is the Engineer of Record and the Design Professional for the Work under this Division, and is a Consultant to, and an authorized representative of, the Architect, as defined in the General and/or Supplementary Conditions. When used in this Division, it means increased involvement by, and obligations to, the Engineer, in addition to involvement by, and obligations to, the "Architect".
  6. AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.
  7. NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA, etc.), and acceptable to the Authority having Jurisdiction (AHJ) over this project. Nationally Recognized Testing Laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other listed Manufacturers and models that meet the specified criteria.
- B. The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, or both, by an NRTL, and acceptable to the AHJ over this project.
  - C. The following definitions apply to excavation operations:

1. Additional Excavation: Where excavation has reached required subgrade elevations, if unsuitable bearing materials are encountered, continue excavation until suitable bearing materials are reached. The Contract Sum may be adjusted by an appropriate Contract Modification.
2. Subbase: as used in this Section refers to the compacted soil layer used in pavement systems between the subgrade and the pavement base course material.
3. Subgrade: as used in this Section refers to the compacted soil immediately below the slab or pavement system.
4. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction from the Architect.

#### 1.5 COORDINATION

- A. The Contractor shall visit the site and ascertain the conditions to be encountered while installing the Work under this Division, verify all dimensions and locations before purchasing equipment or commencing work, and make due provision for same in the bid. Failure to comply with this requirement shall not be considered justification for omission, alteration, incorrect or faulty installation of Work under this Division or for additional compensation for Work covered by this Division.
- B. The Contractor shall refer to Drawings of the other disciplines and to relevant equipment drawings and shop drawings to determine the extent of clear spaces. The Contractor shall make offsets required to clear equipment, beams and other structural members; and to facilitate concealing piping and ductwork in the manner anticipated in the design.
- C. The contractor shall provide materials with trim which will fit properly the types of ceiling, wall, or floor finishes actually installed.
- D. The Contractor shall maintain a foreman on the jobsite at all times to coordinate his work with other contractors and subcontractors so that various components of the Plumbing systems will be installed at the proper time, will fit the available space, and will allow proper service access to the equipment. Carry on the Work in such a manner that the Work of the other contractors and trades will not be handicapped, hindered, or delayed at any time.
- E. Work of this Division shall progress according to the "Construction Schedule" as established by the Prime Contractor and his subcontractors and as approved by the Architect. Cooperate in establishing these schedules and perform the Work under this Division, in a timely manner in conformance with the construction schedule so as to ensure successful achievement of schedule dates.

#### 1.6 MEASUREMENTS AND LAYOUTS

- A. The drawings are schematic in nature, but show the various components of the systems approximately to scale and attempt to indicate how they are to be integrated with other parts of the building. Figured dimensions shall be taken in preference to scale dimensions. Determine exact locations by job measurements, by checking the requirements of other trades, and by reviewing the Contract Documents. The Contractor will be held responsible for errors which could have been avoided by proper checking and inspection.

#### 1.7 SUBMITTALS

- A. Refer to Division 1 and General Conditions for submittal requirements.
- B. Assemble and submit for review, manufacturers product literature for material and equipment to be furnished and/or installed under this Division, to include shop drawings, manufacturer's product data and performance sheets and submittals required by this Division as noted in Table 1 at the end of this section. A minimum of seven (7) sets shall be submitted.
- C. Submittals and shop drawings shall not contain HEI's firm name or logo, nor shall it contain the HEI's engineers' seal and signature. They shall not be copies of HEI's work product. If the contractor desires to use elements of such product, the license agreement for transfer of information at the end of this section must be used
- D. Shop Drawings shall be submitted for systems as listed in Table 1 in sufficient detail so as to demonstrate compliance with the Contract Documents and design concept. Highlight, mark, list or indicate the materials, performance criteria and accessories that are being proposed.
- E. Refer to individual Sections for additional submittal requirements.
- F. Submit Shop Drawings as early as required to support the project schedule. Allow for two weeks Engineer review time plus mailing time plus a duplication of this time for resubmittal if required.

Submittal of Shop Drawings as soon as possible before construction starts is preferred.

- G. Before submitting Shop Drawings and material lists, the Contractor shall verify that the equipment submitted is mutually compatible and suitable for the intended use. He shall verify that the equipment will fit the available space and allow ample room for maintenance. If the size of equipment furnished makes necessary any change in location, or configuration, submit a shop drawing showing the proposed layout.
- H. Shop Drawings submitted by the Contractor shall contain the following information. Submittals not so identified will be returned to the Contractor without action:
  - 1. The project name.
  - 2. The applicable specification section and paragraph.
  - 3. Equipment identification acronym as used on the drawings.
  - 4. The submittal date.
  - 5. The Contractor's stamp which shall certify that the stamped drawings have been checked by the Contractor, comply with the Drawings and Specifications and have been coordinated with other trades.
- I. Refer to Division 1 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 1. Contractor shall notify the Architect and Engineer that the shop drawings have been posted. If electronic submittal procedures are not defined in Division 1, Contractor shall include the website, user name and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the Architect and Engineer's designated representatives. Contractor shall allow the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal and shall clearly indicate the materials, performance criteria and accessories being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.
- J. The Architect and/or Engineer's checking and subsequent acceptance of such drawings, schedules, literature, or illustrations shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications unless he has, in writing, called the Engineer's attention to such deviations at the time of submission, and secured his written acceptance; nor shall it relieve him from responsibility for errors in dimensions, details, size of members, or quantities; or omissions of components or fittings; or for coordinating items with actual building conditions and adjacent work.

#### 1.8 ELECTRONIC DRAWING FILES

- A. In preparation of shop or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format from the Engineer for a shipping and handling fee of \$200 for a drawing set up to 12 sheets and \$15 per sheet for each additional sheet. Contact the Architect for Architect's written authorization. Contractor shall complete and send the form attached at the end of this section along with a check made payable to Henderson Engineers, Inc. Contractor shall indicate the desired shipping method and drawing format on the attached form. In addition to payment, Architect's written authorization and Engineer's release agreement form must be received before electronic drawing files will be sent.

#### 1.9 SUBSTITUTIONS

- A. Refer to Division 1 and General Conditions for Substitutions
- B. Materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution.
- C. No substitution will be considered prior to receipt of Bids unless written request for approval to bid has been received by the Engineer at least ten calendar days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other Work that incorporation of the substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Engineer's decision of approval or disapproval to bid of a proposed substitution shall be final.
- D. If the proposed substitution is approved prior to receipt of Bids, such approval will be stated in an Addendum. Bidders shall not rely upon approvals made in any other manner. Verbal approval will

not be given.

- E. No substitutions will be considered after the Contract is awarded unless specifically provided in the Contract Documents.

#### 1.10 OPERATION AND MAINTENANCE MANUALS

- A. Refer to Division 1 and General Conditions for Operational and Maintenance Manuals.
- B. Submit manuals prior to requesting the final punch list.
- C. Instruct the Owner's permanent personnel in the proper operation of, startup and shutdown procedures and maintenance of the equipment and components of the systems installed under this Division.
- D. At the completion of the project furnish to the Architect for the Owner, four (4) copies of brochures in three-ring, loose-leaf, hard-back notebook form, divided and tabbed, containing equipment data, approved shop drawings, diagrams, capacities, spare part numbers, manufacturer's service and maintenance data, warranties, guarantees, etc. Include local contacts complete with address and telephone number, for equipment, apparatus, and system components furnished and installed under this Division of the specifications.

#### 1.11 SPARE PARTS

- A. Provide to the Owner the spare parts specified in the individual sections in Division 22 of this specification. Refer to Table 2 at the end of this section for a list of specification sections in Division 22 that contain spare parts requirements.
- B. Owner or Owner's representative shall initial and date each section line in Table 2 when the specified spare parts for that section are received and shall sign at the bottom when all spare parts have been received.

#### 1.12 RECORD DRAWINGS

- A. A set of blueline prints shall be kept on the jobsite during construction for the purpose of noting changes. During the course of construction, the Contractor shall indicate on these drawings, changes made from the Contract Drawings. Particular attention shall be made to those items which need to be located for servicing. Underground piping shall be located, by dimension, from column lines.
- B. Refer to Division 1 and General Conditions for Record Drawings
- C. At the completion of the project, the Contractor shall obtain at his expense, reproducible vellum copies of the drawings and incorporate changes noted on the jobsite work prints onto these vellums. These changes shall be done by a skilled drafter. Each sheet shall be marked "Record Drawing", with date. These drawings shall be delivered to the Architect.
- D. At the completion of the project, the Contractor shall obtain at his expense, reproducible mylar copies of the drawings and incorporate changes noted on the jobsite work prints onto these mylars. These changes shall be done by a skilled drafter. Each sheet shall be marked "Record Drawing", with date. These drawings shall be delivered to the Architect.

#### 1.13 TRAINING

- A. Provide training as indicated in each specific section. Schedule training with the Owner at least 7 days in advance. Video tape the training sessions in format as agreed to with the Owner. Provide three copies of each session to the Owner and obtain written receipt from the Owner.

#### 1.14 PAINTING

- A. Exposed ferrous surfaces, including pipe, pipe hangers, equipment stands and supports shall be painted by the Plumbing Contractor using materials and methods as specified under Division 9 of the Specifications; colors shall be as selected by the Architect.
- B. Factory finishes, shop priming and special finishes are specified in the individual equipment specification sections.
- C. Where factory finishes are provided and no additional field painting is specified, marred or damaged surfaces shall be touched up or refinished so as to leave a smooth, uniform finish.

#### 1.15 DELIVERY, STORAGE AND HANDLING

- A. Refer to Division 1 and General Conditions for Delivery, Storage and Handling.
- B. Equipment and material shall be delivered to the job site in their original containers with labels intact, fully identified with manufacturer's name, model, model number, type, size, capacity and Underwriter's Laboratories, Inc. labels and other pertinent information necessary to identify the item.
- C. Deliver, receive, handle and store equipment and materials at the job site in the designated area and in such a manner as to prevent equipment and materials from damage and loss. Store equipment and materials delivered to the site on pallets and cover with waterproof, tear resistant tarp or plastic or as required to keep equipment and materials dry. Follow manufacturer's recommendations, and at all times, take every precaution to properly protect equipment and material from damage, to include the erection of temporary shelters to adequately protect equipment and material stored at the Site. Equipment and/or material which become rusted or damaged shall be replaced or restored by the Contractor to a condition acceptable to the Architect.
- D. The Contractor shall be responsible for the safe storage of his own tools, material and equipment.

#### 1.16 GUARANTEES AND WARRANTIES

- A. Refer to Division 1 and General Conditions for Guarantees and Warranties.
- B. Each system and element thereof shall be warranted against defects due to faulty workmanship, design or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in the Construction Documents or manufacturer's standard warranty. The Contractor shall remedy defects occurring within a period of one year from the date of Substantial Completion or as stated in the General Conditions.
- C. The following additional items shall be guaranteed:
  - 1. Piping shall be free from obstructions, holes or breaks of any nature.
  - 2. Insulation shall be effective.
  - 3. Proper circulation of fluid in each piping system.
- D. The above guarantees shall include both labor and material; and repairs or replacements shall be made without additional cost to the Owner.
- E. The remedial work shall be performed promptly, upon written notice from the Architect or Owner.
- F. At the time of Substantial Completion, deliver to the Owner warranties with terms extending beyond the one year guarantee period, each warranty instrument being addressed to the Owner and stating the commencement date and term. Refer to Table 3 at the end of this section for a list of specification sections in Division 22 that contain special warranties.

#### 1.17 TEMPORARY FACILITIES

- A. Refer to Division 1 and General Conditions for Temporary Facilities requirements.
- B. Temporary Utilities: The types of services required include, but are not limited to, water, sewerage, surface drainage and gas. When connecting to existing franchised utilities for required services, comply with service companies' recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
  - 1. Sewer Sediment: Maintain sewers and temporary connecting sewers in a clean, nonclogged condition during construction period.

#### 1.18 PROJECT CONDITIONS

- A. Conditions Affecting Work In Existing Buildings: The following project conditions apply:
  - 1. The Drawings describe the general nature of remodeling to the existing building. However, the Contractor shall visit the Site prior to submitting His bid to determine the nature and extent of work involved.
  - 2. Work in the existing building shall be scheduled with the Owner.
  - 3. Certain demolition work must be performed prior to the remodeling. The Plumbing Contractor shall perform the demolition which involves Plumbing and Plumbing systems, fixtures, equipment, piping, equipment supports or foundations and materials.
  - 4. Plumbing Contractor shall remove articles which are not required for the new Work. Unless otherwise indicated, each item removed by the Plumbing Contractor during this demolition shall become his property and shall be removed by the Plumbing Contractor from the premises and



- dispose of them in accordance with applicable federal, state and local regulations.
5. Plumbing Contractor shall relocate and reconnect Plumbing facilities that must be relocated in order to accomplish the remodeling shown in the Drawings or indicated in the Specifications. Where Plumbing equipment or materials are removed, the Plumbing Contractor shall cap unused piping beyond the floor line or wall line to facilitate restoration of finish.
  6. General Contractor shall install finish material.
  7. Obtain permission from the Architect for channeling of floors or walls not specifically noted on the Drawings.
  8. Protect adjacent materials indicated to remain. Install and maintain dust and noise barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove protection and barriers after demolition operations are complete.
  9. Locate, identify, and protect Plumbing services passing through demolition area and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, install temporary services for affected areas.
- B. Conditions Affecting Excavations: The following project conditions apply:
1. Maintain and protect existing building services which transit the area affected by selective demolition.
  2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation operations.
- C. Site Information: Subsurface conditions were investigated during the design of the Project. Reports of these investigations are available for information only; data in the reports are not intended as representations or warranties of accuracy or continuity of conditions. The Owner will not be responsible for interpretations or conclusions drawn from this information.
- D. Use of explosives is not permitted.
- E. Environmental Conditions: Apply joint sealers under temperature and humidity conditions within the limits permitted by the joint sealer manufacturer. Do not apply joint sealers to wet substrates.

## **PART 2 - EXECUTION**

### **2.1 PERMITS**

- A. Secure and pay for permits required in connection with the installation of the Plumbing Work. Arrange with the various utility companies for the installation and connection of required utilities for this facility and pay charges associated therewith including connection charges and inspection fees, except where these services or fees are designated to be provided by others.

### **2.2 EXISTING UTILITIES**

- A. Schedule and coordinate with the Utility Company, Owner and with the Engineer connection to, or relocation of, or discontinuation of normal utility services from existing utility lines. Premium time required for any such work shall be included in the bid.
- B. Existing utilities damaged due to the operations of utility work for this project shall be repaired to the satisfaction of the Owner or Utility Company without additional cost.
- C. Utilities shall not be left disconnected at the end of a work day or over a weekend unless authorized by representatives of the Owner or Engineer.
- D. Repairs and restoration of utilities shall be made before workmen leave the project at the end of the workday in which the interruption takes place.
- E. Contractor shall include in his bid the cost of furnishing temporary facilities to provide services during interruption of normal utility service.

### **2.3 SELECTIVE DEMOLITION**

- A. Refer to Division 1, Division 2 and General Conditions for Selective Demolition requirements.
- B. General: Demolish, remove, demount, and disconnect abandoned Plumbing materials and equipment indicated to be removed and not indicated to be salvaged or saved.
- C. Materials and Equipment To Be Salvaged: Remove, demount, and disconnect existing Plumbing materials and equipment indicated to be removed and salvaged, and deliver materials and equipment to the location designated for storage.

- D. Disposal and Cleanup: Remove from the site and legally dispose of demolished materials and equipment not indicated to be salvaged.
- E. Plumbing Materials and Equipment: Demolish, remove, demount, and disconnect the following items:
  - 1. Inactive and obsolete piping, fittings and specialties, equipment, controls, fixtures and insulation.
    - a. Piping embedded in floors, walls, and ceilings may remain if such materials do not interfere with new installations. Remove exposed materials and materials above accessible ceilings. Drain and cap piping and ducts allowed to remain.
    - b. Perform cutting and patching required for demolition in accordance with Division 1, General Conditions and "Cutting and Patching" portion of this Section in Division 22.

#### 2.4 CUTTING AND PATCHING

- A. The Contractor shall do necessary cutting of walls, floors, ceilings and roofs.
- B. No structural member shall be cut without permission from Architect.
- C. Patch around openings to match adjacent construction.
- D. After the final waterproofing membrane has been installed, roofs may be cut only with written permission by the Architect.

#### 2.5 CLEANING

- A. Dirt and refuse resulting from the performance of the work shall be removed from the premises as required to prevent accumulation. The Plumbing Contractor shall cooperate in maintaining reasonably clean premises at all times.
- B. Immediately prior to the final inspection, the Plumbing Contractor shall clean material and equipment installed under the Plumbing Contract. Dirt, dust, plaster, stains, and foreign matter shall be removed from surfaces including components internal to equipment. Damaged finishes shall be touched-up and restored to their original condition.

#### 2.6 SUBSTANTIAL COMPLETION REVIEW

- A. Prior to requesting inspection for "CERTIFICATE OF SUBSTANTIAL COMPLETION", the Contractor shall complete the following items:
  - 1. Submit complete Record Drawings.
  - 2. Perform special inspections. Refer to Table 4 at the end of this section for a list of specification sections in Division 22 that contain special inspection requirements.
  - 3. Start-up testing of systems.
  - 4. Removal of temporary facilities from the site.
  - 5. Comply with requirements for Substantial Completion in the "General Conditions".
- B. The Contractor shall request in writing a review for Substantial Completion. The Contractor shall give the Architect/Engineer at least seven (7) days notice prior to the review.
- C. The Contractor's written request shall state that the Contractor has complied with the requirements for Substantial Completion.
- D. Upon receipt of a request for review, the Architect/Engineer will either proceed with the review or advise the Contractor of unfulfilled requirements.
- E. If the Contractor requests a site visit for Substantial Completion review prior to completing the above mentioned items, He shall reimburse the Architect/Engineer for time and expenses incurred for the visit.
- F. Upon completion of the review, the Architect/Engineer will prepare a "final list" of outstanding items to be completed or corrected for final acceptance.
- G. Omissions on the "final list" shall not relieve the Contractor from the requirements of the Contract Documents.
- H. Prior to requesting a final review, the Contractor shall submit a copy of the final list of items to be completed or corrected. He shall state in writing that each item has been completed, resolved for acceptance or the reason it has not been completed.

#### END OF SECTION 220010

**TABLE 1: PLUMBING SPECIFICATION SHOP DRAWING SUBMITTAL REQUIREMENTS**

<u>SPECIFICATION NUMBER/TITLE</u>	<u>CODE DESIGNATION</u>
220010 General Plumbing Requirements	NONE
220015 Coordination	NONE
220500 Common Work Results For Plumbing	A, B, G, M
220515 Basic Piping Materials And Methods	B, G
220516 Expansion Fittings And Loops For Plumbing Piping	A, B, F
220523 General-Duty Valves For Plumbing Piping	B
220529 Hangers And Supports For Plumbing Piping	B, F, G, H
220700 Plumbing Insulation	B, M
221100 Water Distribution Piping & Specialties	B, G, H
221111 Mechanically Joined Plumbing Piping Systems	B, G, H
221300 Sanitary Drainage & Vent Piping & Specialties	B
221329 Sanitary Sewerage Pumps	A, B, C, E
221400 Storm Drainage Piping & Specialties	B
224000 Plumbing Fixtures	B, E, N

CODED LEGEND

A	Shop Drawings
B	Product Data and equipment weights
C	Performance Data, Curves, Certificates and Test Data
D	Coordination Drawings
E	Wiring Diagrams and short circuit current ratings
F	Installation Instructions
G	Welder's Certificates
H	Certificates
I	Calculations
J	Special Inspections
K	Special Warranties
L	Material Samples
M	Schedules
N	Recommended Spare Parts List

**TABLE 2: SPARE PARTS REQUIREMENTS FOR PLUMBING EQUIPMENT**

Section Number Received/Date/Initial

220553	Identification For Plumbing Piping & Equipment	_____
221100	Water Distribution Piping & Specialties	_____
221111	Mechanically Joined Plumbing Piping Systems	_____
224000	Plumbing Fixtures	_____

\_\_\_\_\_  
Owner's Signature

**TABLE 4: SPECIAL INSPECTION REQUIREMENTS FOR PLUMBING EQUIPMENT**

<u>Section Number</u>	<u>Completed/Date/Initial</u>
220549 Seismic Controls For Plumbing Piping & Equipment	_____
220550 Vibration Isolation For Plumbing Piping & Equipment	_____
226100 Gas & Vacuum Systems For Medical Facilities	_____

**TABLE 5: MECHANICAL SPECIFICATION OPERATION AND MAINTENANCE SUBMITTAL REQUIREMENTS**

<u>SPECIFICATION NUMBER/TITLE</u>	<u>CODE DESIGNATION</u>
220500 Common Work Results For Plumbing	B
220515 Basic Piping Materials And Methods	B
220516 Expansion Fittings And Loops For Plumbing Piping	A, B
220523 General-Duty Valves For Plumbing Piping	B, H, I
220529 Hangers And Supports For Plumbing Piping	B
220553 Identification For Plumbing Piping & Equipment	B
220700 Plumbing Insulation	B
221100 Water Distribution Piping & Specialties	A, B, F, H, I
221111 Mechanically Joined Plumbing Piping Systems	A, B, F, H, I
221300 Sanitary Drainage & Vent Piping & Specialties	A, B, F
224000 Plumbing Fixtures	B, E, H, I

CODED LEGEND

A	As-Built Drawings
B	Product Data
C	Performance Data, Capacities, Curves and Certificates
D	Wiring Diagrams
E	Operating Instructions
F	Test Reports
G	Warranties
H	Recommended Spare Parts List
I	Service and Maintenance Instructions

**AGREEMENT FOR TRANSFER OF INFORMATION  
MACHINE-READABLE FORMAT**

PROJECT NAME: \_\_\_\_\_

PROJECT NO/PHASE: \_\_\_\_\_

Made this day, \_\_\_\_\_

By and Between Henderson Engineers, Inc., Lenexa, Kansas (hereinafter referred to as ENGINEER) and \_\_\_\_\_ (hereinafter referred to as RECIPIENT).

The enclosed electronic media are provided pursuant to your request for the purpose of production of shop drawings or record drawings. In using it, modifying it, or accessing information from it, you are responsible for confirmation, accuracy, and checking of the data from the media. ENGINEER hereby disclaims any and all responsibility from any results obtained in use of this electronic media and does not guarantee any accuracy of the information.

RECIPIENT agrees that it shall not use the information provided by ENGINEER for any purpose other than that described above without the express written consent of ENGINEER. RECIPIENT also hereby acknowledges that the data delivered by ENGINEER is for use by RECIPIENT only, and is not to be released to any other party without the written consent of the ENGINEER and does not transfer ownership of the instruments of professional service.

RECIPIENT understands that the automated conversion of information and data from the system and format used by ENGINEER to an alternate system or format cannot be accomplished without the possibility of introduction of inexactitudes, anomalies, and errors. In the event project documentation provided to RECIPIENT in machine readable form is so converted, RECIPIENT agrees to assume all risk associated therewith, and to the fullest extent permitted by law, to hold harmless and indemnify ENGINEER from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising therefrom or in connection therewith.

RECIPIENT recognizes that changes or modifications to ENGINEER'S instruments of professional service introduced by anyone other than ENGINEER may result in adverse consequences that ENGINEER can neither predict nor control. Therefore, and in consideration of ENGINEER'S agreement to deliver its instruments of professional service in machine readable format, RECIPIENT agrees, to the fullest extent permitted by law to hold harmless and indemnify ENGINEER from and against all claim, liabilities, losses, damages, and costs, including misuse or reuse by others of the machine readable information and data provided by ENGINEER under this Agreement. The foregoing indemnification applies, without limitation, to any use of the project documentation on another project, for additions to this project, or for completion of this project by others; ENGINEER may authorize excepting only such use in writing.

Send a check for shipping and handling costs in the amount of \$200 for an electronic drawing set up to 12 sheets plus \$15 per sheet in excess of 12 sheets payable to Henderson Engineers, Inc. along with completed and signed agreement and Architect's written authorization to receive electronic media. Be sure to indicate below the desired shipping method, format type and media type.

Sheet numbers requested: \_\_\_\_\_

1-12 sheets @ \$200 + \_\_\_\_\_ sheet(s) @ \$15 each = \$ \_\_\_\_\_ total due to Henderson Engineers, Inc.

Signature  
HENDERSON ENGINEERS, INC.

Signature  
RECIPIENT

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Shipping Method

- E-Mail  
 First Class Mail  
 FedEx Overnight (No P.O.Boxes)

Shipping or E-Mail Address:

Format

- AutoCAD 2000/2002  
 AutoCAD 2004/2005  
 DXF

Media

- CD-ROM  
 DVD

Phone:

## **SECTION 220015 COORDINATION**

### **PART 1 - GENERAL REQUIREMENTS**

#### **1.1 SUMMARY**

- A. This Section specifies the basic requirements for electrical components which are an integral part of packaged plumbing equipment. These components include, but are not limited to factory furnished motors, starters, and disconnect switches furnished as an integral part of packaged plumbing equipment.
- B. Specific electrical requirements (i.e. horsepower and electrical characteristics) for plumbing equipment are scheduled on the Drawings.
- C. System shall be complete and operational with power and control wiring provided to meet the design intent shown on the drawings and specified within the specification sections.

#### **1.2 SUBMITTALS**

- A. No separate submittal is required. Submit product data for motors, starters, and other electrical components with submittal data required for the equipment for which it serves, as required by the individual equipment specification Sections.

#### **1.3 QUALITY ASSURANCE**

- A. Electrical components and materials shall be UL labeled.
- B. All electrical equipment provided and the wiring and installation of electrical equipment shall be in accordance with the requirements of this Section and Division 26.

### **PART 2 - PRODUCTS AND MATERIALS**

#### **2.1 GENERAL**

- A. The Contractors shall provide all motors, starters, disconnects, wire, conduit, etc. as specified in the Construction Documents. If, however, the Plumbing Contractor furnishes a piece of equipment requiring a different motor, starter, disconnect, wire size, etc. than what is shown and/or intended on the Construction Documents, the Plumbing Contractor shall coordinate the requirements with any other Contractor and shall be responsible for any additional cost incurred by any other Contractor that is associated with installing the different equipment and related accessories for proper working condition.
- B. Refer to Division 26, "Common Work Results for Electrical" for specification of motor connections
- C. Refer to Division 26, "Enclosed Switches and Circuit Breakers" for specification of disconnect switches.

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR COORDINATION**

- A. Unless otherwise indicated, all motors, equipment, controls, etc. shall be furnished, set in place and wired in accordance with Table 1. Any items not listed but shown on the drawings shall be considered part of the Contract Documents and brought to the attention of the Architect.
- B. The General Contractor is the central authority governing the total responsibility of all trade contractors. Therefore, deviations and clarifications of this schedule are permitted provided the General Contractor assumes responsibility to coordinate the trade contractors different than as indicated herein. If deviations or clarifications to this schedule are implemented, submit a record copy to the Engineer.



TABLE 1: ELECTRICAL REQUIREMENTS FOR PLUMBING EQUIPMENT

ITEM	FURN BY	SET BY	POWER WIRING	CONTROL WIRING
Control relays and transformers	DIV 22	DIV 22	DIV 26	DIV 23

DIV 22 = Plumbing Contractor

DIV 26 = Electrical Contractor

**END OF SECTION 220015**

**SECTION 220500  
COMMON WORK RESULTS FOR PLUMBING**

**PART 1 - GENERAL REQUIREMENTS**

**1.1 SUMMARY**

- A. This Section includes limited scope general construction materials and methods for application with Plumbing installations as follows:
  - 1. Access panels and doors in walls, ceilings, and floors for access to Plumbing materials and equipment.
  - 2. Plumbing equipment nameplate data.
  - 3. Non-shrink grout for equipment installations.
  - 4. Sleeves for Plumbing penetrations.
  - 5. Miscellaneous metals for support of Plumbing materials and equipment.
  - 6. Joint sealers for sealing around Plumbing materials and equipment.
  - 7. Plenum insulation for enclosure of combustible items located within fire-rated return air plenums.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 22 Section "Basic piping Materials and Methods" for materials and methods for mechanical sleeve seals.

**1.2 SUBMITTALS**

- A. General: Submit the following in accordance with Division 1 and Division 22 Section "General Plumbing Requirements".
  - 1. Product data for the following products:
    - a. Access panels and doors.
    - b. Joint sealers.
  - 2. Shop drawings detailing fabrication and installation for metal fabrications, and wood supports and anchorage for Plumbing materials and equipment.
  - 3. Welder certificates, signed by Contractor, certifying that welders comply with requirements specified under "Quality Assurance" article of this Section.
  - 4. Schedules indicating proposed methods and sequence of operations for selective demolition prior to commencement of Work. Include coordination for shut-off of utility services and details for dust and noise control.
    - a. Coordinate sequencing with construction phasing and Owner occupancy specified in Division 1 Section "Summary of Work."

**1.3 QUALITY ASSURANCE**

- A. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel."
  - 1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- B. Through and Membrane Penetration Systems Installer Qualifications: A firm experienced in installing penetration firestopping systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its penetration firestopping system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

**PART 2 - PRODUCTS AND MATERIALS**

**2.1 ACCESS TO EQUIPMENT**

- A. All control devices, specialties, valves, etc. shall be located so as to provide easy access for

operation, service inspection and maintenance.

B. Access Doors:

1. Provide access doors for all concealed equipment, except where above lay-in ceilings. Refer to Section "Plumbing Identification" for labeling of access doors.
2. Access doors shall be adequately sized for the devices served with a minimum size of 18" x 18", furnished by the respective Contractor or Subcontractor and installed by the General Contractor.
3. Access doors must be of the proper construction for type of construction where installed.
4. The exact location of all access doors shall be verified with the Architect prior to installation.
5. Steel Access Doors and Frames: Factory-fabricated and assembled units, complete with attachment devices and fasteners ready for installation. Joints and seams shall be continuously welded steel, with welds ground smooth and flush with adjacent surfaces.
6. Frames: 16-gauge steel, with a 1-inch-wide exposed perimeter flange for units installed in unit masonry, pre-cast, or cast-in-place concrete, ceramic tile, or wood paneling.
  - a. For installation in masonry, concrete, ceramic tile, or wood paneling: 1 inch-wide-exposed perimeter flange and adjustable metal masonry anchors.
  - b. For gypsum wallboard or plaster: perforated flanges with wallboard bead.
  - c. For full-bed plaster applications: galvanized expanded metal lath and exposed casing bead, welded to perimeter of frame.
7. Flush Panel Doors: 14-gauge sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees; factory-applied prime paint.
  - a. Fire-Rated Units: Insulated flush panel doors, with continuous piano hinge and self-closing mechanism.
8. Locking Devices: Flush, screwdriver-operated cam locks.
9. Locking Devices: Where indicated on the drawings or where access panels are installed in locations accessible to the public, provide 5-pin or 5-disc type cylinder locks, individually keyed; provide 2 keys.
10. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Arrow United Industries.
  - b. Bar-Co., Inc.
  - c. J.L Industries.
  - d. Karp Associates, Inc.
  - e. Milcor Div. Inryco, Inc.
  - f. Nystrom Building Products
  - g. Wade
  - h. Zurn

## 2.2 PLUMBING EQUIPMENT NAMEPLATE DATA

- A. For each piece of power operated Plumbing equipment, provide a permanent operational data nameplate indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliance's, and similar essential data. Locate nameplates in an accessible location.

## 2.3 GROUT

- A. Provide nonshrink, nonmetallic grout conforming to ASTM C 1107, Grade B, in premixed and factory-packaged containers.
- B. Grout shall have post-hardening, volume-adjusting, dry, non-staining, non-corrosive, non-gaseous, hydraulic-cement characteristics and shall be as recommended by manufacturer for interior and exterior applications.
- C. Grout shall have 5,000 psi, 28-day compressive strength design mix.

## 2.4 PENETRATIONS

A. Sleeves:

1. Steel Sleeves: Schedule 40 galvanized, welded steel pipe, ASTM A-53 grade A or 12 gauge

- (0.1084 inches) welded galvanized steel formed to a true circle concentric to the pipe.
2. Sheet-Metal Sleeves: 10 gauge (0.1382 inches), galvanized steel, round tube closed with welded longitudinal joint.
- B. Frames for rectangular openings attached to forms and of a maximum dimension established by the Architect. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, provide 18 gauge (0.052 inches) welded galvanized steel. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, provide 10 gauge (0.1382 inches) welded galvanized steel. Notify the General Contractor or Architect before installing any box openings not shown on the Architectural or Structural Drawings.
  - C. Box Frames: Frames for rectangular openings shall be of welded 12 gauge steel attached to forms and of a maximum dimension established by the Architect. Contractor shall notify the General Contractor or Architect before installing any box openings not shown on the Architectural or Structural Drawings.

## 2.5 MISCELLANEOUS METALS

- A. Steel plates, shapes, bars, and bar grating: ASTM A 36.
- B. Cold-Formed Steel Tubing: ASTM A 500.
- C. Hot-Rolled Steel Tubing: ASTM A 501.
- D. Steel Pipe: ASTM A 53, Schedule 40, welded.
- E. Fasteners: Zinc-coated, type, grade, and class as required.

## 2.6 MISCELLANEOUS LUMBER

- A. Framing Materials: Standard Grade, light-framing-size lumber of any species. Number 3 Common or Standard Grade boards complying with WCLIB or AWPA rules, or Number 3 boards complying with SPIB rules. Lumber shall be preservative treated in accordance with AWPB LP-2, and kiln dried to a moisture content of not more than 19 percent.
- B. Construction Panels: Plywood panels; APA C-D PLUGGED INT, with exterior glue; thickness as indicated, or if not indicated, not less than 15/32 inches.

## 2.7 JOINT SEALERS

- A. General: Joint sealers, joint fillers, and other related materials compatible with each other and with joint substrates under conditions of service and application.
- B. Colors: As selected by the Architect from manufacturer's standard colors.
- C. Elastomeric Joint Sealers: Provide the following types:
  1. One-part, nonacid-curing, silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, for uses in non-traffic areas for masonry, glass, aluminum, and other substrates recommended by the sealant manufacturer. Provide one of the following:
    - a. "Dow Corning 790," Dow Corning Corp.
    - b. "Silglaze II SCS 2801," General Electric Co.
    - c. "Silpruf SCS 2000," General Electric Co.
    - d. "864," Pecora Corp.
    - e. "Rhodia 5C," Rhone-Poulenc, Inc.
    - f. "Spectrem 1," Tremco, Inc.
    - g. "Spectrem 2," Tremco, Inc.
    - h. "Dow Corning 795," Dow Corning Corp.
    - i. "Rhodia 7B," Rhone-Poulenc, Inc.
    - j. "Rhodia 7S," Rhone-Poulenc, Inc.
    - k. "Omniseal," Sonneborn Building Products Div.
  2. One-part, mildew-resistant, silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, for uses in non-traffic areas for glass, aluminum, and nonporous joint substrates; formulated with fungicide; intended for sealing interior joints with nonporous substrates; and

subject to in-service exposure to conditions of high humidity and temperature extremes. Provide one of the following:

- a. "Dow Corning 786," Dow Corning Corp.
  - b. "Sanitary 1700," General Electric Co.
  - c. "898 Silicone Sanitary Sealant," Pecora Corp.
  - d. "OmniPlus," Sonneborn Building Products Div.
- D. Acrylic-Emulsion Sealants: One-part, nonsag, mildew-resistant, paintable complying with ASTM C 834 recommended for exposed applications on interior and protected exterior locations involving joint movement of not more than plus or minus 5 percent. Provide one of the following:
1. Products: Subject to compliance with requirements, provide one of the following:
    - a. "Chem-Calk 600," Bostik Construction Products Div.
    - b. "AC-20," Pecora Corp.
    - c. "Sonolac," Sonneborn Building Products Div.
    - d. "Tremflex 834," Tremco, Inc.

## 2.8 ACOUSTICAL SEALANTS

- A. General: Penetrations by pipes through surfaces that are around and between noise critical spaces shall be sleeved, packed and sealed airtight with foam rod, non-hardening sealant and/or packing material as described herein.
- B. Foam Rod: Foam backer rod shall be closed cell polyethylene suitable for use as a backing for non-hardening sealant.
- C. Non-Hardening Sealant: Sealant for penetrations shall be non-hardening polysulphide type. Permanently flexible, approved firestop putty may be used in lieu of the sealant on foam rod in noise critical walls that are also fire rated.
- D. Packing Material: Mineral fiber; non-combustible; resistant to water, mildew and vermin. Expanding resilient foams manufactured for this purpose are an acceptable alternative only if the material density is at least 15 pcf (40 kg/m<sup>3</sup>).

## 2.9 PLENUM INSULATION

- A. General: Combustible materials including, but not limited to, plastic pipe and plastic-coated cables that do not meet the minimum combustibility requirements of the applicable building codes may be installed in fire-rated return air plenums when enclosed within high-temperature insulation blanket where approved by the authority having jurisdiction.
- B. Material: FyreWrap 0.5 Plenum Insulation, ETS Schaefer Plenumshield Blanket, or equivalent utilizing light weight, high temperature blanket enhanced for biosolubility. The encapsulating material shall be aluminum foil with fiberglass reinforcing scrim covering.
- C. Certification: Plenum insulation shall have an encapsulated flame spread rating less than 25 and a smoke developed rating of less than 50. The product shall be UL 1887 (Modified) listed, certified by ASTM E-136 for Non-combustibility and ASTM E-84/UL 723 for Surface Burning Characteristics.
- D. Physical Properties: Plenum insulation shall be single ½" layer with a density of 6 to 8 pounds per cubic foot.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION OF ACCESS DOORS

- A. Set frames accurately in position and securely attached to supports, with face panels plumb and level in relation to adjacent finish surfaces.
- B. Adjust hardware and panels after installation for proper operation.

### 3.2 ERECTION OF METAL SUPPORTS AND ANCHORAGE

- A. Cut, fit, and place miscellaneous metal fabrications accurately in location, alignment, and elevation to support and anchor Plumbing materials and equipment.

- B. Field Welding: Comply with AWS "Structural Welding Code."

### 3.3 ERECTION OF WOOD SUPPORTS AND ANCHORAGE

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorage accurately in location, alignment, and elevation to support and anchor Plumbing materials and equipment.
- B. Select fastener sizes that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood members.
- C. Attach to substrates as required to support applied loads.

### 3.4 PREPARATION FOR JOINT SEALERS

- A. Surface Cleaning for Joint Sealers: Clean surfaces of joints immediately before applying joint sealers to comply with recommendations of joint sealer manufacturer.
- B. Apply joint sealer primer to substrates as recommended by joint sealer manufacturer. Protect adjacent areas from spillage and migration of primers, using masking tape. Remove tape immediately after tooling without disturbing joint seal.

### 3.5 APPLICATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed application instructions applicable to products and applications indicated, except where more stringent requirements apply.
  - 1. Comply with recommendations of ASTM C 962 for use of elastomeric joint sealants.
  - 2. Comply with recommendations of ASTM C 790 for use of acrylic-emulsion joint sealants.
- B. Tooling: Immediately after sealant application and prior to time shinning or curing begins, tool sealants to form smooth, uniform beads; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

### 3.6 PENETRATIONS:

- A. New Construction:
  - 1. Coordinate with Divisions 03 and 04 for installation of sleeves and sleeve seals integrally in cast-in-place, precast, and masonry walls and horizontal slabs where indicated on the Drawings or as required to support piping or ductwork penetrations.
- B. Construction in Existing Facilities:
  - 1. Saw cut or core drill existing walls and slabs to install sleeves and sleeve seals in existing facilities. Do not cut or drill any walls or slabs without first coordinating with, and receiving approval from, the Architect, Owner, or both. Seal sleeves and sleeve seals into concrete walls or slabs with a waterproof non-shrink grout acceptable to the Architect.
- C. Provide sleeves and/or box frames for openings in all concrete and masonry construction and fire or smoke partitions, for all mechanical work that passes through such construction; Coordinate with other trades and Divisions to dimension and lay out all such openings.
- D. The General Contractor will provide only those openings specifically indicated on the Architectural or Structural Drawings as being provided under the General Contractor's work.
- E. The cutting of new or existing construction shall not be permitted except by written approval of the Architect.
- F. Floor sleeves shall be fitted with means for attachment to forms and shall be of length to extend at least two inches above the floor level.
- G. Cut sleeves to length for mounting flush with both surfaces of walls.
- H. Extend sleeves installed in floors 2 inches above finished floor level.
- I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

- J. Seal space outside of sleeves with approved joint compound for penetrations of gypsum board assemblies.
- K. All openings sleeved through underground exterior walls shall be sealed with mechanical sleeve seals as specified in Division 22 Section "Basic Piping Materials and Methods".

### 3.7 ACOUSTICAL PENETRATIONS

- A. General: There shall be no direct contact of piping with shaft walls, floor slabs and/or partition. All openings around pipes in the structure surrounding the plumbing equipment and surrounding noise-critical spaces shall be sealed, packed with caulking for the full depth of the penetration, as described herein.. This includes all slab penetrations and penetrations of noise critical walls.
- B. Domestic Water, Sewer, Drain and Vent Piping
  - 1. Where a pipe passes through a wall, ceiling or floor slab of a noise critical space, a steel sleeve shall be cast or grouted into the structure. The internal diameter of the sleeve shall be 2 inches larger than the external diameter of the pipe passing through it. After all of the piping is installed in that area, the Contractor shall check the clearance and correct it, if necessary, to within 1/2 inch. Pack the void full depth with packing material sealed at both ends, 1 inch deep, with non-hardening sealant backed by foam rod.
- C. Compressed Air Piping
  - 1. Compressed air pipes may be sleeved and sealed as described above, or may be grouted and caulked into the structure as follows: before grout has set, rake a groove around the pipe on each side of the wall or slab; groove shall be 1/2 inch wide and 1/2 inch deep. After grout has set, fill groove full depth with sealant.

### 3.8 PLENUM INSULATION

- A. General: Plenum insulation shall be installed as a single layer encapsulation applied directly on the surface of combustible items within fire-rated return air plenums where permitted by the local authority having jurisdiction
- B. Overlap: Provide a minimum 1" perimeter and longitudinal overlap at all seams and joints. Seal all cut edges with aluminum foil tape. There shall be no exposed fiber.
- C. Secure Attachment: Securely attach insulation using stainless steel tie wire or banding at locations and intervals as recommended by the manufacturer. The entire installation shall comply with the manufacturer's written installation instructions.
- D. Approval: Plenum insulation shall not be installed where not allowed by local authority having jurisdiction. Do not install combustible material within fire-rated return air plenums where the use of plenum insulation is not approved.

END OF SECTION 220500

## SECTION 220515 BASIC PIPING MATERIALS AND METHODS

### **PART 1 - GENERAL REQUIREMENTS**

#### 1.1 SUMMARY

- A. This Section specifies piping materials and installation methods common to more than one Section of Division 22 and includes joining materials, piping specialties and basic piping installation instructions.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 22 Section "Basic Plumbing Materials and Methods," for materials and methods for sleeve materials.
  - 2. Division 26 Section "Common Work Results for Electrical" required electrical devices.
  - 3. Division 26 Sections "Enclosed Switches and Circuit Breakers" for field-installed disconnects.

#### 1.2 SUBMITTALS

- A. Refer to Division 1 and General Plumbing Requirements for administrative and procedural requirements for submittals.
- B. Product Data: Submit product data on the following items:
  - 1. Escutcheons
  - 2. Dielectric Unions and Fittings
  - 3. Mechanical Sleeve Seals
  - 4. Strainers
- C. Quality Control Submittals:
  - 1. Submit welders' certificates specified in Quality Assurance below.
- D. Submit certification that specialties and fittings for domestic water service comply NSF 61 Annex G.

#### 1.3 QUALITY ASSURANCE

- A. Welder's Qualifications: All welders shall be qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications.
- B. Welding procedures and testing shall comply with ANSI Standard B31.9 - Standard Code for Building Services Piping and The American Welding Society, Welding Handbook.
- C. Soldering and Brazing procedures shall conform to ANSI B9.1 Standard Safety Code for Plumbing Refrigeration.
- D. Pipe specialties and fittings shall be manufactured in plants located in the United States.
- E. Comply with NSF 61 Annex G for wetted surfaces of specialties and fittings containing no more than 0.25% lead by weight compliance for valves for domestic water service.

### **PART 2 - PRODUCTS AND MATERIALS**

#### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide piping materials and specialties from one of the following:
  - 1. Pipe Escutcheons:
    - a. Chicago Specialty Mfg. Co.
    - b. Tubular Brass Plumbing Products, Zurn Industries, Inc.
  - 2. Dielectric Waterway Fittings:
    - a. Epco Sales, Inc.
    - b. Victaulic Company of America
  - 3. Dielectric Unions and Fittings:
    - a. Eclipse, Inc.; Rockford-Eclipse Div.
    - b. Capital Mfg. Co.
    - c. Watts Industries Inc.; Water Products Div.



- d. Zurn Industries, Inc.; Wilkins Div.
- e. Calpico, Inc.
- f. Central Plastics Co.
- 4. Strainers:
  - a. Armstrong Machine Works.
  - b. Hoffman Specialty ITT; Fluid Handling Div.
  - c. MEPCO
  - d. Metraflex Co.
  - e. Mueller Steam Specialties.
  - f. Nicholson Steam
  - g. RP&C Valve, Division of Conbraco Ind.
  - h. Spirax Sarco.
  - i. Victaulic Co. of America (provide grooved systems for low pressure applications only).
  - j. Watts Regulator Co.
- 5. Mechanical Sleeve Seals:
  - a. Thunderline/Link Seal
  - b. Calpico, Inc.
  - c. Metraflex Co.
- 6. Metal Flexible Connectors:
  - a. U.S. Hose, Corp.
  - b. Hyspan
  - c. Mason Industries, Inc.
  - d. Mercer Rubber Co.
  - e. Metraflex Co.
  - f. Proco Products, Inc.
  - g. Resistoflex
  - h. Tyler Pipe; Gustin-Bacon Div.
- 7. Rubber Flexible Connectors:
  - a. General Rubber Corp.
  - b. Mason Industries, Inc.
  - c. Mercer Rubber Co.
  - d. Metraflex Co.
  - e. Proco Products, Inc.
  - f. Uniflex, Inc.
- 8. Wall Pipes
  - a. Josam Mfg. Co.
  - b. Smith (Jay R) Mfg. Co.
  - c. Tyler Pipe/Wade Div.; Subs. of Tyler Corp.
  - d. Watts Industries, Inc.
  - e. Zurn Industries, Inc.; Hydromechanics Div.

## 2.2 PIPE AND FITTINGS

- A. Refer to the individual piping system specification sections in Division 22 for specifications on piping and fittings relative to that particular system.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

## 2.3 JOINING MATERIALS

- A. Refer to individual Division 22 Piping Sections for special joining materials not listed below.
- B. Welding Materials: AWS D10.12; Comply with Section II, Part C, ASME Boiler and Pressure Vessel Code for welding materials appropriate for the wall thickness and chemical analysis of the pipe being welded.
- C. Brazing Materials: AWS A5.8; Comply with SFA-5.8, Section II, ASME Boiler and Pressure Vessel Code for brazing filler metal materials appropriate for the materials being joined.
- D. Soldering Materials: ASTM B32; Refer to individual piping system specifications for solder appropriate for each respective system.
- E. Gaskets for Flanged Joints: ASME B16.21; Gasket material shall be full-faced for cast-iron flanges and raised-face for steel flanges. Select materials to suit the service of the piping system in which

installed and which conform to their respective ANSI Standard (A21.11, B16.20, or B16.21). Provide materials that will not be detrimentally affected by the chemical and thermal conditions of the fluid being carried.

## 2.4 PIPING SPECIALTIES

- A. Escutcheons: Chrome-plated, stamped steel, hinged, split-ring escutcheon, with set screw. Inside diameter shall closely fit pipe outside diameter, or outside of pipe insulation where pipe is insulated. Outside diameter shall completely cover the opening in floors, walls, or ceilings.
- B. Unions: Malleable-iron, Class 150 for low pressure service and class 250 for high pressure service; hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces; female threaded ends.
- C. Dielectric Unions and Fittings: Provide factory-fabricated dielectric unions and fittings with appropriate end connections for the pipe materials in which installed (screwed, soldered, or flanged), which effectively isolate dissimilar metals, prevent galvanic action, and stop corrosion.
- D. Dielectric Waterway Fittings: Electroplated steel or brass nipple, with an inert and non-corrosive, thermoplastic lining.
- E. Sleeves:
  - 1. Sleeve: Refer to Division 22 Section "Basic Plumbing Materials and Methods" for sleeve materials.
- F. Mechanical Sleeve Seals: Modular Plumbing type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.
- G. Flexible Connectors: Fabricated from materials suitable for system fluid and that will provide flexible pipe connections.
  - 1. Bronze-Hose, Flexible Connectors (Domestic Water Systems): Corrugated, bronze, inner tubing covered with bronze wire braid. Include copper-tube ends or bronze flanged ends, braze welded to hose.
  - 2. Stainless-Steel-Hose/Stainless-Steel Pipe, Flexible Connectors: Corrugated, stainless-steel, inner tubing covered with stainless-steel wire braid. Include stainless-steel nipples or flanges, welded to hose.

## 2.5 WALL PIPES

- A. Cast-iron sleeve with integral clamping flange with clamping ring, bolts, and nuts for membrane flashing.
  - 1. Underdeck Clamp: Clamping ring with setscrews.

## **PART 3 - EXECUTION**

### 3.1 PREPARATION

- A. Ream ends of pipes and tubes, and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris for both inside and outside of piping and fittings before assembly.

### 3.2 INSTALLATIONS

- A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into consideration pipe sizing and friction loss, expansion, pump sizing, and other design considerations. So far as practical, install piping as indicated. Refer to individual system specifications for requirements for coordination drawing submittals.
- B. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated otherwise.
- C. Install piping free of sags and bends and with ample space between piping to permit proper insulation applications.

- D. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated on the Drawings.
- E. Install horizontal piping as high as possible allowing for specified slope and coordination with other components. Install vertical piping tight to columns or walls. Provide space to permit insulation applications, with 1" clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
- F. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.
- G. Support piping from structure. Do not support piping from ceilings, equipment, ductwork, conduit and other non-structural elements.
- H. Install drains at low points in mains, risers, and branch lines consisting of a tee fitting, 3/4" ball valve, and short 3/4" threaded nipple and cap.
- I. Verify final equipment locations for roughing in.

### 3.3 PIPING PROTECTION

- A. Protect piping during construction period, to avoid clogging with dirt and debris, and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of day or whenever work stops.

### 3.4 PENETRATIONS

- A. Plumbing penetrations occur when piping penetrate concrete slabs, concrete or masonry walls, or fire / smoke rated floor and wall assemblies.
- B. Above Grade Concrete or Masonry Penetrations
  - 1. Provide sleeves for pipes passing through above grade concrete or masonry walls, concrete floor or roof slabs. Sleeves are not required for core drilled holes in existing masonry walls, concrete floors or roofs. Provide sleeves as follows:
    - a. Provide schedule 40 galvanized steel pipe for sleeves smaller than 6 inches in diameter.
    - b. Provide galvanized sheet metal for sleeves 6 inches in diameter and larger, thickness shall be 10 gauge (0.1382 inches).
    - c. Provide welded galvanized sheet metal for rectangular sleeves with the following minimum metal thickness:
      - 1) For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 18 gauge (0.052 inches).
      - 2) For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 10 gauge (0.1382 inches).
    - d. Schedule 40 PVC pipe sleeves are acceptable for use in areas without return air plenums.
  - 2. Extend pipe insulation for insulated pipe through floor, wall and roof penetrations, including fire rated walls and floors. The vapor barrier shall be maintained. Size sleeve for a minimum of 1" annular clear space between inside of sleeve and outside of insulation.
  - 3. Seal elevated floor, exterior wall and roof penetrations watertight and weathertight with non-shrink, non-hardening commercial sealant. Pack with mineral wool and seal both ends with minimum of 1/2" of sealant.
- C. Underground, Exterior-Wall Penetrations: Install cast-iron wall pipes for sleeves. Size sleeves to allow for 1-inch (or larger, if required by the mechanical sleeve manufacturer) annular clear space between pipe and sleeve. Provide mechanical sleeve seal.
  - 1. Use type and number of sealing elements recommended by manufacturer for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
  - 2. Inspect installed sleeve and sleeve-seal installations for damage and faulty work. Verify watertight integrity of sleeves and seals installed below grade to seal against hydrostatic pressure.
- D. Elevated Floor Penetrations of Waterproof Membrane:

1. Provide cast-iron wall pipes for sleeves, extend top of wall pipe minimum 1" above finish floor. Size wall pipe for minimum ½" annular space between pipe and wall pipe.
  2. Extend pipe insulation for insulated pipe through wall pipe. The vapor barrier shall be maintained. Size wall pipe for a minimum of 1" annular clear space between inside of sleeve and outside of insulation.
  3. Pack with mineral wool and seal both ends with minimum of ½" of waterproof sealant. Refer to Division 07 Section "Joint Sealants" for materials and installation.
  4. Secure waterproof membrane flashing between clamping flange and clamping ring. Comply with requirements for flashing specified in Division 7 Section "Sheet Metal Flashing and Trim."
  5. Extend bottom of wall pipe below floor slab as required and secure underdeck clamp to hold wall pipe rigidly in place.
- E. Interior Foundation Penetrations: Provide sleeves for horizontal pipe passing through or under foundation. Sleeves shall be cast iron soil pipe two nominal pipe sizes larger than the pipe served.
- F. Interior Penetrations of Non-Fire-Rated Walls: Seal annular space between sleeve and pipe or duct, using joint sealant appropriate for size, depth, and location of joint. Pack with mineral wool and seal both ends with minimum of ½" of sealant. Refer to Division 07 Section "Joint Sealants" for materials and installation.
1. Extend pipe insulation for insulated pipe through sleeve. The vapor barrier shall be maintained. Size sleeve for a minimum of 1" annular clear space between inside of sleeve and outside of insulation.
- G. Acoustical Barrier Penetrations: Where a pipe passes through a wall, ceiling or floor slab of a noise critical space, a steel sleeve shall be cast or grouted into the structure. Refer to Section "Basic Mechanical Materials and Methods" for noise critical spaces. The internal diameter of the sleeve shall be a minimum of 2 inches larger than the external diameter of the pipe. After the piping is installed, the Contractor shall check the clearance and correct it to within 1/2-inch. Contractor shall pack the void full depth with glass/mineral fiber insulation and seal at both ends, 1-inch deep, with sealant backed by foam rod.
1. Penetration of sound isolating ceilings by sprinkler pipes and heads shall be sleeved and sealed and shall have no rigid connections between them.

### 3.5 FITTINGS AND SPECIALTIES

- A. Use fittings for all changes in direction and all branch connections.
- B. Remake leaking joints using new materials.
- C. Install components with pressure rating equal to or greater than system operating pressure.
- D. Install strainers on the supply side of each control valve, pressure reducing or regulating valve, solenoid valve, mixing valve, backflow preventer and elsewhere as indicated.
- E. Install unions adjacent to each valve, and at the final connection to each piece of equipment and plumbing fixture having 2" and smaller connections, and elsewhere as indicated.
- F. Install Flanges in piping 2-1/2" and larger, where indicated, adjacent to each valve, and at the final connection to each piece of equipment.
- G. Install dielectric unions to connect piping materials of dissimilar metals in dry piping systems (gas, compressed air, vacuum).
- H. Install dielectric fittings to connect piping materials of dissimilar metals in wet piping systems (water).

### 3.6 JOINTS

- A. Steel Pipe Joints:
  1. Pipe 2" and Smaller: Thread pipe with tapered pipe threads in accordance with ANSI B2.1. Cut threads full and clean using sharp dies. Ream threaded ends to remove burrs and restore full inside diameter. Apply pipe joint lubricant or sealant suitable for the service for which the pipe is intended on the male threads at each joint and tighten joint to leave not more than 3 threads exposed.
  2. Pipe Larger Than 2":
    - a. Weld pipe joints (except for exterior water service pipe) in accordance with ASME Code

for Pressure Piping, B31.

- b. Weld pipe joints of exterior water service pipe in accordance with AWWA C206.
- c. Install flanges on all valves, apparatus, and equipment. Weld pipe flanges to pipe ends in accordance with ASME B31.9 Code for Building Services Piping. Clean flange faces and install gaskets. Tighten bolts to torque specified by manufacturer of flange and flange bolts, to provide uniform compression of gaskets.

B. Non-ferrous Pipe Joints:

1. Brazed And Soldered Joints: For copper tube and fitting joints, braze joints in accordance with ANSI B31.9 - Standard Code for Building Services Piping and ANSI B9.1 - Standard Safety Code for Plumbing Refrigeration.
2. Thoroughly clean tube surface and inside surface of the cup of the fittings, using very fine emory cloth, prior to making soldered or brazed joints. Wipe tube and fittings clean and apply flux. Flux shall not be used as the sole means for cleaning tube and fitting surfaces.
3. Plumbing Joints: Flared compression fittings may be used for refrigerant lines 3/4" and smaller.

C. Joints for other piping materials are specified within the respective piping system Sections.

### 3.7 FLEXIBLE CONNECTORS

- A. Install flexible connectors for piping system connections on equipment side of shutoff valves for all Plumbing equipment, pumps, and where indicated on Drawings.
- B. Install connectors according to manufacturer's recommendations.

### 3.8 PIPE FIELD QUALITY CONTROL

- A. Testing: Refer to individual piping system specification sections.
- B. Inspection Report Form: Refer to the inspection report form at the end of this section for inspection data to be completed for each piping system. Submit completed forms to the Owner and Engineer.

**END OF SECTION 220515**

# **PLUMBING & PLUMBING PIPING SYSTEMS INSPECTION REPORT FORM**

Project Name: \_\_\_\_\_

Project No: \_\_\_\_\_

Contractor Project No. \_\_\_\_\_

General Contractor: \_\_\_\_\_

Inspection Date: \_\_\_\_\_

Temperature: \_\_\_\_\_

### **System Inspected**

Building: \_\_\_\_\_

Location/Description: \_\_\_\_\_

Service: \_\_\_\_\_

### **Inspection Results**

Time of Inspection: \_\_\_\_\_

Approval to Insulate:      Y    N

Approval to Cover in Wall:      Y    N

Approval to backfill      Y    N

### **Signatures**

Witness: \_\_\_\_\_ Representing: \_\_\_\_\_

Witness: \_\_\_\_\_ Representing: \_\_\_\_\_

Witness: \_\_\_\_\_ Representing: \_\_\_\_\_

### **Remarks**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contractor Supervisor's signature: \_\_\_\_\_

**SECTION 220523  
GENERAL DUTY VALVES FOR PLUMBING PIPING**

**PART 1 - GENERAL REQUIREMENTS**

**1.1 SUMMARY**

- A. This Section includes general duty valves common to most mechanical piping systems.
  - 1. Special purpose valves are specified in individual piping system specifications.
- B. Contractors Option:
  - 1. The Division 22 contractor may provide grooved, press to connect or push to connect mechanical joints, couplings, fittings, valves and related components as an option in lieu of, in whole or in part, copper sweat, brazing, threaded or flanged piping methods. Grooved, press to fit or push to connect plumbing piping where used must be provided in compliance with specification Section 221111 "Mechanically Joined Plumbing Piping Systems".
    - a. Grooved couplings may be used at equipment connections where specified for vibration isolation control only.
  - 2. Grooved, press to connect or push to connect mechanical joints, couplings, fittings, valves and related components shall not be provided for natural gas piping in lieu of welded, threaded or flanged piping methods.

**1.2 SUBMITTALS**

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
  - 1. Product data, including body material, valve design, pressure and temperature classification, end connection details, seating materials, trim material and arrangement, dimensions and required clearances, and installation instructions.
- B. Submit certification that valves, fittings and specialties comply with California AB 1953, Vermont S. 152 and NSF 61 Annex G.

**1.3 QUALITY ASSURANCE**

- A. Single Source Responsibility: Provide products specified in this section from the same manufacturer where products are available and conform to the specification requirements.
- B. American Society of Mechanical Engineers (ASME) Compliance: Comply with ASME B31.9 for building services piping and ASME B31.1 for power piping.
- C. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) Compliance: Comply with the various MSS Standard Practices referenced.
- D. Valves shall be manufactured in plants located in the United States or certified that they comply with applicable ANSI, ASTM and MSS standards.
- E. Comply with California AB 1953, Vermont S.152 and NSF 61 Annex G (pending) for wetted surfaces of valves containing no more than 0.25% lead by weight compliance for valves for domestic water service. Submit certification that valves comply with California AB 1953, Vermont S. 152 and NSF 61 Annex G.

**PART 2 - PRODUCTS AND MATERIALS**

**2.1 MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide products from one of the manufacturers listed in valve schedule.

**2.2 VALVE FEATURES, GENERAL**

- A. Valve Design: Rising stem or rising outside screw and yoke stems.
  - 1. Nonrising stem valves may be used where headroom prevents full extension of rising stems.
- B. Pressure and Temperature Ratings: As scheduled and required to suit system pressures and temperatures.

- C. Sizes: Same size as upstream pipe, unless otherwise indicated.
- D. Operators: Provide the following special operator features:
  - 1. Handwheels, fastened to valve stem, for valves other than quarter turn.
  - 2. Lever handles, on quarter-turn valves 6-inch and smaller, except for plug valves. Provide plug valves with square heads; provide one wrench for every 10 plug valves.
  - 3. Chain-wheel operators, for valves 2-1/2-inch and larger, installed 72 inches or higher above finished floor elevation. Extend chains to an elevation of 5'-0" above finished floor elevation.
  - 4. Gear drive operators, on quarter-turn valves 8-inch and larger.
- E. Extended Stems: Where insulation is indicated or specified, provide extended stems arranged to receive insulation.
- F. Bypass and Drain Connections: Comply with MSS SP-45 bypass and drain connections.
- G. End Connections: As indicated in the valve specifications.
  - 1. Threads: Comply with ANSI B1.20.1.
  - 2. Flanges: Comply with ANSI B16.1 for cast iron, ANSI B16.5 for steel, and ANSI B16.24 for bronze valves.
  - 3. Solder-Joint: Comply with ANSI B16.18.
    - a. Caution: Where soldered end connections are used, use solder having a melting point below 840 deg F for gate, globe, and check valves; below 421 deg F for ball valves.

**2.3 GATE VALVES**

- A. Gate Valves, 2-Inch and Smaller: MSS SP-80; Class 125, 200-psi CWP, body and bonnet of ASTM B 62 cast bronze; with threaded or solder ends, solid disc, copper-silicon alloy stem, brass packing gland, non-asbestos composition packing, and malleable iron handwheel. Provide Class 150 valves meeting the above where system pressure requires.
- B. Gate Valves, 2-Inch and Smaller: MSS SP-80; Class 150, 300-psi CWP, body and union bonnet of ASTM B 62 cast bronze; with threaded or solder ends, solid disc, copper-silicon alloy stem, brass packing gland, non-asbestos composition packing, and malleable iron handwheel.
- A. Lead Free Gate Valves, 2-Inch and Smaller: Meeting NSF 61 Annex G and MSS SP-80; Class 125, 200-psi CWP, body, solid wedge and bonnet of ASTM B 584 alloy C89833 lead free cast bronze; brass packing gland and stem of ASTM B283 alloy C46400 naval brass; with solder ends, non-asbestos composition packing, and malleable iron handwheel.

**2.4 BALL VALVES**

- A. Ball Valves, 2 Inch and Smaller: MSS SP-110, Class 150 saturated steam pressure, 600-psi CWP; two-piece construction; with bronze body conforming to ASTM B 584, conventional port, chrome-plated brass ball, replaceable "Teflon" or "TFE" seats and seals, blowout-proof stem, solder ends and vinyl-covered steel handle.
- A. Lead Free Ball Valves, 2 Inch and Smaller: Meeting NSF 61 Annex G and MSS SP-110, Class150, 600-psi CWP; two-piece construction; with bronze body conforming to ASTM B 584 alloy C89833 bismuth red brass, regular port, blowout-proof stem and chrome-plated brass ball conforming to ASTM B 283 alloy C46400 naval brass, with replaceable "Teflon" or "TFE" seats and seals, solder ends and vinyl-covered steel handle.

**PART 3 - EXECUTION**

**3.1 VALVE ENDS SELECTION**

- A. Select valves with the following ends or types of pipe/tube connections:
  - 1. Copper Tube Size, 2-Inch and Smaller: Solder ends.
  - 2. Copper Tube Sizes 2-1/2 Inch and Larger: flanged end.

**3.2 VALVE PRESSURE/TEMPERATURE CLASSIFICATION SCHEDULES**

**A. VALVES, 2-INCH AND SMALLER**

<u>SERVICE</u>	<u>GATE</u>	<u>GLOBE</u>	<u>BALL</u>	<u>CHECK</u>	<u>PLUG</u>
Domestic Hot and Cold Water	125	125	150	125	175



### 3.3 VALVE SCHEDULE

#### A. Gate Valves - 2 Inch and Smaller, Class 125:

<u>MANUFACTURER</u>	<u>THREADED</u>		<u>SOLDER</u>	
	<u>NRS</u>	<u>THREADED RS</u>	<u>NRS</u>	<u>SOLDER RS</u>
Crane	438	428	1701S	1700S
Hammond	IB645	IB640	IB647	IB635
Milwaukee	105	148	115	1149
Nibco	T113	T111	S113	S111
Powell	507	500	1822	1821
Stockham	B103	B-100	B-104	B-108

#### B. Gate Valves - 2 Inch and Smaller, Class 150:

<u>MANUFACTURER</u>	<u>THREADED</u>		<u>SOLDER</u>	
	<u>NRS</u>	<u>THREADED RS</u>	<u>NRS</u>	<u>SOLDER RS</u>
Crane	437	431/431UB	1324	1334
Hammond	IB637	IB629	x	IB648
Milwaukee	x	1151	x	1169
Nibco	T-136	T-134	S-136	S-134
Powell	2712	2714	x	1842
Stockham	B-130	B-120	x	B-124

1. x means not available.

#### C. Lead Free Gate Valves - 2 Inch and Smaller, Class 125:

<u>MANUFACTURER</u>	<u>SOLDER NRS</u>
Hammond	UP-668
Milwaukee	UP668
NIBCO	S-113-LF

#### D. Ball Valves – 2 inch and smaller:

<u>MANUFACTURER</u>	<u>THREADED ENDS</u>	<u>SOLDER ENDS</u>
(Apollo) Conbraco	70-100	70-200
Hammond	8501	8511
Milwaukee	BA-100	BA-100S
Nibco	T-580-70-66	S-580-70-66
Watts	B-6000	B-6001

#### F. Lead Free Ball Valves – 2 inch and smaller, Class 150: Full Port

<u>MANUFACTURER</u>	<u>SOLDER ENDS</u>
Apollo-(Conbraco)	77C-LF-200
Hammond	UP8311A
Milwaukee	UPBA-150
NIBCO	S-685-80-LF

### 3.4 APPLICATION SCHEDULE

- A. General Application: Use gate, ball, and butterfly valves for shutoff duty; globe, ball, and butterfly for throttling duty. Refer to piping system Specification Sections for specific valve applications and arrangements.
- B. Domestic Water Systems: Use the following valve types:
- Gate Valves: Class 125, bronze or cast-iron body to suit piping system.
  - Gate Valves: Class 125, NSF 61 Annex G bronze or cast-iron body to suit piping system.
  - Ball Valves: Class 150, 600-psi CWP, with stem extension.
  - Ball Valves: Class 150, 600-psi CWP, with stem extension, NSF 61 Annex G Class.

5. Globe Valves: Class 125, bronze or cast-iron body to suit piping system, and bronze or teflon disc.
6. Globe Valves: Class 125, NSF 61 Annex G bronze or cast-iron body to suit piping system, and bronze or teflon disc.

### 3.5 VALVE INSTALLATIONS

- A. Locate valves for easy access and provide separate support where necessary. Provide access doors and fire rated access doors as required.
- B. Install valves and unions for each fixture and item of equipment arranged to allow equipment removal without system shutdown. Unions are not required on flanged devices.
- C. Install three-valve bypass around each pressure reducing valve using throttling-type valves.
- D. Install valves in horizontal piping with stem at or above the center of the pipe.
- E. Install valves in a position to allow full stem movement.

### 3.6 FIELD QUALITY CONTROL

- A. Tests: After piping systems have been tested and put into service, but before final adjusting and balancing, inspect valves for leaks. Adjust or replace packing to stop leaks; replace valves if leak persists.

### 3.7 ADJUSTING AND CLEANING

- A. Cleaning: Clean mill scale, grease, and protective coatings from exterior of valves and prepare valves to receive finish painting or insulation.
- B. Inspect valves for leaks after piping systems have been tested and put into service, but before final adjusting and balancing. Adjust or replace packing, as required, on valves with leaks. Replace valve if leak persists.

**END OF SECTION 220523**

## SECTION 220700 PLUMBING INSULATION

### **PART 1 - GENERAL REQUIREMENTS**

#### 1.1 SUMMARY

- A. Extent of Plumbing insulation required by this Section is indicated on drawings and schedules, and by requirements of this Section.
- B. Types of Plumbing insulation specified in this Section include the following:
  - 1. Piping Systems Insulation:
    - a. Fiberglass
    - b. Cellular Glass
    - c. Calcium Silicate
    - d. Flexible Unicellular
    - e. Polyisocyanurate (closed cell)
  - 2. Equipment Insulation:
    - a. Fiberglass
    - b. Calcium Silicate
    - c. Cellular
    - d. Flexible Elastomeric

#### 1.2 QUALITY ASSURANCE

- A. Flame/Smoke Ratings: Provide composite Plumbing insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.
  - 1. Exception: Outdoor Plumbing insulation may have flame spread index of 75 and smoke developed index of 150.
  - 2. Exception: Industrial Plumbing insulation that will not affect life safety egress of building may have flame spread index of 75 and smoke developed index of 150.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 22 Section "Hangers and Supports for Plumbing Piping," for insulation shields for protecting insulation vapor barrier and materials and methods for piping installations.

#### 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for each type of Plumbing insulation. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each Plumbing system requiring insulation.
- B. Maintenance Data: Submit maintenance data and replacement material lists for each type of Plumbing insulation. Include this data and product data in maintenance manual.
- C. Samples: Submit manufacturer's sample of each piping insulation type required, and of each duct and equipment insulation type required. Affix label to sample completely describing product.

### **PART 2 - PRODUCTS AND MATERIALS**

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. Aeroflex USA, Inc.
  - 2. Armacell LLC.
  - 3. Cell-U-Foam Corp.
  - 4. CertainTeed Corp.
  - 5. Knauf Insulation
  - 6. Johns Manville
  - 7. K-Flex USA
  - 8. Owens Corning
  - 9. Pittsburgh Corning Corp.
  - 10. ITW Insulation Systems, Inc.

11. Dyplast Products.

## 2.2 PIPING INSULATION MATERIALS

- A. Fiberglass Piping Insulation: ASTM C 547, Class 1 unless otherwise indicated.
- B. Cellular Glass Piping Insulation: ASTM C 552, Type II, Class 2.
- C. Calcium Silicate Piping Insulation: ASTM C 533, Type I.
- D. Flexible Elastomeric Piping Insulation: ASTM C 534, Type I.
- E. Polyisocyanurate Piping Insulation: ASTM C591. Provide vapor retardant film and tape of thickness as recommended by the manufacturer for the installation.
- F. Jackets for Piping Insulation: ASTM C 1136, Type I for piping with temperatures below ambient, Type II for piping with temperatures above ambient. Type I may be used for all piping at Installers option.
  - 1. Encase pipe fittings insulation with one-piece pre-molded PVC fitting covers, fastened as per manufacturer's recommendations. PVC fitting covers shall be Johns Manville Zeston 2000 PVC or approved equal.
  - 2. Encase exterior piping insulation with aluminum jacket with weather-proof construction. Jacket shall be minimum 20 gauge corrugated aluminum with three aluminum attachment bands per section and with aluminum fitting covers.
- G. Staples, Bands, Wires, and Cement: As recommended by insulation manufacturer for applications indicated.
- H. Adhesives, Sealers, and Protective Finishes: As recommended by insulation manufacturer for applications indicated.
- I. Insulation Diameters: Comply with ASTM C585 for inner and outer diameters of rigid thermal insulation.
- J. Pipe, Valve and Fitting Covers: Comply with ASTM C450 for fabrication of fitting covers for pipe, valves and fittings.
- K. High Density Insulation:
  - 1. Calcium Silicate And Fiberglass: ASTM C 795 and MIL-I-24244.
- L. Pre-Engineered Thermal Hanger-Shield Inserts:
  - 1. Calcium silicate insulation meeting ASTM C 795 and encased in steel insulation shield.
  - 2. Flexible elastomeric piping insulation meeting ASTM C 534-01a, Type I with integral high density pipe supports and encased in steel insulation shield.
    - a. Manufacturer: Cooper B-Line / Armacell or approved equal

## 2.3 EQUIPMENT INSULATION MATERIALS

- A. Rigid Fiberglass Equipment Insulation: ASTM C 612, Class 2.
- B. Flexible Fiberglass Equipment Insulation: ASTM C 553, Type I, Class B-4.
- C. Calcium Silicate Equipment Insulation: ASTM C 533, Type I, Block.
- D. Cellular Glass Equipment Insulation: ASTM C 552, Type I.
- E. Flexible Elastomeric Equipment Insulation: ASTM C 534, TYPE II.
- F. Jacketing Material for Equipment Insulation: Provide pre-sized glass cloth jacketing material, not less than 7.8 ounces per square yard, or metal jacket at Installer's option, except as otherwise indicated.
- G. Equipment Insulation Compounds: Provide adhesives, cements, sealers, mastics and protective finishes as recommended by insulation manufacturer for applications indicated.
- H. Equipment Insulation Accessories: Provide staples, bands, wire, wire netting, tape, corner angles, anchors and stud pins as recommended by insulation manufacturer for applications indicated.

## **PART 3 - EXECUTION**

### 3.1 PLUMBING PIPING SYSTEM INSULATION

- A. Insulation Omitted: Omit insulation on the following:
  - 1. Chrome-plated exposed piping
  - 2. Water Hammer Arrestors
  - 3. Unions, strainers, check valves, balancing or flow valves and pressure regulator valves
  - 4. Buried piping
  - 5. Pre-insulated equipment.
- B. Cold Piping:
  - 1. Application Requirements: Insulate the following cold plumbing piping systems:
    - a. Potable cold water piping.
    - b. Potable chilled water piping.
  - 2. Insulate each piping system specified above with one of the following types and thicknesses of insulation:
    - a. Fiberglass: 1" thickness.
    - b. Cellular Glass: 1-1/2" thickness.
    - c. Calcium Silicate: 1-1/2" thickness.
    - d. Flexible Elastomeric: 1" thickness
    - e. Polyisocyanurate: 1" thickness.
- C. Hot Piping:
  - 1. Application Requirements: Insulate the following hot plumbing piping systems:
    - a. Potable hot water piping.
    - b. Potable hot water recirculation piping.
  - 2. Insulate each piping system specified above with one of the following types and thicknesses of insulation:
    - a. Fiberglass: 1" thick for pipe sizes up to and including 6", 1-1/2" thick for pipe sizes over 6".
    - b. Cellular Glass: 1-1/2" thick for pipe sizes up to and including 6", 1-1/2" thick for pipe sizes over 6".
    - c. Calcium Silicate: 1-1/2" thick for pipe sizes up to and including 6", 2-1/2" thick for pipe sizes over 6".
    - d. Polyisocyanurate: 1" thick for pipe sizes up to and including 6", 1-1/2" thick for pipe sizes over 6".
- D. P-traps:
  - 1. Insulate P-traps receiving chilled water waste and P-traps of water coolers as described below:
    - a. Flexible Elastomeric: 1/2" thick for pipe sizes up to and including 2", 1" thick for pipe sizes 2" to 6" (largest size permitted).
  - 2. Insulate P-traps receiving hot water waste above 140F as described below:
    - a. Fiberglass: 1" thickness.
    - b. Cellular Glass: 1-1/2" thickness.
    - c. Calcium Silicate: 1-1/2" thickness.
    - d. Flexible Elastomeric (high temp formula up to 300F): 1" thickness.
    - e. Polyisocyanurate: 1" thickness.
- E. Piping Inside Masonry Wall Units:
  - 1. Insulate cold, hot and hot water recirculation piping installed inside of masonry walls where the piping needs to be insulated as the wall is constructed as described below:
    - a. Flexible Elastomeric: 1/2" thick for pipe sizes up to and including 2", 1" thick for pipe sizes 2" to 6" (largest size permitted).
- F. Exterior piping:
  - 1. Encase cold, hot and hot water recirculation piping insulation with aluminum weather-proof jackets.
  - 2. Insulate and heat trace P-traps, sanitary, waste, cold, hot and hot water recirculation piping as described below: Refer to Division 22 Section "Heat Tracing for Plumbing Piping" for heat trace system material and installation requirements.
    - a. Fiberglass: 1" thickness.
    - b. Cellular Glass: 1-1/2" thickness.
    - c. Calcium Silicate: 1-1/2" thickness.
    - d. Flexible Elastomeric: 1" thickness.
    - e. Polyisocyanurate: 1" thickness.

3. Insulate and heat trace grease waste piping and grease waste P-traps as described below: Refer to Division 22 Section "Heat Tracing for Plumbing Piping" for heat trace system material and installation requirements.
  - a. Fiberglass: 2" thickness.
  - b. Cellular Glass: 3" thickness.
  - c. Calcium Silicate: 2-1/2" thickness.
  - d. Flexible Elastomeric: 2" thickness.
  - e. Polyisocyanurate: 2" thickness.

### 3.2 INSTALLATION OF PIPING INSULATION

- A. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- B. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing, and acceptance of tests.
- C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with a single cut piece to complete run. Do not use cut pieces or scraps abutting each other.
- D. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure a complete and tight fit over surfaces to be covered.
- E. Maintain integrity of vapor-barrier jackets on cold pipe insulation, and protect insulation with shields to prevent puncture or other damage as specified in Division 22 Section "Hangers and Supports for Plumbing Piping." Provide high density insulation of material as specified herein and of length equivalent to pipe shield. Provide pipe hangers sized for the pipe outside diameter plus insulation thickness. Seal butt joint between insulation and high density insulation with wet coat of vapor barrier lap cement.
  1. Exception for vertical piping: Provide clamps sized for the outside diameter of the vertical pipe and extend clamp through insulation. Seal penetrations of insulation and vapor barrier with wet coat of vapor barrier lap cement.
- F. Provide pipe hangers for hot piping sized for the outside diameter of piping. Butt insulation to hanger or riser clamp for vertical pipe. Seal exposed insulation with insulation sealer.
- G. Butt pipe insulation tightly at insulation joints. For hot pipes, apply 3" wide vapor barrier tape or band over the butt joints. For cold piping apply wet coat of vapor barrier lap cement on butt joints and seal joints with 3" wide vapor barrier tape or band.
- H. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
  1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
  2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
  3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
  4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
  5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.

6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
  7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
  8. For services not specified to receive a field-applied jacket except for flexible elastomeric and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.
  9. Stencil or label the outside insulation jacket of each union with the word "union." Match size and color of pipe labels.
- I. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
  - J. Install removable insulation covers at locations indicated. Installation shall conform to the following:
    1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
    2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
    3. Construct removable valve insulation covers in same manner as for flanges, except divide the two-part section on the vertical center line of valve body.
    4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
  - K. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.
  - L. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.

### 3.3 EXISTING INSULATION REPAIR

- A. Repair damaged sections of existing Plumbing insulation, both previously damaged or damaged during this construction period. Use insulation of same thickness as existing insulation, install new jacket lapping and sealed over existing.

### 3.4 PROTECTION AND REPLACEMENT

- A. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
- B. Protection: Insulation Installer shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

**END OF SECTION 220700**

## SECTION 221100 WATER DISTRIBUTION PIPING AND SPECIALTIES

### **PART 1 - GENERAL REQUIREMENTS**

#### 1.1 SUMMARY

- A. This Section includes domestic cold water, hot water, and hot water recirculation piping, fittings, and specialties within the building to a point 5 feet outside the building.
- B. Contractors Option:
  - 1. Grooved, press to connect or push to connect mechanical joints, couplings, fittings, valves and related components shall not be provided for natural gas piping in lieu of welded, threaded or flanged piping methods.
- C. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 2 Section "Earthwork," for trenching and backfilling materials and methods for underground piping installations.
  - 2. Division 7 Section "Joint Sealers," for materials and methods for sealing pipe penetrations through basement and foundation walls, and fire and smoke barriers.
  - 3. Division 22 Section "Common Work Results for Plumbing," for materials and methods for fire barrier penetrations, wall penetrations and equipment pads.
  - 4. Division 22 Section "Basic Piping Material and Methods," for materials and methods for strainers, flexible connectors and mechanical sleeve seals.
  - 5. Division 22 Section "General Duty Valves for Plumbing Piping," for materials and methods for installing water distribution piping valves.
  - 6. Division 22 Section "Hangers and Supports for Plumbing Piping," for insulation shields, materials and methods for hanging and supporting water distribution piping.
  - 7. Division 22 Section "Plumbing Insulation," for materials and methods for insulating water distribution piping.
  - 8. Division 22 Section "Sanitary Drainage and Vent Piping and Specialties," for material and methods for trap primer outlet piping.

#### 1.2 DEFINITIONS

- A. Water Distribution Pipe: A pipe within the building or on the premises that conveys water from the water service pipe or meter to the points of usage.
- B. Water Service Pipe: The pipe from the water main or other source of potable water supply to the water distribution pipe of the building served.
- C. Pipe sizes used in this Specification are nominal pipe size (NPS).

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
  - 1. Product data for each piping specialty and valve specified.
  - 2. Welder Certificates signed by Contractor certifying that welders comply with requirements specified in Article "Quality Assurance" below.
  - 3. Certification of Compliance with ASME and UL fabrication requirements specified in Article "Quality Assurance" below.
  - 4. Maintenance data for each piping specialty and valve specified for inclusion in Maintenance Manual specified in Division 1 and Division 22 Section "General Plumbing Requirements."
  - 5. Test reports specified in Part 3 of this Section.

#### 1.4 QUALITY ASSURANCE

- A. Qualify welding processes and welding operators in accordance with ASME Boiler and Pressure Vessel Code, Section IX, "Welding and Brazing Qualifications."
- B. Regulatory Requirements: Comply with the provisions of the following codes:
  - 1. ASME B31.9 "Building Services Piping" for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label.



2. 2009 Uniform Plumbing Code
- C. Comply with the installation requirements for CPVC pipe and CPVC CTS tube per the Lubrizol "Flowguard Gold and CORZAN Design and Installation Manual".

#### 1.5 SPARE PARTS

- A. Maintenance Stock: Furnish one valve key for each key-operated wall hydrant, hose bibb, fixture supply, or faucet installed.

### **PART 2 - PRODUCTS AND MATERIALS**

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Piston Type Water Hammer Arresters:
    - a. Amtrol, Inc.
    - b. Josam Co.
    - c. Precision Plumbing Products, Inc.
    - d. PROFLO
    - e. Sioux Chief Manufacturing Co.
    - f. Tyler Pipe/Wade Div.; Subs. of Tyler Corp.
    - g. Watts Regulator Co.
    - h. Zurn Industries, Inc. Wilkins Regulator Div.
  2. Thermostatic Mixing Valves
    - a. Bradley
    - b. Lawler Manufacturing Co., Inc.
    - c. Leonard Valve Co.
    - d. Powers Process Controls
    - e. Symmons Industries, Inc.

#### 2.2 PIPE AND TUBE MATERIALS, GENERAL

- A. Pipe and Tube: Refer to Part 3, Article "Pipe Applications", for identification of systems where the materials listed below are used.
- B. Copper Tube: ASTM B88, Type L Water Tube, drawn temper.
- C. Copper Tube: ASTM B88, Type K Water Tube, annealed temper.
- D. Steel Pipe: ASTM A53, Type E or S, schedule 40, Grade B, galvanized, threaded ends.
- E. Ductile-Iron Pipe: AWWA C151 or AWWA C115 ductile-iron pipe, with AWWA C104 cement-mortar lining.
- F. PVC Pipe: Schedule 40 pressure pipe meeting ASTM D1785 with "solid wall" PVC meeting ASTM D1784 with cell class 12454.
  1. Solvent: ASTM D2564.
- G. CPVC Hot and Cold Water Distribution Pipe: ASTM D2846, copper tube size (CTS), pipe with a cell class of 24448 as identified in ASTM 1784 with compatible solvent cement complying with ASTM 493.
- H. CPVC Pipe: ASTM F441, schedule 40 pipe with a cell class of 24448 as identified in ASTM 1784 with compatible solvent cement complying with ASTM 493.
- I. PVC Plastic Pipe: AWWA C900, Class 100 Polyvinyl Chloride (PVC) water pipe, with belled-end fittings and compatible solvent cement.
- J. Brass Pipe: Chrome Plated Schedule 40 ASTM B43 iron pipe size (IPS.)

#### 2.3 FITTINGS

- A. Wrought Copper Solder-Joint Fittings: ANSI B16.22, streamlined pattern.
- B. Galvanized Malleable Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern, for threaded joints. Threads shall conform to ASME B1.20.1.
- C. Ductile-Iron Gasketed Fittings: AWWA C110 or AWWA C153, 150 psi rating, with cement mortar

lining and AWWA C111 rubber gaskets.

- D. PVC Fittings: ASTM D2466, schedule 40 with solvent cement socket joints.
- E. CPVC Copper Tube Size (CTS) Water Distribution Fittings: ASTM D2846, socket-type fittings with a cell class of 24448 as identified in ASTM D1784 and solvent for solvent cemented joints.
- F. CPVC Fittings: ASTM F439, schedule 40 socket-type fittings with a cell class of 24448 as identified in ASTM D1784 and solvent for solvent cemented joints.
- G. Brass Fittings: Chrome plated ANSI B16, Class 125 with threaded connections.
- H. Cast-Iron Threaded Flanges: ANSI B16.1, Class 125, raised ground face, bolt holes spot faced.
- I. Bronze Flanges: ANSI B16.24, Class 150, raised ground face, bolt holes spot faced.
- J. Unions: ASME B16.39, malleable iron, Class 150, hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces, female threaded ends. Threads shall conform to ASME B1.20.1.
- K. Dielectric Unions: Threaded, solder, or grooved-end connections as required to suit application; constructed to isolate dissimilar metals, prevent galvanic action, and prevent corrosion.
- L. PVC to Ductile Iron Adapter Flanges: EBBA Iron, Inc. Series 2000PV or approved equivalent.

#### 2.4 JOINING MATERIALS

- A. Solder Filler Metal: ASTM B32, 95-5 Tin-Antimony.
- B. Brazing Filler Metals: AWS A5.8, Bag Silver.
- C. Gasket Material: Thickness, material, and type suitable for fluid to be handled and design temperatures and pressures.
- D. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
- E. Solvent Cements for Joining CPVC Piping and Tubing: ASTM F 493.

#### 2.5 GENERAL-DUTY VALVES

- A. General-duty valves (i.e., gate, globe, check, ball, and butterfly valves) are specified in Division 22 Section "General Duty Valves for Plumbing Piping." Special duty valves are specified below by their generic name; refer to Part 3, Article "Valve Applications" for specific uses and applications for each valve specified.

#### 2.6 SPECIAL DUTY VALVES

- A. Flow Control Valves: 400 PSI WOG, 1 piece, ball valve, handle, memory stop, with threaded-end connections conforming to ASME B1.20.1.
- B. Flow Control Valves: 400 psi WOG, 1 piece bronze, ball valve, handle, memory stop, with solder-end connections.
- C. Automatic Flow Control Valves: 400 PSI WOG, combination ball and flow regulator, automatic pre-set flow balancing type with brass body and orifice, stainless steel and brass flow elements, removable cartridge, union connections, and soldered or threaded-end connections conforming to ASME B1.20.1. Install strainer valve upstream of flow control valve.

#### 2.7 PIPING SPECIALTIES

- A. Relief Valves: Sizes for relief valves shall be in accordance with ASME Boiler and Pressure Vessel Codes for indicated capacity of the appliance for which installed.
  - 1. Combined Pressure-Temperature Relief Valves: Bronze body, test lever, thermostat, complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Temperature relief valves shall be factory set at 210 deg F, and pressure relief at 150 psi.
- B. Bellows Type Water Hammer Arresters: Bellows type, with 304 stainless steel casing construction, threaded pipe connection, precharged upper chamber, sealed in stainless steel diaphragm, maximum working pressure of 150 psi, maximum shock pressure of 300 psi, tested and certified in accordance with PDI Standard WH-201.

- C. Thermostatic Mixing Valves: Capacity as scheduled.
  - 1. Bronze body construction, non-corrosive parts, tamper resistant temperature adjustment, union inlets with strainers, checks, stops, pressure reducing valve for larger mixing valves, and dial thermometer. Valve shall be designed to fail to the cold side of the system. Maximum pressure drop shall not be exceeded for the scheduled flow rate scheduled on the drawings.
- D. Pipe Support Brackets:
  - 1. Sheet Stud Bracket: 20 gauge copper with nominal copper tube holes of ½" on 2" centers and holes of ¾" or 1" on 4" centers.
  - 2. Pipe Mounted Bracket: 20 gauge copper or plastic bracket with clamps for securing copper water tube and stainless steel hose clamp for securing bracket to vertical waste and vent pipe in wall.
  - 3. Carrier Bracket: 20 gauge copper bracket with 1" hole for supporting rough-in for flush valve copper tube and bolt slot for attaching to chair carrier.
- E. Tube Suspension Clamps
  - 1. Combination plastic supports and insulators for installing copper tube in stud walls with integral bracket for securing to stud with screws.

### **PART 3 - EXECUTION**

#### **3.1 ABOVE GROUND WATER DISTRIBUTION PIPE AND FITTINGS**

- A. Install Type L, drawn copper tube with wrought copper fittings and solder joints for pipe sizes 4 inches and smaller, within the building.
- B. Install galvanized steel pipe with threaded joints and fittings for 5 inches and larger, within the building.
- C. Install PVC schedule 40 pressure pipe with solvent cement fittings for deionized water inside the building.
- D. Install CPVC CTS pipe with solvent cement joints within the building for 2" and smaller.
- E. Install CPVC pipe with solvent cement joints within building for 2-1/2" and larger, except CPVC pipe cannot be installed in return air plenum ceiling.
- F. Install chrome plated brass pipe and fittings for exposed water piping within the building where indicated on the drawings.

#### **3.2 PIPING INSTALLATION**

- A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into consideration pipe sizing and friction loss, expansion, pump sizing, and other design considerations. So far as practical, install piping as indicated.
- B. Use fittings for all changes in direction and branch connections.
- C. Install piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
- D. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
- E. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
- F. Install horizontal piping as high as possible allowing for proper slope and coordination with other components. Install vertical piping tight to columns or walls. Provide space to permit insulation applications, with 1-inch clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
- G. Install piping with 1/32-inch-per-foot (1/4 percent) downward slope towards drain point.
  - 1. Install piping level with no pitch.
- H. Remove lubricating or cutting oils immediately from PVC or CPVC pipe. PVC or CPVC pipe that shows staining or surface deflection from absorbing lubricating or cutting oils shall be cut out and

replaced.

### 3.3 HANGERS AND SUPPORTS

- A. General: Hanger, support, insulation protection shield and anchor components and installation procedures conforming to MSS SP-58 and SP-69 are specified in Division 22 Section "Hangers and Supports for Plumbing Piping". Conform to the table below for maximum spacing of supports.
- B. Pipe Attachments: Install the following:
1. Adjustable steel clevis hangers, MSS SP-69 Type 1, for individual horizontal runs.
  2. Riser clamps, MSS SP-69 Type 8, for individual vertical runs. Provide copper coated riser clamps when in contact with copper tube.
  3. Insulation protection shields and high density insulation at each hanger for insulated pipe as specified in Division 15 Sections "Supports and Anchors" and "Plumbing Insulation".
  4. Copper coated extension split ring pipe clamp, MSS SP-69 Type 12, for individual vertical exposed runs of copper tube 2" and smaller on walls and for securing 1-1/4" to 2" copper tube inside walls and chases for battery fixtures. Secure clamp to the copper tube.
    - a. Seal each joint with insulation and split ring pipe to maintain the insulation barrier. Refer to Section "Mechanical Insulation" for requirement for maintenance of the vapor barrier and vapor barrier seal method.
  5. Extension split ring pipe clamp, MSS SP-69 Type 12, for individual vertical exposed runs of stainless steel tube 2" and smaller on walls or for securing tube inside walls for connection to faucets.
  6. Support copper tube in chases and walls at plumbing fixtures with plastic or copper brackets secured to structure and U-bolts sized to bare on the pipe.
  7. Engineered strut support system may be provided, at the contractor's option, in lieu of individual hangers for horizontal pipes as specified in Division 22 "Hangers and Supports for Plumbing Piping". Provide two piece straps for uninsulated pipe secured to the bare pipe and provide plastic galvanic isolators for bare copper tube. Provide two piece straps and 360° insulation protection shields sized for the insulation thickness used for the pipe for all insulated pipes.
  8. Provide 304 stainless steel rods, nuts, washers, beam clamps, channels, insulation protection shields, adjustable band hangers, MSS SP-69 Type 7, or clevis hangers, MSS SP-69 Type 1, for piping located in Natatoriums and Pool Equipment Rooms.
  9. Secure copper tube rough-in for individual fixtures with sheet stud brackets attached to the wall studs or pipe mounting brackets attached to the fixture waste & vent pipe at each plumbing fixture.
  10. Secure 1" and smaller copper water tubing in stud walls at stud penetrations with tube suspension clamps.
    - a. Cut hole through non-supporting studs with a minimum 1/8" clearance around each uninsulated copper tube or insulated copper tube.
    - b. Seal each joint of insulation and tube suspension clamp to maintain the insulation barrier. Refer to Division 22 "Plumbing Insulation" for requirement for maintenance of the vapor barrier similar to insulation butted against insulation inserts and vapor barrier seal method.
  11. Secure copper tubes for flush valve wall mounted water closets to the chair carrier with carrier brackets.
  12. Provide vinyl coated hangers and riser clamps for use with PVC or CPVC pipe.
- C. Install hangers for horizontal piping with the following maximum spacing and minimum rod sizes:

Nom. Pipe Size - In.	Steel Pipe Max. Span - Ft.	Copper Tube Max. Span - Ft.	Min. Rod Dia. - In.
Up to 3/4	7	5	3/8
1	7	6	3/8
	Max Temperature to 73°F	Max Temperature to 140°F	
Nom. Pipe Size - In.	CTS CPVC Pipe Max. Span - Ft.	CTS CPVC Pipe Max. Span - Ft.	Min. Rod Dia. - In.
1/2	4	3.5	3/8

3/4	5	4	3/8
1	5.5	4.5	3/8
Nom. Pipe <u>Size - In.</u>	SCH 40 CPVC Pipe <u>Max. Span - Ft.</u>	Min. Rod <u>Dia. - In.</u>	
Up to 1	3	3/8	

1. Support vertical steel pipe at each floor.
  2. Support vertical copper tube at each floor and in intervals not to exceed 10 feet.
  3. Support plastic pipe and tubing in accordance with manufacturer's recommendations.
  4. Support vertical PVC pipe every four feet.
  5. Support vertical CPVC pipe every six feet.
- D. Support CPVC pipe and CPVC CTS tube and provide relief for thermal expansion in accordance with the Lubrizol "Flowguard Gold and CORZAN Design and Installation Manual".
- E. Support water piping within 12" of each elbow or tee and for water piping 2-1/2" and larger at each valve or strainer.
- F. Support water piping above the floor with pipe supports attached to the floor with anchor bolts where indicated on the drawings. Conform to the table above for maximum spacing of supports.
- G. Provide vibration isolation for piping connected to rotating equipment. Vibration isolators are specified in Division 22 specification Section "Vibration Isolation for Plumbing Piping and Equipment".

### 3.4 PIPE AND TUBE JOINT CONSTRUCTION

- A. Soldered Joints: Comply with the procedures contained in the AWS "Soldering Manual."
- B. Brazed Joints: Comply with the procedures contained in the AWS "Brazing Manual."
1. CAUTION: Remove stems, seats, and packing of valves and accessible internal parts of piping specialties before soldering and brazing.
  2. Fill the tubing and fittings during soldering and brazing with an inert gas (nitrogen or carbon dioxide) to prevent formation of scale.
  3. Heat joints to proper and uniform temperature.
- C. Threaded Joints: Conform to ASME B1.20.1, tapered pipe threads for field-cut threads. Join pipe fittings and valves as follows:
1. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
  2. Align threads at point of assembly.
  3. Apply appropriate tape or thread compound to the external pipe threads (except where dry seal threading is specified).
  4. Assemble joint wrench tight. Wrench on valve shall be on the valve end into which the pipe is being threaded.
    - a. Damaged Threads: Do not use pipe with corroded or damaged threads. If a weld opens during cutting or threading operations, that portion of pipe shall not be used.
- D. Flanged Joints: Align flange surfaces parallel. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly with a torque wrench.
- E. CPVC Pipe: Conform to ASTM D2846.

### 3.5 VALVE APPLICATIONS

- A. General-Duty Valve Applications: The Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
1. Shut-off duty: Use gate, ball, and butterfly valves.
- B. Throttling duty: Use globe, ball, and butterfly valves.

### 3.6 INSTALLATION OF VALVES

- A. Sectional Valves: Install sectional valves on each branch and riser, close to main, where branch or

riser serves 2 or more plumbing fixtures or equipment connections, and elsewhere as indicated. For sectional valves 2 inches and smaller, use gate or ball valves; for sectional valves 2-1/2 inches and larger, use gate or butterfly valves.

- B. Shutoff Valves: Install shutoff valves on inlet of each plumbing equipment item, on each supply to each plumbing fixture, and elsewhere as indicated. For shutoff valves 2 inches and smaller, use gate or ball valves; for shutoff valves 2-1/2 inches and larger, use gate or butterfly valves.
- C. Drain Valves: Install drain valves on each plumbing equipment item, located to drain equipment completely for service or repair. Install drain valves at the base of each riser, at low points of horizontal runs, and elsewhere as required to drain distribution piping system completely. For drain valves 2 inches and smaller, use gate or ball valves; for drain valves 2-1/2 inches and larger, use gate or butterfly valves.
- D. Check Valves: Install swing check valves on discharge side of each pump and elsewhere as indicated.
- E. Mixing Valves: Install on a sheet of plywood extending 6" beyond the physical boundary of the mixing valve and firmly attach backboard to the wall. Connect hot water return piping per the manufacturer's published recommendations.

### 3.7 EQUIPMENT CONNECTIONS

- A. Piping Runouts to Fixtures: Provide hot and cold water piping runouts to fixtures of sizes indicated, but in no case smaller than required by plumbing code.
- B. Mechanical Equipment Connections: Connect hot and cold water piping system to mechanical equipment as indicated. Provide shutoff valve and union for each connection; provide drain valve on drain connection.

### 3.8 FIELD QUALITY CONTROL

- A. Inspections: Inspect water distribution piping as follows:
  - 1. Do not enclose, cover, or put into operation water distribution piping system until it has been inspected and approved by the authority having jurisdiction.
  - 2. During the progress of the installation, notify the plumbing official having jurisdiction at least 24 hours prior to the time such inspection must be made. Perform tests specified below in the presence of the plumbing official.
    - a. Rough-in Inspection: Arrange for inspection of the piping system before concealed or closed in after system is roughed in and prior to setting fixtures.
    - b. Final Inspection: Arrange for a final inspection by the plumbing official to observe the tests specified below and to ensure compliance with the requirements of the plumbing code.
    - c. Reinspections: Whenever the plumbing official finds that the piping system will not pass the test or inspection, make the required corrections and arrange for reinspection by the plumbing official.
    - d. Reports: Prepare inspection reports signed by the plumbing official and turn over to the Architect upon completion of the project.
- B. Factory Start-up for Thermostatic Mixing Valves: Provide the services of a factory-authorized service representative to test and inspect unit installation, provide start-up service, and demonstrate operation of equipment to the Owner's maintenance personnel for a minimum time of 1 hour.
  - 1. Reports: Prepare inspection reports and required corrective action signed by the factory-authorized service representative and turn over to the Architect upon completion of the project.
- C. Piping System Test: Test water distribution systems in accordance with the procedures of the authority having jurisdiction, or in the absence of a published procedure, as follows:
  - 1. Test for leaks and defects all new water distribution piping systems and parts of existing systems that have been altered, extended or repaired. If testing is performed in segments, submit a separate report for each test, complete with a diagram of the portion of the system tested.
  - 2. Leave uncovered and unconcealed all new, altered, extended, or replaced water distribution piping until it has been tested and approved. Expose all such work for testing that has been covered or concealed before it has been tested and approved.
  - 3. Cap and subject the piping system to a static water pressure of 50 psig above the operating

pressure without exceeding the pressure rating of the piping system materials. Isolate the test source and allow to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.

4. Repair all leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.
5. Reports: Prepare inspection reports and required corrective action signed by the plumbing official and turn over to the Architect upon completion of the project.

### 3.9 ADJUSTING AND CLEANING

A. Clean and disinfect water distribution piping as follows:

1. Purge all new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired prior to use.
2. Use the purging and disinfecting procedure proscribed by the authority having jurisdiction or, in case a method is not proscribed by that authority, the procedure described in either AWWA C651, or AWWA C652, or as described below:
  - a. Flush the piping system with clean, potable water until dirty water does not appear at the points of outlet.
  - b. Fill the system or part thereof with a water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) the system or part thereof and allow to stand for 24 hours.
  - c. Drain the system or part thereof of the previous solution and refill with a water/chlorine solution containing at least 200 parts per million of chlorine and isolate and allow to stand for 3 hours.
  - d. Following the allowed standing time, flush the system with clean, potable water until chlorine residual is lowered to incoming city water level.
  - e. Submit water samples in sterile bottles to the authority having jurisdiction. Repeat the procedure if the biological examination made by the authority shows evidence of contamination.
3. Reports: Prepare disinfection reports signed by the authority having jurisdiction and turn over to the Architect upon completion of the project.

### 3.10 COMMISSIONING

- A. Fill the system. Check compression tanks to determine that they are not air bound and that the system is completely full of water.
- B. Before operating the system, perform these steps:
  1. Close drain valve, hydrants, and hose bibbs.
  2. Open valves to full open position.
  3. Remove and clean strainers.
  4. Check pumps for proper direction of rotation. Correct improper wiring.
  5. Lubricate pump motors and bearings.

**END OF SECTION 221100**

**SECTION 221300**  
**SANITARY DRAINAGE AND VENT PIPING AND SPECIALTIES**

**PART 1 - GENERAL REQUIREMENTS**

1.1 SUMMARY

- A. This Section includes building sanitary drainage and vent piping systems, including drains and drainage specialties.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 7 Section "Joint Sealers," for materials and methods for sealing pipe penetrations through basement and foundation walls, and fire and smoke barriers.
  - 2. Division 22 Section "Common Work Results for Plumbing," for materials and methods for fire barrier penetrations, wall and floor penetrations and equipment pads
  - 3. Division 22 Section "Basic Piping Material and Methods," for materials and methods for mechanical sleeve seals.
  - 4. Division 22 Section "Plumbing Insulation," for materials and methods for insulating drainage piping.

1.2 DEFINITIONS

- A. Sanitary Building Drain: That part of the lowest piping of a drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer.
- B. Sanitary Building Sewer: That part of the drainage system which extends from the end of the building drain and conveys its discharge to a public sewer, private sewer, individual sewage disposal system, or other point of disposal.
- C. Drainage System: Includes all the piping within a public or private premises which conveys sewage or other liquid wastes to a point of disposal. It does not include the mains of public sewer systems or a private or public sewage treatment or disposal plant.
- D. Vent System: A pipe or pipes installed to provide a flow of air to or from a drainage system, or to provide a circulation of air within such system to protect trap seals from siphonage and back pressure.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
- B. Product data for the following products:
  - 1. Drainage piping
  - 2. Drainage piping specialties
  - 3. Floor drains
- C. Test reports specified in Part 3 of this Section.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with the provisions of the following codes:
  - 1. 2009 International Building Code
  - 2. 2009 Uniform Plumbing Code

**PART 2 - PRODUCTS AND MATERIALS**

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Drainage Piping Specialties, including backwater valves, expansion joints, cleanouts, floor drains, vandal-proof vent caps:
    - a. Josam Mfg. Co.
    - b. Smith (Jay R) Mfg. Co.



- c. Tyler Pipe/Wade Div.; Subs. of Tyler Corp.
- d. Watts Industries, Inc.
- e. Zurn Industries, Inc.; Hydromechanics Div.
- 2. Cast Iron Soil Pipe and Fittings
  - a. AB & I Foundry
  - b. Charlotte Pipe and Foundry Company
  - c. Tyler Pipe / Soil Pipe Division
- 3. Shielded Transition Couplings
  - a. FERNCO, "Proflex 3000 Series"
  - b. Mission Rubber Company, "Band Seal Specialty Couplings"
- 4. Underground Shielded Adapter Couplings
  - a. FERNCO, "1056 Series with SR73 Shear Ring"
  - b. Mission Rubber Company, "MR56 Series"
- 5. PVDF Process Piping
  - a. Orion
- 6. Trap Seals
  - a. ~~Proset Systems "Trap Guard" with no substitutions~~
  - b. Sure Seal, Inc.
- 7. Hubless Couplings:
  - a. Anaco
  - b. Ideal
  - c. Mission Rubber Company
  - d. Tyler Pipe / Soil Pipe Division

## 2.2 ABOVE GROUND DRAINAGE AND VENT PIPE AND FITTINGS

- A. Cast-Iron Soil Pipe: CISPI 301 and ASTM A888, no-hub pipe and fittings.
  - 1. Couplings and compression gaskets, NSF certified: ASTM C564 and CISPI 310.
  - 2. Heavy duty couplings and compression gaskets: ASTM C1540 and meeting FM 1680.
- B. Copper Tube: ASTM B306, Type DWV, hard drawn for pipe, and cast-bronze, drainage pattern fittings with soldered joints.
  - 1. Solder Filler Materials: ASTM B32, 95-5 tin-antimony solder.
- C. Copper Tube: ASTM B88, Type M, hard drawn for pipe and wrought copper fittings with soldered joints.
  - 1. Solder Filler Materials: ASTM B32, 95-5 tin-antimony solder.
- D. PVC DWV Pipe and Fittings: Schedule 40 pipe meeting ASTM D1785 and ASTM D2665 with "solid wall" PVC meeting ASTM D1784 with cell class 12454-B.
  - 1. Fittings: DWV pattern meeting ASTM D2665 with solvent cement socket joints.
  - 2. Solvent: ASTM D2564.
- E. PVC Pressure Pipe and Fittings: Schedule 40 pipe meeting ASTM D1785 with "solid wall" PVC meeting ASTM D1784 with cell class 12454.
  - 1. Solvent: ASTM D2564.
- F. PVDF Process Piping and fittings: PVDF meeting ASTM D3222 with pipe size and piping dimensions meeting ASTM D2447 with fusion joints.
  - 1. Fittings: Meeting ASTM D3222 with fusion joints.
- G. Steel Pipe: ASTM A53, Type E or S, schedule 40, Grade B, galvanized, threaded ends.
  - 1. Galvanized Malleable Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern, for threaded joints. Threads shall conform to ASME B1.20.1.
- H. Shielded Transition Couplings: ASTM C1460 with neoprene adapter gasket with stainless steel Shield and hose clamps.

## 2.3 UNDERGROUND BUILDING DRAIN AND VENT PIPE AND FITTINGS

- A. Cast-Iron Soil Pipe: ASTM A74, Service weight, hub-and-spigot soil pipe and fittings. Pipe and fittings shall have a heavy coating of coal tar varnish or asphaltum on both inside and outside surfaces.
  - 1. Neoprene Compression Gaskets: ASTM C564.

- B. PVC DWV Pipe and Fittings: Schedule 40 pipe meeting ASTM D1785 and ASTM D2665 with "solid wall" PVC meeting ASTM D1784 with cell class 12454-B.
  - 1. Fittings: DWV pattern meeting ASTM D2665 with solvent cement socket joints.
  - 2. Solvent: ASTM D2564.
- C. PVC Pressure Pipe and Fittings: Schedule 40 pipe meeting ASTM D1785 with "solid wall" PVC meeting ASTM D1784 with cell class 12454.
  - 1. Solvent: ASTM D2564.
- D. Underground Shielded Adapter Couplings: ASTM C1173 with neoprene adapter gasket with stainless steel shield and stainless steel hose clamps.

#### 2.4 DRAINAGE PIPING SPECIALTIES

- A. Floor Drains: As specified on the drawings.

### **PART 3 - EXECUTION**

#### 3.1 PIPE APPLICATIONS - ABOVE GROUND, WITHIN BUILDING

- A. Install hubless, cast-iron soil pipe and fittings for 15" and smaller soil, waste, and vent pipe.
- B. Install Type DWV copper tube with cast bronze Type DWV fittings for waste connections from lavatories, sinks, water coolers, and kitchen equipment to cast iron drainage piping.
- C. Install Type M copper tube with wrought copper fittings, 1" and smaller, with 3/4" minimum size and install Type DWV copper tube with cast bronze Type DWV fittings for 1-1/4" and larger for waste connections from kitchen equipment and terminate over floor receptors with air gap.
- D. Install galvanized schedule 40 steel pipe and malleable iron fittings with 3/4" minimum size for condensate connections from mechanical equipment inside the building and terminate over floor receptors with air gap.
- E. Install Type M copper tube with wrought copper fittings, 1" and smaller, with 3/4" minimum size and install Type DWV copper tube with cast bronze Type DWV fittings for 1-1/4" and larger for condensate connections from mechanical equipment inside the building and terminate over floor receptors with air gap. Provide galvanic isolators as specified in Division 15 "Basic Piping Materials and Methods".
- F. Install PVC pipe with PVC fittings, 1" and smaller, with 3/4" minimum size and install PVC Type DWV pipe with PVC Type DWV fittings for 1-1/4" and larger for condensate connections from mechanical equipment inside the building and terminate over floor receptors with air gap, except no plastic pipe shall be installed in return air plenums.
- G. Install galvanized schedule 40 steel pipe and malleable iron fittings with 3/4" minimum size for condensate connections from mechanical equipment outside the building and terminate over roof receptors with air gap at roof drains as indicated on the plans.
- H. Install Type M copper tube with wrought copper fittings, 1" and smaller, with 3/4" minimum size and install Type DWV copper tube with cast bronze Type DWV fittings for 1-1/4" and larger for condensate connections from mechanical equipment outside the building and terminate over roof receptors with air gap at roof drains as indicated on the plans. Provide galvanic isolators as specified in Division 22 "Basic Piping Material and Methods".
- I. Install PVC pipe with PVC fittings, 1" and smaller, with 3/4" minimum size and install PVC Type DWV pipe with PVC Type DWV fittings for 1-1/4" and larger for condensate connections from mechanical equipment outside the building and terminate over roof receptors with air gap at roof drains as indicated on the plans.
- J. Install 1" schedule 40 fire-retardant polyvinylidene fluoride (PVDF) process pipe with fusion joints for condensate connections for high efficiency roof top units located in return air plenum ceilings.
- K. Install PVC Type DWV Plastic pipe and fittings for drainage and vent pipe, except no plastic pipe shall be installed in return air plenums.
- L. Install PVC pressure pipe and fittings for sump pump discharge, except no plastic pipe shall be

installed in return air plenums.

- M. Install galvanized schedule 40 steel pipe and malleable iron fittings for sump pump discharge pipe.
- N. Install ½" type L copper tube for trap primer outlet piping.

### 3.2 PIPE APPLICATIONS - BELOW GROUND, WITHIN BUILDING

- A. Install hub-and-spigot, service weight, cast-iron, soil pipe and fittings with gasketed joints for 15 inch and smaller for soil, waste, and vent pipe.
- B. Install PVC Type DWV Plastic pipe and fittings for drainage and vent pipe for 24" and smaller. Install fabricated fittings for 16 inch and larger.
- C. Install PVC pressure pipe and fittings for sump pump discharge.
- D. Install ½" type K soft copper tube for trap primer outlet piping.

### 3.3 PIPE AND TUBE JOINT CONSTRUCTION

- A. Copper Tubing: Solder joints in accordance with the procedures specified in AWS "Soldering Manual."
- B. Cast-Iron Soil Pipe: Make hubless joints in accordance with the Cast-Iron Soil Pipe & Fittings Handbook, Chapter IV. Install Couplings as followings:
  - a. Install hubless couplings complying with CISPI 310 on soil, waste and vent piping.
  - b. Install hubless couplings complying with CISPI 310 on and soil and waste piping 3" and smaller and all vent piping.
  - c. Install heavy duty hubless couplings on soil or waste stacks, soil and waste piping connections to soil or waste stacks and all soil and waste piping 5" and larger.
- C. PVC DWV Pipe: Joining and installation of PVC drainage pipe and fittings shall conform to ASTM D2665.
- D. ABS to PVC Transition Joints: When joining ABS to PVC components (such as an ABS building drain to PVC sewer pipe) make joints using solvent cements conforming to ASTM D3138.
- E. Cast Iron to PVC Above Grade: Join cast iron to PVC with shielded transition couplings.
- F. Cast Iron to PVC Below Grade: Join cast iron to PVC with underground shielded adapter couplings.

### 3.4 INSTALLATION

- A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into consideration pipe sizing, slope, expansion, and other design considerations. So far as practical, install piping as indicated.
- B. Use fittings for all changes in direction and all branch connections.
- C. Install piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
- D. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
- E. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
- F. Install horizontal piping as high as possible allowing for proper slope and coordination with other components. Install vertical piping tight to columns or walls. Provide space to permit insulation applications, with 1-inch clearance outside the insulation. Allow sufficient space above removable ceiling panels to allow for panel removal.
- G. Foundation Penetrations: Where pipes pass through foundation walls above strip footings or under strip footings, protect pipes from building load with cast iron soil pipe sleeves two pipe sizes larger than the pipe. Sleeves installed under the strip footing shall be encased in concrete.
- H. Make changes in direction for drainage and vent piping using appropriate 45 degree wyes, combination wye and eighth bend, or long sweep, quarter, sixth, eighth, or sixteenth bends.

Sanitary tees or quarter bends may be used on vertical stacks of drainage lines where the change in direction of flow is from horizontal to vertical, except use long-turn pattern combination wye and eighth bends where two fixtures are installed back to back and have a common drain. Straight tees, elbows, and crosses may be used on vent lines. No change in direction of flow greater than 90 degrees shall be made. Where different sizes of drainage pipes and fittings are connected, use proper sized standard increasers and reducers. Reduction of the size of drainage piping in the direction of flow is prohibited.

- I. Install drainage piping pitched down at a minimum slope of 1/4 inch per foot (2 percent) for piping 3 inch and smaller, and 1/8 inch per foot (1 percent) for piping 4 inch and larger. Install vent piping pitched to drain back by gravity to the sanitary drainage piping system.
- J.

### 3.5 HANGERS AND SUPPORTS

- A. General: Hanger, support, insulation protection shields, and anchor components and installation procedures conforming to MSS SP-58 and SP-69 are specified in Division 22 Section "Hangers and Supports for Plumbing Piping". Conform to the table below for maximum spacing of supports.
- B. Install the following pipe attachments:
  - 1. Adjustable clevis hangers, MSS SP-69 Type 1, for individual horizontal runs.
  - 2. Riser clamps, MSS SP-69 Type 8, for individual vertical runs.
  - 3. Provide 304 stainless steel rods, nuts, washers, beam clamps, channels, insulation protection shields, adjustable band hangers, MSS SP-69 Type 7, or clevis hangers, MSS SP-69 Type 1, for piping located in Natatoriums and Pool Equipment Rooms.
  - 4. Insulation protection shields and high density insulation at each hanger for insulated pipe as specified in Division 22 Sections "Hangers and Supports for Plumbing Piping" and "Plumbing Insulation".
    - a. Install high density insulation on insulated pipe.
- C. Install hangers at the following intervals and provide rods of diameter as listed below:

Nom. Pipe Size	Steel Pipe Max. Span	Copper Tube Max. Span.	Min. Rod Dia. - Inches Steel or Cast Iron	Min. Rod Dia. - Inches Copper or PVC
<u>In Inches</u>	<u>In Feet</u>	<u>In Feet</u>	<u>Cast Iron</u>	<u>Copper or PVC</u>
Up to 3/4	7	5	3/8	3/8
1	7	6	3/8	3/8
1-1/4	7	7	3/8	3/8
1-1/2	9	8	3/8	3/8
2	10	8	3/8	3/8

- 1. Support all sizes of service weight horizontal cast iron piping every five feet, except up to ten feet where ten foot sections are installed. Support all sizes of hubless horizontal cast iron piping every other joint, unless over four feet, then support each joint. Provide support adjacent to joint, not to exceed 18". Provide brace at not more than 40' intervals to prevent horizontal movement. Provide support at each horizontal branch.
- 2. Support all sizes of vertical cast iron piping every ten feet.
- 3. Support all sizes of horizontal of PVC piping every four feet.
- 4. Support all sizes of vertical of PVC piping every floor, but not to exceed fifteen feet.
- 5. Support piping within 12" of each elbow or tee.

D.

### 3.6 INSTALLATION OF PIPING SPECIALTIES

- A. Above Ground Cleanouts: Install in above ground piping and building drain piping as indicated, and:
  - 1. as required by plumbing code;
  - 2. at each change in direction of piping greater than 45 degrees;
  - 3. at minimum intervals of 50' for piping 4" and smaller and 100' for larger piping;
  - 4. at base of each vertical soil and waste stack.
- B. Cleanout Covers: Install floor and wall cleanout covers for concealed piping, types as indicated.

- C. Floor Cleanouts: Install in below floor building drain piping at minimum intervals of 50' for piping 4" and smaller and 75' for larger piping.

D.

### 3.7 INSTALLATION OF FLOOR DRAINS, FLOOR SINKS AND FLOOR TROUGHS

- A. Install floor drains, floor sinks and floor troughs in accordance with manufacturer's written instructions and in locations indicated.
- B. Install floor drains at low points of surface areas to be drained, or as indicated. Set tops of drains flush with finished floor. Set floor sinks and floor troughs flush with the level finish floor.
- C. Refer to architectural documents for floor slope requirements and set floor drain elevation to match. Where architectural documents do not indicate the requirements, set the floor drain elevation depressed below the finished slab elevation as listed below to provide proper slope to drain:

<u>DEPRESSION IN INCHES</u>	<u>RADIUS OF AREA DRAINED - FEET</u>
1/2	5
3/4	10
1	15
1-1/4	20
1-1/2	25

- D. Provide P-traps for drains connected to the sanitary sewer.
- E. Install floor drains, floor sinks and floor troughs in waterproof floors with waterproof membrane securely flashed with drain flashing clamp so that no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes, where penetrated.
- F. Position drains so that they are level, accessible and easy to maintain.

### 3.8 CONNECTIONS

- A. Piping Runouts to Fixtures: Provide drainage and vent piping runouts to plumbing fixtures and drains, with approved trap, of sizes indicated; but in no case smaller than required by the plumbing code.
- B. Locate piping runouts as close as possible to bottom of floor slab supporting fixtures or drains.

### 3.9 FIELD QUALITY CONTROL

- A. Inspections
  - 1. Do not enclose, cover, or put into operation drainage and vent piping system until it has been inspected and approved by the authority having jurisdiction.
  - 2. During the progress of the installation, notify the plumbing official having jurisdiction, at least 24 hours prior to the time such inspection must be made. Perform tests specified below in the presence of the plumbing official.
    - a. Rough-in Inspection: Arrange for inspection of the piping system before concealed or closed-in after system is roughed-in, and prior to setting fixtures.
    - b. Final Inspection: Arrange for a final inspection by the plumbing official to observe the tests specified below and to insure compliance with the requirements of the plumbing code.
    - c. Reinspections: Whenever the piping system fails to pass the test or inspection, make the required corrections, and arrange for reinspection by the plumbing official.
    - d. Reports: Prepare inspection reports, signed by the plumbing official.
- B. Piping System Test
  - 1. Test drainage and vent system in accordance with the procedures of the authority having jurisdiction, or in the absence of a published procedure, as follows:
  - 2. Test for leaks and defects all new drainage and vent piping systems and parts of existing systems, which have been altered, extended or repaired. If testing is performed in segments, submit a separate report for each test, complete with a diagram of the portion of the system tested.
  - 3. Leave uncovered and unconcealed all new, altered, extended, or replaced drainage and vent

piping until it has been tested and approved. Expose all such work for testing, that has been covered or concealed before it has been tested and approved.

4. Rough Plumbing Test Procedure: Except for outside leaders and perforated or open jointed drain tile, test the piping of plumbing drainage and venting systems upon completion of the rough piping installation. Tightly close all openings in the piping system, and fill with water to the point of overflow, but not less than 10 feet head of water. Water level shall not drop during the period from 15 minutes before the inspection starts, through completion of the inspection. Inspect all joints for leaks.
5. Final Plumbing Test Procedure: After the plumbing fixtures have been set and their traps filled with water, their connections shall be tested and proved gas and water-tight. Plug the stack openings on the roof and building drain where it leaves the building, and introduce air into the system equal to a pressure of 1" water column. Use a "U" tube or manometer inserted in the trap of a water closet to measure this pressure. Air pressure shall remain constant without the introduction of additional air throughout the period of inspection. Inspect all plumbing fixture connections for gas and water leaks.
6. Repair all leaks and defects using new materials and retest system or portion thereof until satisfactory results are obtained.
7. Reports: Prepare inspection reports and required corrective action signed by the plumbing official and turn over to the Architect upon completion of the project.

### 3.10 ADJUSTING AND CLEANING

- A. Clean interior of piping system. Remove dirt and debris as work progresses.
- B. Clean drain strainers, domes, and traps. Remove dirt and debris.

### 3.11 PROTECTION

- A. Protect drains during remainder of construction period, to avoid clogging with dirt and debris, and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of day or whenever work stops.
- C. Exposed PVC Piping: Protect plumbing vents exposed to sunlight with 2 coats of a water based latex paint.

**END OF SECTION 221300**

## SECTION 224000 PLUMBING FIXTURES

### PART 1 - GENERAL REQUIREMENTS

#### 1.1 SUMMARY

- A. This Section includes plumbing fixtures and trim, fittings, and accessories, appliances, appurtenances, equipment, and supports associated with plumbing fixtures.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 7 Section "Joint Sealers," for materials and methods for sealing between plumbing fixtures and interior walls.
  - 2. Division 22 Section "General Duty Valves for Plumbing Piping" for valves used as supply stops.
- C. Products furnished but not installed under this Section include:
  - 1. Plumbing fittings (including faucets) and piping indicated, for fixtures, appliances, appurtenances, and equipment provided by Owner.
  - 2. Plumbing fittings (including faucets) and piping indicated, for fixtures, appliances, appurtenances, and equipment specified in other Sections.
- D. Products installed but not furnished under this Section include:
  - 1. Owner-supplied fixtures, as indicated.
  - 2. Accessories, appliances, appurtenances, and equipment specified in other Sections, requiring plumbing services or fixture-related devices, as indicated.

#### 1.2 DEFINITIONS

- A. Accessible: Describes a plumbing fixture, building, facility, or portion thereof that can be approached, entered, and used by physically handicapped people.
- B. Accessory: Device that adds effectiveness, convenience, or improved appearance to a fixture but is not essential to its operation.
- C. Appliance: Device or machine designed and intended to perform a specific function.
- D. Appurtenance: Device or assembly designed to perform some useful function when attached to or used with a fixture.
- E. Equipment: Device used with plumbing fixtures or plumbing systems to perform a certain function for plumbing fixtures but that is not part of the fixture.
- F. Fitting: Fitting installed on or attached to a fixture to control the flow of water into or out of the fixture.
- G. Fixture: Installed receptor connected to the water distribution system, that receives and makes available potable water and discharges the used liquid or liquid-borne wastes directly or indirectly into the drainage system. The term "Fixture" means the actual receptor, except when used in a general application where terms "Fixture" and "Plumbing Fixture" include associated trim, fittings, accessories, appliances, appurtenances, support, and equipment.
- H. Roughing-In: Installation of piping and support for the fixture prior to the actual installation of the fixture.
- I. Support: Device normally concealed in building construction, for supporting and securing plumbing fixtures to walls and structural members. Supports for urinals, lavatories, and sinks are made in types suitable for fixture construction and the mounting required. Categories of supports are:
  - 1. Carrier: Floor-mounted support for wall-mounted water closet, and support fixed to wall construction for wall-hung fixture.
  - 2. Chair Carrier: Support for wall-hung fixture, having steel pipe uprights that transfer weight to the floor.
  - 3. Chair Carrier, Heavy Duty: Support for wall-hung fixture, having rectangular steel uprights that transfer weight to the floor.
  - 4. Reinforcement: Wood blocking or steel plate built into wall construction, for securing fixture to wall.
- J. Trim: Hardware and miscellaneous parts, specific to a fixture and normally supplied with it required

to complete fixture assembly and installation.

### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
  - 1. Product data for each type of plumbing fixture specified, including fixture and trim, fittings, accessories, appliances, appurtenances, equipment, supports, construction details, dimensions of components, and finishes.
  - 2. Wiring diagrams for field-installed wiring of electrically operated units.
  - 3. Maintenance data for inclusion in Operating and Maintenance Manual specified in Division 1 and Division 22 Section "General Plumbing Requirements."
- B. Submit certification that faucets and trim comply with-NSF 61 Annex G.

### 1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ANSI Standard A117.1, "Buildings and Facilities -- Providing Accessibility and Usability for Physically Handicapped People," Public Law 90-480, "Architectural Barriers Act, 1968," with respect to plumbing fixtures for the physically handicapped and "Americans with Disabilities Act Accessibility Guidelines for Buildings 1991" with respect to plumbing fixtures for the physically handicapped.
- B. Regulatory Requirements: Comply with requirements of ATBCB (Architectural and Transportation Barriers Compliance Board) "Uniform Federal Accessibility Standards (UFAS) - 1985-494-187" with respect to plumbing fixtures for the physically handicapped.
- C. Listing and Labeling: Provide electrically operated fixtures specified in this Section that are listed and labeled.
  - 1. The terms "listed" and "labeled" shall be as defined in the National Electrical Code, Article 100.
  - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- D. Faucets and trim in contact with drinking water shall meet or exceed the Safe Water Drinking Act (SWDA) lead free standards of ANSI/NSF Standard 61, section 9.
- E. Comply with NSF 61 Annex G for wetted surfaces of faucets and trim containing no more than 0.25% lead by weight compliance for valves for domestic water service.
- F. Design Concept: The drawings indicate types of plumbing fixtures and are based on the specific descriptions, manufacturers, models, and numbers indicated. Plumbing fixtures having equal performance characteristics by other manufacturers may be considered provided that deviations in dimensions, operation, color or finish, or other characteristics are minor and do not change the design concept or intended performance as judged by the Architect. Burden of proof for equality of plumbing fixtures is on the proposer.

### 1.5 SPARE PARTS

- A. Deliver spare parts to Owner. Furnish spare parts described below matching products installed, packaged with protective covering for storage, and identified with labels clearly describing contents.
- B. Faucet Washers and O-rings: Furnish quantity of identical units not less than 10 percent of amount of each installed.
- C. Faucet Cartridges and O-rings: Furnish quantity of identical units not less than 5 percent of amount of each installed.
- D. Provide individual metal boxes or a hinged-top wood or metal box having separate compartments for each type and size of above extra materials.
- E. Water Closet Tank Repair Kits: Furnish quantity of identical flush valve units not less than 5 percent of amount of each type installed.
- F. Toilet Seats: Furnish quantity of identical units not less than 5 percent of amount of each type toilet seat installed.
- G. Filter Cartridges: Furnish quantity of identical filter cartridges not less than 50 percent of amount of each type and size installed.



## **PART 2 - PRODUCTS AND MATERIALS**

### **2.1 MANUFACTURERS**

A. Manufacturers: Subject to compliance with requirements, provide products in each category, by one of the following listed for that category:

1. Water Closets:
  - a. American Standard, Inc.
  - b. Crane Plumbing/Fiat Products.
  - c. Gerber Plumbing Fixture Corp.
  - d. Kohler Co.
  - e. TOTO KIKI USA, Inc.
  - f. Zurn Plumbing Products Group
2. Lavatories:
  - a. Acorn Engineering Co.
  - b. American Standard, Inc.
  - c. Barclay Products Ltd.
  - d. Briggs Div.; Briggs Industries, Inc.
  - e. Crane Plumbing/Fiat Products.
  - f. Eljer; A Household International Co.
  - g. Gerber Plumbing Fixture Corp.
  - h. International Sanitary Ware Manufacturing Co.
  - i. Just Manufacturing Co.
  - j. Kohler Co.
  - k. Mansfield Plumbing Products, Inc.
  - l. Universal-Rundle Corp.
  - m. PROFLO is made by Briggs
  - n. PROFLO
  - o. TOTO KIKI USA, Inc.
  - p. Zurn Plumbing Products Group
3. Water Coolers:
  - a. Acorn / Aqua
  - b. Elkay Manufacturing Co.
  - c. Halsey Taylor; A Household International Co.
  - d. Haws Drinking Faucet Co.
4. Toilet Seats:
  - a. Bemis Mfg. Co.
  - b. Beneke Div.; Sanderson Plumbing Products, Inc.
  - c. Church Seat Co.
  - d. Kohler Co.
  - e. Olsonite Corp.
  - f. Sperzel Industries, Inc.
5. Commercial/Residential Cast-Brass and Cast-Brass Underbody Faucets:
  - a. American Standard, Inc.
  - b. Delta Faucet Co.; Div. of Masco Corp.
  - c. Elkay Manufacturing Co.
  - d. Gerber Plumbing Fixtures Corp.
  - e. Grohe America, Inc.
  - f. Indiana Brass
  - g. Kohler Co.
  - h. Moen Group; Stanadyne Corp.
  - i. Price Pfister, Inc.
  - j. Royal Brass Mfg. Co.
  - k. Symmons Industries, Inc.
  - l. Valley Faucets Div.; U.S. Brass.
6. P-traps, Drains & Miscellaneous Fittings:
  - a. Brass Craft Subsidiary; Masco Co.
  - b. Dearborn Brass
  - c. Engineered Brass Company
  - d. McGuire Manufacturing Co., Inc.
  - e. PROFLO

- f. Watts Brass and Tubular
- g. Zurn Industries
- 7. Insulation Kits
  - a. Brocar
  - b. McGuire
  - c. Plumberex
  - d. PROFLO
  - e. Trap-Wrap
  - f. Truebro, Inc.

## 2.2 PLUMBING FIXTURES, GENERAL

- A. Provide plumbing fixtures and trim, fittings, other components, and supports as specified on the drawings and below:

## 2.3 FAUCETS

- A. Faucets General: As described on the drawings.
  - 1. Electronic faucets shall be of the same manufacturer as the water closet and urinal flush valves.

## 2.4 STOP VALVES & SUPPLIES

- A. Supplies General: As described on the drawings.
  - 1. Exposed piping and parts shall be polished chrome plated.

## 2.5 P-TRAPS, DRAINS AND MISCELLANEOUS FITTINGS:

- A. Fittings General: As described on the drawings, except as listed below.
  - 1. Exposed piping and fittings shall be polished chrome plated.
  - 2. Fittings installed concealed inside a plumbing fixture or within wall construction may be without chrome plate finish.
- B. Escutcheons: Wall flange with set screw.
- C. Escutcheons: Polished chrome-plated, sheet steel wall flange with friction clips.
- D. Deep Pattern Escutcheons: Wall flange with set screw or sheet steel wall flange with friction clips, of depth adequate to conceal protruding roughing-in fittings.

## 2.6 TOILET SEATS

- A. General: As described on the drawings.

## 2.7 PLUMBING FIXTURE SUPPORTS

- A. Supports: ASME A112.6.1M, categories and types as required for wall-hanging fixtures specified, and wall reinforcement.
- B. Support categories are:
  - 1. Carriers: Supports for wall-hanging water closets and fixtures supported from wall construction. Water closet carriers shall have an additional faceplate and coupling when used for wide pipe spaces. Provide tiling frame or setting gauge with carriers for wall-hanging water closets.
- C. Support Types: Provide support of category specified, of type having features required to match fixture.
- D. Provide supports specified as part of fixture description, in lieu of category and type requirements above.

## 2.8 INSULATION KITS

- A. Insulation kits for lavatory waste and supplies of vinyl plastic with reusable fasteners and openings for access to supply stop handles.

## **PART 3 - EXECUTION**

### 3.1 APPLICATION

- A. Install plumbing fixtures and specified components, in accordance with designations and locations

indicated on Drawings.

- B. Install supports for plumbing fixtures in accordance with categories indicated, and of type required:
  - 1. Carriers for following fixtures:
    - a. Wall hanging lavatories
    - b. Wall hanging electric water coolers and drinking fountains.
    - c. Wall-hanging fixtures supported from wall construction.

### 3.2 INSTALLATION OF PLUMBING FIXTURES

- A. Install plumbing fixtures level and plumb, in accordance with fixture manufacturers' written installation instructions, roughing-in drawings, and referenced standards.
- B. Install floor-mounted, floor-outlet water closets with closet flanges and gasket seals.
- C. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.
- D. Fasten floor-mounted fixtures and special fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
- E. Fasten wall-mounted fittings to reinforcement built into walls.
- F. Fasten counter-mounting-type plumbing fixtures to casework.
- G. Secure supplies behind wall or within wall pipe space, providing rigid installation.
- H. Install stop valve in an accessible location in each water supply to each fixture.
- I. Install trap on fixture outlet except for fixtures having integral trap.
- J. Install escutcheons at each wall, floor, and ceiling penetration in exposed finished locations and within cabinets and millwork. Use deep pattern escutcheons where required to conceal protruding pipe fittings.
- K. Seal fixtures to walls, floors, and counters using a sanitary-type, one-part, mildew-resistant, silicone sealant in accordance with sealing requirements specified in Division 7 Section "Joint Sealers." Match sealant color to fixture color.
- L. Install insulation kits on ADA compliant sink and lavatory waste, continuous wastes, hot and cold water supplies where indicated on the drawings and as required by the ADA.

### 3.3 CONNECTIONS

- A. Piping installation requirements are specified in other sections of Division 22. The Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
  - 1. Install piping connections between plumbing fixtures and piping systems and plumbing equipment specified in other sections of Division 22.
  - 2. Install piping connections indicated between appliances and equipment specified in other sections, direct connected to plumbing piping systems.

### 3.4 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Test fixtures to demonstrate proper operation upon completion of installation and after units are water pressurized. Replace malfunctioning fixtures and components, then retest. Repeat procedure until all units operate properly.

### 3.5 ADJUSTING AND CLEANING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Operate and adjust disposers, hot water dispensers, and controls. Replace damaged and malfunctioning units and controls.
- C. Adjust water pressure at drinking fountains, electric water coolers, and faucets, to provide proper flow and stream.

- D. Replace washers of leaking and dripping faucets and stops.
- E. Clean fixtures, fittings, and spout and drain strainers with manufacturers' recommended cleaning methods and materials.
- F. Adjust faucet wrist blade handles perpendicular to the spout while in the closed position.
- G. Review the data in Operating and Maintenance Manuals. Refer to Division 1 Section "Project Closeout."

3.6 FIXTURE SCHEDULE

- A. Provide plumbing fixtures as specified on the drawings.
- B. Install rough-in for plumbing fixtures as scheduled on the drawings.

3.7 MOUNTING HEIGHTS SCHEDULE:

- A. Refer to the architectural drawings for plumbing fixture mounting heights. Unless indicated otherwise, install plumbing fixtures with the mounting heights as listed below with final approval by the Architect:

<u>FIXTURE</u>	<u>MOUNTING HEIGHT</u>
Lavatory or Sink	
Standard Height	31" floor to rim
ADA Accessible	34" floor to rim
Child Height	24" floor to rim
Water Closet	
Standard	15" floor to rim
ADA Accessible	17" to 19" floor to top of seat
Child Height	10" floor to rim
Water Cooler or Drinking Fountain	
Standard Height	41" floor to spout
ADA Accessible	36" floor to spout
Child height	30" floor to spout

**END OF SECTION 224000**

## SECTION 260010 GENERAL ELECTRICAL REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section and to all following sections within Division 26.

#### 1.2 SUMMARY

- A. This Division requires providing complete functioning systems, and each element thereof, as specified, indicated, or reasonably inferred, on the Drawings and in these Specifications, including every article, device, or accessory (whether or not specifically called for by item) reasonably necessary to facilitate each system's functioning as indicated by the design and the equipment specified. Elements of the work include, but are not limited to, materials, labor, supervision, supplies, tools, equipment, transportation and utilities.
- B. Division 26 of these Specifications, and Drawings numbered with prefixes E , generally describe these systems, but the scope of the electrical Work includes all such Work indicated in all of the Contract Documents, including, but not limited to: Instructions to Bidders; Proposal Form; General Conditions; Supplementary General Conditions; Architectural, Structural, Mechanical, Plumbing and Electrical Drawings and Specifications; and Addenda.
- C. Drawings are graphic representations of the Work upon which the Contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They also convey the scope of Work, indicating the intended general arrangement of the equipment, fixtures, outlets and circuits without showing all of the exact details as to elevations, offsets, control lines, and other installation requirements. Use the Drawings as a guide when laying out the Work and to verify that materials and equipment will fit into the designated spaces, and which, when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory and properly operating system.
- D. Specifications define the qualitative requirements for products, materials, and workmanship upon which the Contract is based.

#### 1.3 QUALITY ASSURANCE

- A. Execute all Work under this Division in a thorough and professional manner by competent and experienced workmen duly trained to perform the Work specified.
- B. Install all Work in strict conformance with all manufacturers' requirements and recommendations, unless these Documents exceed those requirements. Install all equipment and materials in a neat and professional manner, aligned, leveled, and adjusted for satisfactory operation, in accordance with NECA guidelines.
- C. Unless indicated otherwise on the Drawings, provide all material and equipment new, of the best quality and design, free from defects and imperfections and with markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity. Provide all material and equipment of the same type from the same manufacturer whenever practicable.
- D. Unless specified otherwise, manufactured items of the same types specified within this Division shall have been installed and used, without modification, renovation, or repair for not less than one year prior to date of bidding for this Project.

#### 1.4 CODES, REFERENCES AND STANDARDS

- A. Execute all Work in accordance with, and comply at a minimum with, National Fire Protection Association (NFPA) codes, state and local building codes, and all other applicable codes and ordinances in force, governing the particular class of Work involved, for performance, workmanship, equipment, and materials. Additionally, comply with rules and regulations of public utilities and municipal departments affected by connection of services. Where conflicts between various codes, ordinances, rules, and regulations exist, comply with the most stringent. Wherever requirements of these Specifications, Drawings, or both, exceed those of the above items, the requirements of these Specifications, Drawings, or both, shall govern. Code compliance, at a minimum, is mandatory.

Construe nothing in these Construction Documents as permitting work not in compliance, at a minimum, with these codes. Bring all conflicts observed between codes, ordinances, rules, regulations and these documents to the Architect's and Engineer's attention in sufficient time, prior to the opening of Bids, to prepare the Supplementary Drawings and Specifications Addenda required to resolve the conflict.

- B. If the conflict is not reported timely, prior to the opening of bids, resolve the conflict and provide the installation in accordance with the governing codes and to the satisfaction of the Architect and Engineer, without additional compensation. Contractor will be held responsible for any violation of the law.
- C. Obtain timely inspections by the constituted authorities having jurisdiction; and, upon final completion of the Work, obtain and deliver to the Owner executed final certificates of acceptance from these authorities having jurisdiction.
- D. All material, manufacturing methods, handling, dimensions, methods of installation and test procedures shall conform to industry standards, acts, and codes, including, but not limited to the following, except where these Drawings and Specifications exceed them:

IBC	International Building Code
ADA	Americans with Disabilities Act
AEIC	Association of Edison Illuminating Companies
ANSI	American National Standards Institute
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
CSA/USA	Canadian Standards Association/USA
ICEA	Insulated Conductors Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code, NFPA 70
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers' Association
NETA	InterNational Electrical Testing Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Act
UL	Underwriter's Laboratories

- E. Comply with rules and regulations of public utilities and municipal departments affected by connections of services.
- F. Perform all electrical work in compliance with applicable safety regulations, including OSHA regulations. All safety lights, guards, and warning signs required for the performance of the electrical work shall be provided by the Contractor.
- G. Obtain and pay for all permits, licenses and fees that are required by the governing authorities for the performance of the electrical work.

## 1.5 DEFINITIONS

- A. Whenever used in these Specifications or Drawings, the following terms shall have the indicated meanings:
  - 1. Furnish: "To supply and deliver to the project site, ready for unloading, unpacking, assembling, installing, and similar operations."
  - 2. Install: "To perform all operations at the project site, including, but not limited to, and as required: unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for the intended use."
  - 3. Provide: "To furnish and install complete, and ready for the intended use."
  - 4. Furnished by Owner (or Owner-Furnished) or Furnished by Others: "An item furnished by the Owner or under other Divisions or Contracts, and installed under the requirements of this Division, complete, and ready for the intended use, including all items and services incidental to the Work necessary for proper installation and operation. Include the installation under the warranty required by this Division."

5. Engineer: Where referenced in this Division, "Engineer" is the Engineer of Record and the Design Professional for the Work under this Division, and is a Consultant to, and an authorized representative of, the Architect, as defined in the General and/or Supplementary Conditions. When used in this Division, it means increased involvement by, and obligations to, the Engineer, in addition to involvement by, and obligations to, the "Architect".
  6. AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.
  7. NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA, etc.), and acceptable to the Authority having Jurisdiction (AHJ) over this project. Nationally Recognized Testing Laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ, and standards that meet the specified criteria.
- B. The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term "approved" shall mean labeled, listed, or both, by an NRTL, and acceptable to the AHJ over this project.
- C. Manufacturers: The listing of specific manufacturers does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed are not relieved from meeting these specifications in their entirety.
- D. The following definitions apply to excavation operations:
1. Additional Excavation: Where excavation has reached indicated sub-grade elevations, if unsuitable bearing materials are encountered, continue excavation until suitable bearing materials are reached. The Contract Sum may be adjusted by an appropriate Contract Modification.
  2. Sub-base: as used in this Section refers to the compacted soil layer used in pavement systems between the sub-grade and the pavement base course material.
  3. Sub-grade: as used in this Section refers to the compacted soil immediately below the slab or pavement system.
  4. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific direction from the Architect.

#### 1.6 COORDINATION

- A. Coordinate with other Divisions for electrical work included in them but not listed in Division 26 or indicated on electrical Drawings.
- B. Visit the site and ascertain the conditions to be encountered in installing the Work under this Division, verify all dimensions and locations before purchasing equipment or commencing work, and make due provisions for same in the bid. Failure to comply with this requirement shall not be considered justification for omission, alteration, and incorrect or faulty installation of any of the Work under this Division or for additional compensation for any Work covered by this Division.
- C. Refer to Drawings and Divisions of the other trades and to relevant equipment drawings and shop drawings to determine the extent of clear spaces. Make all offsets required to clear equipment, beams and other structural members, and to facilitate concealing conduit in the manner anticipated in the design.
- D. Provide materials with trim that will fit properly the types of ceiling, wall, or floor finishes actually installed.
- E. Maintain an electrical foreman on the jobsite at all times to coordinate this Work with other trades so that various components of the electrical systems is installed at the proper time, fits the available space, and allows proper service access to all equipment. Carry on the Work in such a manner that the Work of the other trades will not be handicapped, hindered, or delayed at any time.
- F. Work of this Division shall progress according to the "Construction Schedule" as described in Division 01 and as approved by the Architect. Cooperate in establishing these schedules and perform the Work under this Division, in a timely manner in conformance with the construction schedule so as to ensure successful achievement of all schedule dates.

#### 1.7 MEASUREMENTS AND LAYOUTS

- A. The Drawings are schematic in nature, but show the various components of the systems approximately to scale and attempt to indicate how they are to be integrated with other parts of the Work. Figured dimensions take precedence to scaled dimensions. Determine exact locations by job

measurements, by checking the requirements of other trades, and by reviewing all Contract Documents. Correct, at no additional costs to the Owner, errors that could have been avoided by proper checking and inspection.

## 1.8 SUBMITTALS

- A. Refer to Division 01 and General Conditions for submittal requirements.
- B. Submittals and shop drawings shall not contain HEI's firm name or logo, nor shall it contain the HEI's engineers' seal and signature. They shall not be copies of HEI's work product. If the contractor desires to use elements of such product, the license agreement for transfer of information at the end of this section must be used.
- C. Assemble and submit for review, manufacturers product literature for material and equipment to be furnished, installed, or both, under this Division, including shop drawings, manufacturers' product data and performance sheets, samples, and other submittals required by this Division . Provide the number of submittals required by Division 01; however, at a minimum, submit seven (7) sets.
- D. Provide submittals in sufficient detail so as to demonstrate compliance with these Contract Documents and the design concept. Highlight, mark, list or indicate the materials, performance criteria and accessories that are being proposed.
- E. Refer to individual Sections for additional submittal requirements.
- F. Transmit submittals as early as required to support the project schedule. Allow for two weeks Engineer review time, plus to/from mailing time via the Architect, plus a duplication of this time for resubmittals, if required. Transmit submittals as soon as possible after Notice to Proceed and before construction starts.
- G. Before transmitting submittals and material lists, verify that the equipment submitted is mutually compatible with and suitable for the intended use. Verify that the equipment will fit the available space and allow ample room for maintenance. If the size of equipment furnished makes necessary any change in location, or configuration, submit a shop drawing showing the proposed layout.
- H. Submittals shall contain the following information. Submittals not so identified will be returned to the Contractor without action:
  - 1. The project name.
  - 2. The applicable Specification Section and paragraph.
  - 3. The submittal date.
  - 4. The Contractor's stamp, which shall certify that the stamped drawings have been checked by the Contractor, comply with the Drawings and Specifications, and have been coordinated with other trades.
- I. Refer to Division 1 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 1. Contractor shall notify the Architect and Engineer that the shop drawings have been posted. If electronic submittal procedures are not defined in Division 1, Contractor shall include the website, user name and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the Architect and Engineer's designated representatives. Contractor shall allow the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal and shall clearly indicate the materials, performance criteria and accessories being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.
- J. The Engineer's checking and subsequent acceptance of such submittals shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications unless he has, in writing, called the Engineer's and Architect's attention to such deviations at the time of submission, and secured written acceptance; nor shall it relieve him from responsibility for errors in dimensions, details, sizes of members, or quantities; or for omissions of components or fittings; or for not coordinating items with actual building conditions and adjacent work.

## 1.9 ELECTRONIC DRAWING FILES

- A. In preparation of shop drawings or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format from the Engineer for a shipping and handling fee of \$200 for a drawing set up to 12 sheets and \$15 per sheet for each additional sheet. Contact the



Architect for Architect's written authorization. Contractor shall complete and send the form attached at the end of this section along with a check made payable to Henderson Engineers, Inc. Contractor shall indicate the desired shipping method and drawing format on the attached form. In addition to payment, Architect's written authorization and Engineer's release agreement form must be received before electronic drawing files will be sent.

#### 1.10 SUBSTITUTIONS

- A. Refer to Bid documents, General and Supplementary Conditions and Division 01 Specification Sections for limitations and restrictions on substitutions.
- B. Materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution.
- C. No substitutions will be considered with receipt of Bids, unless the Architect and Engineer have received from the Bidder a written request for approval to bid a substitution at least ten calendar days prior to the date for receipt of Bids, and have approved the substitution request. Include, with each such request, the name of the material or equipment for which substitution is being requested, and a complete description of the proposed substitution, including drawings, cut sheets, performance and test data, and all other information necessary for an evaluation. Include also a statement setting forth changes in other materials, equipment or other work that would be required to incorporate the substitution. The burden of proof of the merit of the proposed substitute is upon the proposer. The Architect's or Engineer's decision to approve or disapprove a substitution in a Bid is final.
- D. If the proposed substitution is approved prior to receipt of Bids, such approval will be stated in an Addendum. Bidders shall not rely upon approvals made in any other manner, including verbal.
- E. No substitutions will be considered after receipt of Bids and before award of the Contract.
- F. No substitutions will be considered after the Contract is awarded unless specifically provided in the Contract Documents.

#### 1.11 OPERATION AND MAINTENANCE DATA

- A. Refer to Division 01 and General Conditions for Operation and Maintenance Data.
- B. Submit data prior to requesting the final punch list and before all requests for Substantial Completion.
- C. Instruct the Owner's permanent personnel in the proper operation of, startup and shutdown procedures and maintenance of the equipment and components of the systems installed under this Division.
- D. Prior to Substantial Completion of the project, furnish to the Architect, for Engineer's review, and for the Owner's use, four (4) copies of brochures in three-ring, loose-leaf, hard-back notebook form, divided and tabbed, containing equipment data, approved submittals, shop drawings, diagrams, capacities, spare part numbers, manufacturer's service and maintenance data, warranties, guarantees, etc. Include local contacts complete with address and telephone number, for equipment, apparatus, and system components furnished and installed under this Division of the specifications.

#### 1.12 SPARE PARTS

- A. Provide to the Owner the spare parts specified in the individual sections of this Division.

#### 1.13 RECORD DRAWINGS

- A. Keep a set of jobsite work prints of the Issued for Construction Drawings on the jobsite during construction, for the purpose of annotating changes. During the course of construction, indicate on these Documents, changes made from the Conformed Contract Documents. Pay particular attention to those items that require locating for servicing.
- B. Refer to Division 01 and General Conditions for Record Drawings
- C. At the completion of the project, obtain reproducible vellum copies of the final Drawings and incorporate changes noted on the jobsite work prints onto these vellums. These changes shall be done by a skilled drafter. Mark each sheet "Record Drawing", along with the date, and deliver these Record Drawings to the Architect.
- D. At the completion of the project, obtain reproducible Mylar copies of the final Drawings and incorporate changes noted on the jobsite work prints onto these mylars. These changes shall be

done by a skilled drafter. Mark each sheet "Record Drawing", along with the date, and deliver these Record Drawings to the Architect.

#### 1.14 DELIVERY, STORAGE AND HANDLING

- A. Refer to Division 01 and General Conditions for Delivery, Storage and Handling.
- B. Deliver equipment and material to the job site in their original containers with labels intact, fully identified with manufacturer's name, make, model, model number, type, size, capacity and Underwriter's Laboratories, Inc. labels and other pertinent information necessary to identify the item.
- C. Deliver, receive, handle and store equipment and materials at the job site in the designated area and in such a manner as to prevent equipment and materials from damage and loss. Store equipment and materials delivered to the site on pallets and cover with waterproof, tear resistant tarp or plastic or as required to keep equipment and materials dry. Follow manufacturer's recommendations, and at all times, take every precaution to properly protect equipment and material from damage, including the erection of temporary shelters to adequately protect equipment and material stored at the Site. Equipment and/or material which becomes rusted or damaged shall be replaced or restored by the Contractor to a condition acceptable to the Architect and Engineer.
- D. Be responsible for the safe storage of tools, material and equipment.

#### 1.15 WARRANTIES

- A. Refer to Division 01 and General Conditions for Warranties.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- C. Warrant each system and each element thereof against all defects due to faulty workmanship, design or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in these Construction Documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects, occurring within the warranty period(s), as stated in the General Conditions and Division 01.
- D. Also warrant the following additional items:
  - 1. All raceways are free from obstructions, holes, crushing, or breaks of any nature.
  - 2. All raceway seals are effective.
  - 3. The entire electrical system is free from all short circuits and unwanted open circuits and grounds.
- E. The above warranties shall include labor and material. Make repairs or replacements without any additional costs to the Owner.
- F. Perform the remedial work promptly, upon written notice from the Architect or Owner.
- G. At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the one year period, each warranty instrument being addressed to the Owner and stating the commencement date and term.

#### 1.16 TEMPORARY FACILITIES

- A. Refer to Division 01 and General Conditions for Temporary Facilities requirements.
- B. Temporary Utilities: The types of services required include, but are not limited to, electricity, telephone, and internet. When connecting to existing franchised utilities for required services, comply with service companies' recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
- C. Construction Facilities: Provide facilities reasonably required to perform construction operations properly and adequately.
  - 1. Enclosures: When temporary enclosures are required to ensure adequate workmanship, weather protection and ambient conditions required for the work, provide fire-retardant treated lumber and plywood; provide tarpaulins with UL label and flame spread of 15 or less; provide translucent type (nylon reinforced polyethylene) where daylighting of enclosed space would be beneficial for workmanship, and reduce use of temporary lighting.
  - 2. Heating: Provide heat, as necessary, to protect work, materials and equipment from damage due to dampness and cold. In areas where building is occupied, maintain a temperature not less

than 65 degrees F. Use steam, hot water, or gas from piped distribution system where available. Where steam, hot water or piped gas are not available, heat with self-contained LP gas or fuel oil heaters, bearing UL, FM or other approval labels appropriate for application. Vent fuel-burning heaters, and equip units with individual-space thermostatic controls. Use electric-resistance space heaters only where no other, more energy-efficient, type of heater is available and allowable.

#### 1.17 PROJECT CONDITIONS

- A. Conditions Affecting Work In Existing Buildings: The following project conditions apply:
1. The Drawings describe the general nature of remodeling to the existing building; however, visit the Site prior to submitting bid to determine the nature and extent of work involved.
  2. Schedule Work in the existing building with the Owner.
  3. Perform certain demolition work prior to the remodeling. Perform the demolition that involves electrical systems, Light fixtures, equipment, raceways, equipment supports or foundations and materials.
  4. Remove articles that are not required for the new Work. Unless otherwise indicated, remove each item removed during this demolition from the premises and dispose in accordance with applicable federal, state and local regulations.
  5. Relocate and reconnect electrical facilities that must be relocated in order to accomplish the remodeling shown in the Drawings or indicated in the Specifications. Where electrical equipment or materials are removed, cap unused raceways below the floor line or behind the wall line to facilitate restoration of finish.
  6. Finish material will be installed under other Divisions.
  7. Obtain permission from the Architect for channeling of floors or walls not specifically noted on the Drawings.
  8. Protect adjacent materials indicated to remain. For Work specific to this Division, install and maintain dust and noise barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove protection and barriers after demolition operations are complete.
  9. Locate, identify, and protect electrical services passing through demolition area and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, provide temporary services for affected areas.

### **PART 2 - EXECUTION**

#### 2.1 PERMITS

- A. Secure and pay for all permits required in connection with the installation of the Electrical Work. Arrange with the various utility companies for the installation and connection of all required utilities for this facility and pay all charges associated therewith including connection charges and inspection fees, except where these services or fees are designated to be provided by others.

#### 2.2 SELECTIVE DEMOLITION

- A. Refer to Division 01, Division 02, and General Conditions for Selective Demolition requirements.
- B. General: Demolish, remove, demount, and disconnect abandoned electrical materials and equipment indicated to be removed and not indicated to be salvaged or saved.
- C. Materials and Equipment To Be Salvaged: Remove, demount, and disconnect existing electrical materials and equipment indicated to be removed and salvaged, and deliver materials and equipment to the location designated for storage.
- D. Disposal and Cleanup: Remove from the site and legally dispose of demolished materials and equipment not indicated to be salvaged.
- E. Electrical Materials and Equipment: Demolish, remove, demount, and disconnect the following items:
1. Inactive and obsolete raceways, fittings, supports and specialties, equipment, wiring, controls, fixtures, and insulation:
    - a. Raceways and outlets embedded in floors, walls, and ceilings may remain if such materials do not interfere with new installations. Cut embedded raceways to below finished surfaces, seal, and refinish surfaces as specified or as indicated on the Architectural finish Drawings. Remove materials above accessible ceilings. Cap raceways allowed to remain.
    - b. Perform cutting and patching required for demolition in accordance with Division 01,

General Conditions and "Cutting and Patching" portion of this Section in Division 26.

### 2.3 EXISTING CONDITIONS

- A. Existing conditions indicated on the Drawings are taken from the best information available from the Owner, existing record drawings, and from limited, in-situ, visual site observations; and, they are not to be construed as "AS BUILT" conditions. The information is shown to help establish the extent of the new Work.
- B. Verify all actual existing conditions at the project site and perform the Work as required to meet the existing conditions and the intent of the Work indicated.

### 2.4 EXISTING UTILITIES

- A. Schedule and coordinate with the Utility Company, Owner and with the Architect all connections to, relocation of, or discontinuation of normal utility services from any existing utility line. Include all premium time required for all such work in the Bid.
- B. Repair all existing utilities damaged due to construction operations to the satisfaction of the Owner or Utility Company without additional cost.
- C. Do not leave utilities disconnected at the end of a workday or over a weekend unless authorized by representatives of the Owner or Architect.
- D. Make repairs and restoration of utilities before workmen leave the project at the end of the workday in which the interruption takes place.
- E. Include in Bid the cost of furnishing temporary facilities to provide all services during interruption of normal utility service.

### 2.5 WORK IN EXISTING FACILITIES

- A. The Drawings describe the general nature of remodeling to the existing facilities; however, visit the Site prior to submitting a Bid, to determine the nature and extent of Work involved.
- B. Schedule Work in the existing facility with the Owner.
- C. Certain demolition work shall be performed prior to the remodeling. Perform the demolition that involves electrical systems, fixtures, conduit, wiring, equipment, equipment supports or foundations and materials.
- D. Remove all of these articles that are not required for the new Work. Unless otherwise indicated, each item removed during this demolition shall be removed from the premises and disposed of in accordance with all state and local regulations.
- E. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  - 1. Notify Owner no fewer than two days in advance of proposed interruption of electrical service.
  - 2. Do not proceed with interruption of electrical service without Owner's written permission.
- F. Relocate and reconnect all electrical facilities that must be relocated in order to accomplish the remodeling shown in the Drawings or indicated in the Specifications. Where electrical fixtures or equipment are removed, cap all unused raceways behind the floor line or wall line to facilitate restoration of finish, and, remove all existing wiring from abandoned raceways.
- G. Finish materials are specified in other Divisions.
- H. Where removal of existing wiring interrupts electrical continuity of circuits that are to remain in use, provide necessary wiring, raceways, junction boxes, etc., to ensure continued electrical continuity.
- I. Channel walls and floors as required to produce the desired result; however, obtain permission from the Architect or Owner for all channeling not specifically noted on the Drawings.

### 2.6 ACCESS TO EQUIPMENT

- A. Locate all pull boxes, junction boxes and controls so as to provide easy access for operation, service inspection and maintenance. Provide an access door where equipment or devices are located above inaccessible ceilings. Refer to Division 26 Section "Common Work Results for Electrical".
- B. Maintain all code required clearances and clearances required by manufacturers.

## 2.7 PENETRATIONS

- A. Unless otherwise noted as being provided under other Divisions, provide sleeves, box frames, or both, for openings in floors, walls, partitions and ceilings for all electrical work that passes through construction. Refer to Division 26 Section "Common Work Results for Electrical".
- B. Provide sleeves, box frames, or both, for all conduit, cable, and busways that pass through masonry, concrete or block walls.
- C. The cutting of new and/or existing construction will not be permitted except by written approval of the Architect.

## 2.8 CUTTING AND PATCHING

- A. Provide all necessary cutting of walls, floors, ceilings and roofs for work under this Division.
- B. Cut no structural member without permission from Architect.
- C. Patch around all openings to match adjacent construction.
- D. After the final waterproofing membrane has been installed, roofs may be cut only with written permission by the Architect.

## 2.9 PAINTING

- A. Re-finish all field-threaded ends of galvanized conduits and field-cut ends of galvanized supports with a cold-galvanizing compound approved for use on conductive surfaces. Follow closely manufacturer's instructions for pre-cleaning surfaces and application.
- B. Factory finishes and shop priming and special finishes are specified in the individual equipment Specification sections.
- C. Where factory finishes are provided and no additional field painting is specified, touch up or refinish, as required by, and to the acceptance of, the Architect and Engineer, marred or damaged surfaces so as to leave a smooth, uniform finish. If, in the opinion of the Architect or Engineer, the finish is too badly damaged to be properly re-finished, replace the damaged equipment or materials at no additional costs to the Owner.

## 2.10 CLEANING

- A. Remove dirt and refuse, resulting from the performance of the Work, from the premises as required to prevent accumulation. Cooperate in maintaining reasonably clean premises at all times.
- B. Immediately prior to final inspection, make a final cleanup of dirt and refuse resulting from Work and assist in making the premises broom clean. Clean all material and equipment installed under this Division.
- C. Remove dirt, dust, plaster, stains, and foreign matter from all surfaces.
- D. Touch up and restore damaged finishes to their original condition.

## 2.11 ADJUSTING, ALIGNING AND TESTING

- A. Adjust, align and test all electrical equipment furnished and/or installed under this Division.
- B. Check motors for alignment with drive and proper rotation, and adjust as required.
- C. Check and test protective devices for specified and required application, and adjust as required.
- D. Check, test and adjust adjustable parts of all light fixtures and electrical equipment as required to produce the intended performance.
- E. Verify that completed wiring system is free from short circuits, unintentional grounds, low insulation impedances, and unintentional open circuits.
- F. After completion, perform tests for continuity, unwanted grounds, and insulation resistance in accordance with the requirements of NFPA 70 and NETA.
- G. Be responsible for the operation, service and maintenance of all new electrical equipment during construction and prior to acceptance by the Owner of the complete project under this Contract. Maintain all electrical equipment in the best operating condition including proper lubrication.

- H. Notify the Architect immediately of all operational failures caused by defective material, labor or both.
- I. Maintain service and equipment for all testing of electrical equipment and systems until all Work is approved and accepted by the Owner.
- J. Keep a calibrated voltmeter and ammeter (true RMS type) available at all times. Provide service for test readings when and as required.
- K. Refer to individual Sections for additional and specific requirements.

#### 2.12 START-UP OF SYSTEMS

- A. Prior to start-up of electrical systems, check all components and devices, lubricate items appropriately, and tighten all screwed and bolted connections to manufacturers' recommended torque values using appropriate torque tools.
- B. Each power, lighting and control circuit shall be energized, tested and proved free of breaks, short-circuits and unwanted grounds.
- C. Adjust taps on each transformer for rated secondary voltages.
- D. Balance all single phase loads at each panelboard, redistributing branch circuit connections until balance is achieved to plus or minus 10 percent.
- E. Replace all burned-out lamps. Replace the lamps of all light fixtures that use incandescent, halogen or quartz lamp sources that are installed as part of the finished building, but are used by the Contractor during construction, with new lamps of appropriate type and wattage prior to turning the facility over to the Owner or Tenant.
- F. After all systems have been inspected and adjusted, confirm all operating features required by the Drawings and Specifications and make final adjustments as necessary.
- G. Demonstrate that all equipment and systems perform properly as designed per Drawings and Specifications.
- H. At the time of final review and tests of the power and lighting systems, all equipment and system components shall be in place and all connections at panelboards, switches, circuit breakers, and the like, shall be complete. All fuses shall be in place, and all circuits shall be continuous from point of service connections to all switches, receptacles, outlets, and the like.

#### 2.13 TEST REPORTS

- A. Perform tests as required by these Specifications and submit the results in the operations and maintenance manuals. The tests shall establish the adequacy, quality, safety, and reliability for each electrical system installed. Notify the Architect and Engineer two working days prior to each test.
- B. For specific testing requirements of special systems, refer to the Specification section that describes that system.
- C. Upon completing each test, record the results, date and time of each test and the conditions under which the test was conducted. Submit to the Architect, for Engineer's review, in duplicate, the test results for the following electrical items:
  - 1. Building service entrance voltage and amperes at each phase.
  - 2. Electrical service grounding conditions and grounding resistance.
  - 3. Proper phasing throughout the entire system.
  - 4. Voltages (phase-to-phase and phase-to-neutral) and amperes at each phase for each panelboard, switchboard, and the like.
  - 5. Phase voltages and amperes at each three-phase motor.
  - 6. Test all wiring devices for electrical continuity and proper polarity of connections.
- D. Promptly correct all failures or deficiencies revealed by these tests as determined by the Engineer.

#### 2.14 SUBSTANTIAL COMPLETION REVIEW

- A. Prior to requesting a site observation for "CERTIFICATION OF SUBSTANTIAL COMPLETION", complete the following items:
  - 1. Submit complete Operation and Maintenance Data.
  - 2. Submit complete Record Drawings.
  - 3. Perform all required training of Owner's personnel.

4. Turn over all spares and extra materials to the Owner, along with a complete inventory of spares and extra materials being turned over.
  5. Perform start-up tests of all systems.
  6. Remove all temporary facilities from the site.
  7. Comply with all requirements for Substantial Completion in the Division 01 and General Conditions.
- B. Request in writing a review for Substantial Completion. Give the Architect at least seven (7) days notice prior to the review.
  - C. State in the written request that the Contractor has complied with the requirements for Substantial Completion.
  - D. Upon receipt of a request for review, the Architect will either proceed with the review or advise the Contractor of unfilled requirements.
  - E. If the Contractor requests a site visit for Substantial Completion review prior to completing the above-mentioned items, he shall reimburse the Architect and Engineer for time and expenses incurred for the visit.
  - F. Upon completion of the review, the Architect and Engineer will prepare a "final list" of outstanding items to be completed or corrected for final acceptance.
  - G. Omissions on the "final list" shall not relieve the Contractor from the requirements of the Contract Documents.
  - H. Prior to requesting a final review, submit a copy of the final list of items to be completed or corrected. State in writing that each item has been completed, resolved for acceptance or the reason it has not been completed.

END OF SECTION 260010

AGREEMENT FOR TRANSFER OF INFORMATION  
MACHINE-READABLE FORMAT

PROJECT NAME: \_\_\_\_\_

PROJECT NO/PHASE: \_\_\_\_\_

Made this day, \_\_\_\_\_

By and Between Henderson Engineers, Inc., Lenexa, Kansas (hereinafter referred to as ENGINEER) and \_\_\_\_\_ (hereinafter referred to as RECIPIENT).

The enclosed electronic media are provided pursuant to your request for the purpose of production of shop drawings or record drawings. In using it, modifying it, or accessing information from it, you are responsible for confirmation, accuracy, and checking of the data from the media. ENGINEER hereby disclaims any and all responsibility from any results obtained in use of this electronic media and does not guarantee any accuracy of the information.

RECIPIENT agrees that it shall not use the information provided by ENGINEER for any purpose other than that described above without the express written consent of ENGINEER. RECIPIENT also hereby acknowledges that the data delivered by ENGINEER is for use by RECIPIENT only, and is not to be released to any other party without the written consent of the ENGINEER and does not transfer ownership of the instruments of professional service.

RECIPIENT understands that the automated conversion of information and data from the system and format used by ENGINEER to an alternate system or format cannot be accomplished without the possibility of introduction of inaccuracies, anomalies, and errors. In the event project documentation provided to RECIPIENT in machine readable form is so converted, RECIPIENT agrees to assume all risk associated therewith, and to the fullest extent permitted by law, to hold harmless and indemnify ENGINEER from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising therefrom or in connection therewith.

RECIPIENT recognizes that changes or modifications to ENGINEER'S instruments of professional service introduced by anyone other than ENGINEER may result in adverse consequences that ENGINEER can neither predict nor control. Therefore, and in consideration of ENGINEER'S agreement to deliver its instruments of professional service in machine readable format, RECIPIENT agrees, to the fullest extent permitted by law to hold harmless and indemnify ENGINEER from and against all claim, liabilities, losses, damages, and costs, including misuse or reuse by others of the machine readable information and data provided by ENGINEER under this Agreement. The foregoing indemnification applies, without limitation, to any use of the project documentation on another project, for additions to this project, or for completion of this project by others; ENGINEER may authorize excepting only such use in writing.

Send a check for shipping and handling costs in the amount of \$200 for an electronic drawing set up to 12 sheets plus \$15 per sheet in excess of 12 sheets payable to Henderson Engineers, Inc. along with completed and signed agreement and Architect's written authorization to receive electronic media. Be sure to indicate below the desired shipping method, format type and media type.

Sheet numbers requested: \_\_\_\_\_

1-12 sheets @ \$200 + \_\_\_\_\_ sheet(s) @ \$15 each = \$\_\_\_\_\_ total due to Henderson Engineers, Inc.

Signature  
HENDERSON ENGINEERS, INC.

Signature  
RECIPIENT

Date \_\_\_\_\_

Date \_\_\_\_\_

Shipping Method

- E-Mail  
 First Class Mail  
 FedEx Overnight (No P.O.Boxes)

Shipping or E-Mail Address:

Format

- AutoCAD 2000/2002  
 AutoCAD 2004/2005  
 DXF

Media

- CD-ROM  
 DVD

Phone:



## SECTION 260500 COMMON WORK RESULTS FOR ELECTRICAL

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes limited scope general construction materials and methods, electrical equipment coordination, and common electrical installation requirements as follows:
  - 1. Access doors in walls, ceilings, and floors for access to electrical materials and equipment.
  - 2. Electrical equipment nameplate data.
  - 3. Sleeves and seals for electrical penetrations.
  - 4. Joint sealers for sealing around electrical materials and equipment, and for sealing penetrations in fire and smoke barriers, floors, and foundation walls.
  - 5. Sealing penetrations through noise critical spaces.

#### 1.2 RELATED SECTIONS INCLUDE THE FOLLOWING:

- A. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this Section.
- B. Division 26 Section "Equipment Wiring Systems" for electrical connections to equipment specified under other Sections, Divisions, or furnished by the Owner.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Division 26 Section "General Electrical Requirements":
  - 1. Product data for the following products:
    - a. Sleeve seals.
    - b. Through and membrane penetration firestopping systems.
    - c. Joint Sealers
    - d. Acoustical sealers
  - 2. Shop drawings for:
    - a. Detailed fabrication drawings of access panels and doors.
  - 3. Detailed list of proposed nameplates for Owner/Engineer review and acceptance before fabrication and attachment.
  - 4. Through and Membrane Penetration Firestopping Systems Product Schedule: Provide UL listing, location, wall or floor rating and installation drawing for each penetration fire stop system.
    - a. Where Project conditions require modification to qualified testing and inspecting agency's illustrations for a particular firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.
    - b. Qualifications Data for testing agency.
  - 5. Record Drawings: Submit Record Drawings as required by Division 1 and Division 26
    - a. Accurately record actual locations of firestopped penetrations and access panel/door locations. Indicate dimensions from fixed structural elements.

#### 1.4 DEFINITIONS

- A. The following abbreviations apply to this and other Sections of these Specifications:
  - 1. AFF: Above Finished Floor
  - 2. AHJ: Authority(ies) having Jurisdiction
  - 3. ATS: Acceptance Testing Specifications
  - 4. EMT: Electrical Metallic Tubing
  - 5. RNC: Rigid Nonmetallic Conduit
- B. The following definitions apply to this and other Sections of these Specifications:
  - 1. HOMERUN: That portion of an electrical circuit originating at a junction box, termination box, receptacle or switch with termination at an electrical panelboard. Note: Where MC Cable is utilized for receptacle and/or lighting branch circuiting loads, the originating point of the homerun shall be at the first load in the circuit or at a junction box in an accessible ceiling space immediately above the first load.

## 1.5 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment:
  - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
  - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
  - 3. To allow right of way for piping, ducts, and other systems installed at required slopes and/or elevations.
  - 4. So connecting raceways, cables, and wireways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed.
- D. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

## PART 2 - PRODUCTS AND MATERIALS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
- B. Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

### 2.2 NAMEPLATES

- A. Engraved, contrasting color, three-layer, laminated plastic indicating the name of the equipment, load, or circuit as designated on the Drawings and in the Specifications.
- B. Self-adhering, with a permanent, weatherproof adhesive. Attachment method shall be acceptable to the manufacturers of the equipment to which the nameplates are being applied.
- C. Color: black background with white letters for Normal Power; red background with white letters for Emergency Power. Letter height: 1/4-inch minimum as indicated on the Drawings.

### 2.3 STEEL SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends and drip rings.

### 2.4 CAST IRON WALL PIPE SLEEVES FOR RACEWAYS AND CABLES

- A. Manufacturers
  - 1. Josam Mfg. Co.
  - 2. Smith (Jay R) Mfg. Co.
  - 3. Tyler Pipe/Wade Div.; Subs of Tyler Corp.
  - 4. Watts Industries, Inc.
  - 5. Zurn Industries, Inc.; Hydromechanics Div.
- B. Cast-iron sleeve with integral clamping flange with clamping ring, and nuts for membrane flashing.
  - 1. Underdeck Clamp: Clamping ring with setscrews.
- C. Sleeves for rectangular Openings: Galvanized sheet steel with minimum [0.052-] [or] [0.138-]inch thickness as indicated and of length to suit application.
- D. Coordinate sleeve selection and application with selection and application of firestopping specified in

Division 7 Section "Through-Penetration Firestop Systems."

2.5 FIRESTOPPING

- A. Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with UL 2079 or ASTM E 814, by Underwriters' Laboratories, Inc., or other NRTL acceptable to AHJ.
  - 1. Manufacturer:
    - a. Hilti, Inc.
    - b. RectorSeal.
    - c. Specified Technologies Inc.
    - d. 3M Corp.
    - e. United States Gypsum Company.

**PART 3 - EXECUTION**

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items, unless indicated otherwise.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- E. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 ACCESS DOORS

- A. Furnish adequately sized access doors for the devices served, with a minimum size of 18 inches x 18 inches, for installation under Division 09 "Finishes".
- B. Furnish access doors of the proper construction for type of ceiling or wall construction where installed.
- C. Verify the exact location, sizes, and types of all access doors with the Architect prior to purchase.
- D. Provide access doors for all concealed electrical equipment, except where above lay-in ceilings.
- E. Coordinate with architectural finishes to set frames accurately in position and securely attached to supports, with face panels plumb and level in relation to adjacent finish surfaces.
- F. Adjust hardware and panels after installation for proper operation.
- G. Label all access doors per Paragraph "Nameplates" herein Division 26 Section "Identification for Electrical Systems".

3.3 NAMEPLATES

- A. Provide nameplates for the following items:
  - 1. Switchboards
  - 2. Panelboards
  - 3. Disconnect switches
  - 4. Enclosed circuit breakers
  - 5. Starters
  - 6. Miscellaneous cabinets
  - 7. Access panels
  - 8. Feeder devices in switchboards, distribution panelboards, and motor control centers
  - 9.
- B. Attach nameplates securely and permanently to the equipment, and in a manner acceptable to the equipment manufacturer.

C. Construction in Existing Facilities:

1. Saw cut or core drill existing walls and slabs to install sleeves and sleeve seals in existing facilities. Do not cut or drill any walls or slabs without first coordinating with, and receiving approval from, the Architect, Owner, or both. Seal sleeves and sleeve seals into concrete walls or slabs with a waterproof non-shrink grout acceptable to the Architect.
- 2.

3.4 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire/smoke-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

END OF SECTION 260500

## **SECTION 260502 EQUIPMENT WIRING SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

This Section includes limited scope for electrical connections to equipment specified under other Sections or Divisions, or furnished under separate contracts or by the Owner.

A. Related Sections include the following:

1. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this Section.
2. Division 26 Section "Raceway and Boxes for Electrical Systems" for raceways.
3. Division 26 "Low-voltage Electrical Power Conductors and Cables" for conductors, cables, and cords.
4. Division 26 Section "Wiring Devices" for devices installed in boxes and for floor-box service fittings.
  - a.

#### **1.2 QUALITY ASSURANCE**

A. Electrical Components, Devices, and Accessories:

1. Listed and labeled as defined in NFPA 70, Article 100, by an NRTL as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
2. Marked for intended use.

B. Comply with NFPA 70.

#### **1.3 COORDINATION**

- A. Unless otherwise noted, perform all electrical Work required for the proper installation and operation of equipment, furnishings, devices and systems specified in other Divisions of these Specifications, furnished under other contracts, and/or furnished by the Owner for installation under this Contract.
- B. Coordinate work with Division 23 Section, "Common Work Results for HVAC".
- C. Obtain and review shop drawings, product data, and manufacturer's instructions for equipment furnished under other sections.
- D. Determine connection locations and rough-in requirements based on Shop Drawings.
- E. Sequence rough-in of electrical connections to coordinate with installation schedule for equipment.
- F. Sequence electrical connections to coordinate with start-up schedule for equipment.

### **PART 2 - PRODUCTS AND MATERIALS**

#### **2.1 CORDS AND CAPS**

- A. Attachment Plugs: Conform to NEMA WD 1.
- B. Configuration: NEMA WD 6, matching receptacle configuration at outlet provided for equipment, or as required by the equipment manufacturer.
- C. Cord: See Paragraph "Flexible Cords" in Division 26 Section "Low-voltage Electrical Power Conductors and Cables".
- D. Provide cord size suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify conditions of equipment and installation prior to beginning work.

- B. Verify that equipment is ready for connecting, wiring, and energizing.

### 3.2 ELECTRICAL DEVICES

- A. Install disconnect switches, controllers, control stations, and control devices (other than temperature control devices) as indicated.
- B. Install disconnect switches, controllers, control stations, and control devices (other than temperature control devices) specified in other Divisions of these Specifications, furnished under other contracts, and/or furnished by the Owner for installation under this Contract.

### 3.3 ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with equipment manufacturers' instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquid tight flexible conduit with watertight connectors in damp or wet locations.
- C. Make wiring connections using conductors and cable with insulation suitable for temperatures encountered in heat producing equipment.
- D. Provide receptacle outlet where connection with attachment plug is indicated. Provide cord and cap where field-supplied attachment plug is indicated on the Drawings.
- E. Provide suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- F. Provide interconnecting conduit and wiring between devices and equipment where indicated on the Drawings.

**END OF SECTION 260502**

**SECTION 260519**  
**LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes:
  - 1. Conductors, cables, and cords rated 600V and less.
  - 2. Connectors and terminations rated 600V and less.

**1.2 RELATED SECTIONS INCLUDE THE FOLLOWING:**

- A. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this Section.
- B. Division 26 Section "Common Work Results for Electrical" for sleeves and seals for electrical penetrations.
- C. Division 26 Section "Grounding and Bonding for Electrical Systems" for conductors and connectors for grounding systems.
- D. Division 26 Section "Equipment Wiring Systems" for electrical connections to equipment specified under other Sections, Divisions, or furnished by the Owner.

**1.3 ABBREVIATIONS AND DEFINITIONS**

- A. The following abbreviations apply to this and other Sections of these specifications:
  - 1. NBR: Acrylonitrile-butadiene rubber
- B. The following definitions apply to this and other Sections of these Specifications:
  - 1. HOMERUN: That portion of an electrical circuit at a junction box, termination box, receptacle or switch with termination at an electrical panelboard. Note: MC Cable is utilized for receptacle and/or lighting branch circuiting loads, the originating point of the homerun shall be at the first load in the circuit or at a junction box in an accessible ceiling space immediately above the first load.

**1.4 QUALITY ASSURANCE**

- A. Materials shall be manufactured by companies that have been specializing in the products specified in this Section, for a minimum of 3 years.
- B. Electrical Components, Devices, and Accessories:
  - 1. Listed and labeled as defined in NFPA 70, Article 100, by an NRTL as defined by OSHA in 29 CFR 1910.7, and that is acceptable to AHJ.
  - 2. Marked for intended use.
- C. Comply with NFPA 70.

**1.5 COORDINATION**

- A. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

**PART 2 - PRODUCTS AND MATERIALS**

**2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
- B. Where a list is provided, manufacturers are listed alphabetically and not in accordance with any

ranking or preference.

## 2.2 CONDUCTORS AND CABLES

### A. General

1. Manufacturer[s]:
  - a. Advance Wire and Cable
  - b. AFC Cable Systems, Inc.
  - c. Alan Wire
  - d. ALFLEX Corporation, a Southwire Company
  - e. American Insulated Wire Corp.; a Leviton Company
  - f. Encore Wire Corporation
  - g. General Cable (Flexible Cords)
  - h. Northern Cables Inc.
  - i. Okonite Company
  - j. Southwire Company
2. Conductor Material: Annealed (soft) copper complying with ICEA S-95-658/NEMA WC70 and UL Standards 44 or 83, as applicable; solid conductor for No. 10 AWG and smaller; concentric, compressed stranded for No. 8 AWG and large and stranded for all flexible cords, cables, and control wiring.
3. Conductor Insulation Types: Type THHN/THWN-2 complying with ICEA S-95-658/NEMA WC70 or as noted otherwise below.
4. Sizes of conductors and cables indicated or specified are American Wire Gage (Brown and Sharpe).
5. Unless indicated otherwise, special purpose conductors and cables, such as low voltage control and shielded instrument wiring, shall be as recommended by the system equipment manufacturer.
6. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

### B. Nonmetallic Sheathed Cable

1. NM or NMC cable:
  - a. 600V, THHN- or XHHW-insulated conductors (2, 3 or 4 as indicated on Drawings or as required); color code: ICEA Method 1, with green insulated or bare grounding conductor; color-coded PVC-jacket for quick identification of conductor size; UL Standards 44 or 83 (as applicable), and 719, NFPA 70 Article 334.
  - b.

### C. Single Conductors

1. 600V, THHN/THWN-insulated conductors, [color-coded as follows:

<u>PHASE</u>	<u>120/240V</u>
A	Black
B	Red
C	N/A
Neutral	White
Equipment Ground	Green
Isolated Ground	N/A

\*\*Except as provided in NFPA 70.

2. Conductors shall not be smaller than No. 12 AWG, except that wiring for signal and pilot control circuits and pre-manufactured whips for light fixtures may be No. 14 AWG.

### D. Flexible Cords

1. 300V, multi-conductor (2, 3, or 4 as indicated on the Drawings), oil-resistant black jacket, hard-usage; Type SJE0,SJO, or SJTO for indoor dry locations; SJEOW,SJOW, or SJTOW for damp, wet, and outdoor locations; or as required by the manufacturer of the equipment to which the cords are connected.

### E. Control Wiring

1. Unless otherwise noted, all control wiring will be the responsibility of the Section or Division in



which the control system is specified.

F. Connectors

1. Manufacturer[s]:
  - a. AMP; Tyco
  - b. FCI-Burndy
  - c. Gould
  - d. Ideal Industries, Inc.
  - e. IlSCO
  - f. NSI Industries, Inc.
  - g. O-Z/Gedney
  - h. Panduit
  - i. Thomas and Betts
  - j. 3-M Electrical Products Division
2. Mechanical connections for conductors No. 8 AWG and larger: UL-listed, copper and/or tinned aluminum, dual-rated, mechanical type, insulated with clamp-on, cold-shrink, or molded covers, or wrapped with multiple over-lapping layers of 3-M Scotch electrical tape.
  - a. Termination fittings: 1 or 2-hole pad and inspection port.
3. Connectors for solid conductors No. 10 AWG and smaller: Insulated winged wire nuts. Color-coded for size, except use green only for grounding connections.
4. Connectors for stranded conductors No. 10 AWG and smaller: Tinned copper, insulated-sleeve, compression type, UL-listed, with wire insulation grip. Terminations: flanged fork-tongue type.
5. Connectors and terminations for aluminum conductors and cables No. 2 and larger: UL 486B listed and marked AL7CU for 75 deg C rated conductors and AL9CU for 90 deg C rated conductors.

### **PART 3 - EXECUTION**

#### **3.1 CONDUCTORS AND CABLES**

A. General:

1. Unless otherwise indicated on the Drawings or in other Sections, install all conductors in raceway. Install continuous conductors between outlets, devices and boxes without splices or taps. Do not pull connections into raceways. Leave at least 8 inches of conductor at outlets for fixture or device connections.
2. Use manufacturer-approved pulling compound or lubricant where necessary; compound used shall not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
3. Use pulling means, including fish tape, cable, rope, and basket weave conductor/cable grips that will not damage conductors/cables or raceway.
4. Electrical conductor and cable work is schematically represented on the Drawings. Unless otherwise indicated, conductor sizes shown on the Drawings are based on not more than three single current-carrying conductors in a raceway in free air. Current ratings are based on copper at 75 degrees C temperature rating for all power circuits. Modify raceway and conductor sizing as may be necessitated by any deviation from these conditions. Do not decrease the indicated conductor size due to the use of conductors having a temperature rating of 90 degrees C.
5. Conductor sizes shown are minimum based on code requirements, voltage drop, and/or other considerations. Where approved by the Engineer and at no extra cost to the Owner, larger conductor sizes may be installed at Contractor's option in order to utilize stock sizes, provided raceway sizes are increased where necessary to conform with NFPA 70 (determine the effect of the use of larger conductors on the short circuit current ratings of the electrical equipment, and provide increased short circuit current rated equipment as required).
6. Where parallel conductors are shown, install each set of conductors in separate raceways of essentially the same length.
7. Wiring at Outlets: Install conductors at each outlet with at least 6 inches of slack.
8. Common or Shared Neutrals are not allowed unless shown on the plans or specifically noted to be allowed.
9. Multi-wire branch circuits (i.e., shared neutral) shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point the branch circuit originates. Multi-pole breakers or 3 single pole breakers with a handle tie are two examples.

10. When multiple home runs are combined into a single raceway such that the number of conductors exceeds four (conductor count is made up of any combination of phase and neutral conductors), the following restrictions apply, which are in addition to those in NFPA 70:
  11. For branch circuits fed from GFCI circuit breakers, limit the one-way conductor length to 100 feet between the panelboard and the most remote receptacle or load on the GFCI circuit.
  12. Where the number of conductors for branch circuits is not shown on the Drawings, determine the number of conductors in accordance with NFPA 70. Provide adequate conductors so as to allow performance of all functions of the device.
  13. Provide all conductors with 600V insulation of the following types, unless otherwise noted on the Drawings or in these Specifications:
    - a. Wet or dry locations, in raceways:
      - 1) Service entrance: Type THWN, THWN/THHN, or XHHW.
      - 2) Feeders and branch circuits: Type THWN, THWN/THHN, or XHHW.
      - 3) Conductors No. 6 AWG and smaller: Types THWN or THWN/THHN.
- B. Type NM or NMC Cables:
1. When permitted for use by these documents, do not install NM or MNC cables above suspended ceilings in commercial facilities.
- C. Flexible Cords
1. Refer to Division 26 Section, "Equipment Wiring Systems", for electrical connections to equipment.
- D. Control Wiring
1. Unless otherwise indicated on the Drawings or in other sections, install all control wiring in raceway, regardless of voltage. A qualified Electrician shall install all control wire operating at 120V nominal and above. Control wiring operating at less than 120V (e.g., 12V and 24V) may be installed under the Division furnishing it.
  2. Open wiring in air-handling plenums: UL listed and classified for use in air plenums without raceway. Where indicated on the Drawings or specified, and permitted by local codes, only cable for communication or fire alarm systems and low voltage control wiring may be installed without raceways.
- E. Connections:
1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
  2. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  3. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
  4. Use only resin pressure splices and splicing kits that totally encapsulate the splice for splices in underground junction boxes. Arrange the splicing kit to minimize the effects of moisture.
  5. Connect conductors No. 6 AWG and larger to panelboards and apparatus by means of approved mechanical lugs or compression connectors.
  6. Do not use terminals on wiring devices to feed through to the next device.

### 3.2 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing:
1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements. Test all wiring prior to energizing to ensure that it is free from unintentional grounds and shorts, is properly phased, and that all connectors are tight.
  2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3. Certify compliance with test parameters.
- B. Test Reports: Prepare a written report to record the following:
1. Test procedures used.
  2. Test results that comply with requirements.
  3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

**END OF SECTION 260519**

**SECTION 260526**  
**GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

**PART 1 - GENERAL**

**1.1 SUMMARY:**

- A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.
- B. This Section includes:
  - 1. Grounding Conductors
  - 2. Connector Products
  - 3. Grounding Electrodes
  - 4. Ground Bars
  - 5. Equipotential Grounding System
  - 6. Miscellaneous Grounding Materials and Products

**1.2 RELATED SECTIONS INCLUDE THE FOLLOWING:**

- A. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this section.
- B. Division 26 Section "Raceway and Boxes for Electrical Systems" for raceways.

**1.3 SUBMITTALS**

- A. General: Submit the following in accordance Division 26 Section "General Electrical Requirements":
- B. Record Drawings: Submit Record Drawings as required by Division 26 Section "General Electrical Requirements":

**1.4 DEFINITIONS**

- A. The following apply to this and other Sections of these Specifications:
  - 1. EMT: Electrical metallic tubing.

**1.5 QUALITY ASSURANCE**

- A. Materials shall be manufactured by companies that have been specializing in the products specified in this Section, for a minimum of 3 years.
- B. Test Equipment Suitability and Calibration: Comply with NETA ATS (current version), "Suitability of Test Equipment" and "Test Instrument Calibration."
- C. Testing Agency Qualifications: An independent testing agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

**PART 2 - PRODUCTS AND MATERIALS**

**2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
- B. Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

**2.2 GROUNDING CONDUCTORS, CONNECTORS, AND ELECTRODES:**

A. Manufacturers:

1. Apache Grounding/Erico Inc.
2. Boggs, Inc.
3. Chance/Hubbell.
4. Copperweld Corp.
5. Dossert Corp.
6. Erico Inc.; Electrical Products Group.
7. FCI/Burndy Electrical.
8. Galvan Industries, Inc.
9. Harger Lightning Protection, Inc.
10. Hastings Fiber Glass Products, Inc.
11. Heary Brothers Lightning Protection Co.
12. Ideal Industries, Inc.
13. ILSCO.
14. Kearney/Cooper Power Systems.
15. Korn: C. C. Korn Co.; Division of Robroy Industries.
16. Lightning Master Corp.
17. Lyncole XIT Grounding.
18. O-Z/Gedney Co.; a business of the EGS Electrical Group.
19. Panduit, Inc
20. Raco, Inc.; Division of Hubbell.
21. Robbins Lightning, Inc.
22. Salisbury: W. H. Salisbury & Co.
23. Superior Grounding Systems, Inc.
24. Thomas & Betts, Electrical.

2.3 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 26 Section "Common Work Results for Electrical."
- B. Material: Aluminum, copper-clad aluminum, and copper.
- C. Equipment Grounding Conductors: Insulated with green-colored insulation.
- D. Bare Copper Conductors: Comply with the following:
  1. Solid Conductors: ASTM B 3.
- E. Copper Bonding Conductors: As follows:
  1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
  2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
  3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
  4. Tinned Bonding Jumper: Tinned-copper tape, braided copper conductors, terminated with copper ferrules; 1-5/8 inches (wide and 1/16 inch thick.

2.4 CONNECTOR PRODUCTS

- A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.
- B. Bolted Connectors: Bolted-pressure-type connectors
  1. Compression Connectors: Burndy Hyground, or equal, permanent, pure, wrought copper, meeting ASTM 8 1 87, essentially the same as the conductors being connected; clearly and permanently marked with the information listed below:
    - a. Company symbol and/or logo.
    - b. Catalog number.
    - c. Conductors accommodated.
    - d. Installation die index number or die catalog number is required.
    - e. Underwriters Laboratories "Listing Mark:".
    - f. The words "Suitable for Direct Burial" or, where space is limited, "Direct Burial" or "Burial" per UL Standard ANSI/UL467 (latest revision).
  2. Cast connectors: copper base alloy according to ASTM B 30 (latest revision).

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Examine areas and conditions under which electrical grounding connections are to be made and notify the Architect/Engineer in writing of conditions detrimental to proper completion of the work. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Provide all materials, labor and equipment for an electrical grounding system in accordance with applicable portions of the NEC and NECA. Coordinate electrical work as necessary to interface installation of electrical grounding systems with other work.
- C. Accomplish grounding and bonding of electrical installations and specific requirements for systems, circuits and equipment required to be grounded for both temporary and permanent construction.

### **3.2 APPLICATION**

- A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
- B. In branch circuit and feeder raceways, use insulated equipment grounding conductors.
- C. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated on the Drawings.
  - 1. Use insulated spacers and mounting brackets, and support from wall **8** feet above finished floor, unless otherwise indicated.
  - 2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the specified height above the floor.

### **3.3 EQUIPMENT GROUNDING CONDUCTORS**

- A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
- B. Install equipment grounding conductors in all feeders and branch circuits.
- C. Install insulated equipment grounding conductor with circuit conductors for the following items, in addition to those required by NFPA 70:
  - 1. Feeders and branch circuits.
  - 2. Lighting circuits.
  - 3. Receptacle circuits.
  - 4. Single-phase motor and appliance branch circuits.
  - 5. Three-phase motor and appliance branch circuits.
  - 6. Flexible raceway runs.
  - 7. Armored and metal-clad cable runs.
  - 8. Feeders and branch circuits installed in non-metallic raceways.
- D. Grounding Conductors: Where the size of the grounding conductors are not shown, size in accordance with NEC Table 250.122 Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

### **3.4 CONNECTIONS**

- 1. .
- B. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- C. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and **UL 486B**.

### **3.5 FIELD QUALITY CONTROL**

- A. Testing: Perform the following field quality-control testing:
  - 1. After installing grounding system but before permanent electrical circuitry has been energized,

2. test for compliance with requirements.
3. Test Values:
  - a. The resistance between the main grounding electrode and earth ground shall be no greater than 25 ohms.

**END OF SECTION 260526**

## **SECTION 260533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS**

### **PART 1 - GENERAL REQUIREMENTS**

#### **1.1 SUMMARY**

- A. This Section includes:
  - 1. Raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

#### **1.2 RELATED SECTIONS INCLUDE THE FOLLOWING:**

- A. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this Section.
- B. Division 26 Section "Common Work Results for Electrical" for limited scope general construction materials and methods.
- C. Division 26 Section "Equipment Wiring Systems" for electrical connections to equipment specified under other Sections, Divisions, or furnished by the Owner.
- D. Division 26 Section "Grounding and Bonding".
- E. Division 26 Section "Wiring Devices" for devices installed in boxes, power poles, and multi-outlet assemblies.

#### **1.3 DEFINITIONS**

- A. Terminology used in this specification is as defined below:
  - 1. EMT: Electrical Metallic Tubing

#### **1.4 QUALITY ASSURANCE**

- A. Materials shall be manufactured by companies that have been specializing in the products specified in this Section, for a minimum of 3 years.
- B. Electrical Components, Devices, and Accessories:
  - 1. Listed and labeled as defined in NFPA 70, Article 100, by an NRTL as defined by OSHA in 29 CFR 1910.7, and that is acceptable to AHJ.
  - 2. Marked for intended use.
- C. Comply with NFPA 70.

### **PART 2 - PRODUCTS AND MATERIALS**

#### **2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
- B. Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

#### **2.2 CONDUITS, SURFACE MOUNTED RACEWAYS AND ACCESSORIES**

- A. Metal Conduit And Tubing
  - 1. Manufacturers:
    - a. AFC Cable Systems, Inc.
    - b. Alflec Corporation, a Southwire Company
    - c. Anamet Electrical, Inc.; Anaconda Metal Hose.
    - d. Electri-Flex Co.
    - e. Indalex



- f. Manhattan/CDT/Cole-Flex
  - g. O-Z/Gedney; Unit of General Signal (Fittings)
  - h. Republic Raceway
  - i. Tyco International; Allied Tube & Conduit Div.
  - j. Wheatland Tube Co.
2. EMT and Fittings: ANSI C80.3, UL 797.
    - a. Fittings: Set-screw or compression type.
  3. Fittings: NEMA FB 1; compatible with raceway and tubing materials.
- B. Metal Wireways
1. Two-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard color.
  2. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.

## 2.3 BOXES, ENCLOSURES AND CABINETS

### A. General

1. Manufacturer[s]:
  - a. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
  - b. Emerson/General Signal; Appleton Electric Company.
  - c. Erickson Electrical Equipment Co.
  - d. Hoffman.
  - e. Hubbell, Inc.
  - f. Killark Electric Manufacturing Co.
  - g. O-Z/Gedney; Unit of General Signal.
  - h. RACO; Division of Hubbell, Inc.
  - i. Robroy Industries, Inc.; Enclosure Division.
  - j. Scott Fetzer Co.; Adalet-PLM Division.
  - k. Spring City Electrical Manufacturing Co.
  - l. Thomas & Betts Corporation.
  - m. Walker Systems, Inc.; Wiremold Company (The).
  - n. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary

### B. Outlet Boxes

1. Nonmetallic Outlet and Device Boxes: NEMA OS 2
2. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified in the following paragraphs. Manufacturers and model numbers listed are used only to represent the characteristics required and are not intended to restrict the use of other Available Manufacturers listed above and models that meet the specified criteria.
  - a. Concealed and exposed boxes for lighting:
    - 1) Appleton 40-3/4.
    - 2) RACO 160 series.
    - 3) Steel City 54170 series.
  - b. Boxes for flush switches, receptacles, telephone, data or other general devices:
    - 1) Appleton 4SVB series; 8400 series cover.
    - 2) RACO 198 series; 770 series cover.
    - 3) Steel City CWV series; 52-C-00 series cover.

- 
- c. Removable painted steelplywood interior panel mounted on standoffs; metal barriers to separate wiring of different systems and voltages.
  - d. Where keyed locks are indicated, provide 2 keys for each enclosure, with all locks keyed alike.
  - e. Provide enclosures wider than 36 inches with double doors; removable center posts; internal bracing, supports, or both, as required to maintain their structural integrity; and, accessory feet where required for freestanding equipment.
  - f. Provide clamps, grids, slotted wireways, or similar devices to which or by which wiring may be secured. Provide DIN-rail mounted terminal strips for terminating all incoming and outgoing control wiring, and power terminal blocks for incoming/outgoing power wiring.

- g. Provide metal barriers to separate compartments containing control wiring operating at less than 50 volts from power and higher-voltage control wiring.

## 2.4 FACTORY FINISHES

- A. Finish: For metal wireway and surface raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled metal wireway and surface raceways, enclosures, and cabinets before shipping.

## **PART 3 - EXECUTION**

### 3.1 RACEWAYS

#### A. General

1. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on drawings or in this article are stricter.
2. Provide sizes and types of raceways as indicated on the Drawings. Sizes are based on THWN insulated copper conductors, except where noted otherwise. Where sizes are not shown on the Drawings or in the Specifications, size raceways in accordance with NFPA 70 requirements for the number, size and type of conductors installed. Minimum raceway size: 1/2 inch (concealed and exposed); 1 inch (underground and under slab).
3. Provide all raceways, fittings, supports, and miscellaneous hardware required for a complete electrical system as described by the Drawings and Specifications.
4. Install a green-insulated, equipment-grounding conductor, which is bonded to the electrical system ground, in all raceways, with the exception of Service Entrance raceways.
5. Install grounding bushings on all conduit terminations and bond to the enclosure, equipment grounding conductor, and electrical system ground.
6. Install raceways concealed in walls or above suspended ceilings in finished areas. When approved by the Architect, raceways may be installed concealed in elevated floor slabs. Do not install raceways horizontally within slabs on grade.
7. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
8. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
9. Make bends and offsets so inside diameters are not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
10. Install raceways:
  - a. To meet the requirements of the structure and the requirements of all other Work on the Project.
  - b. To clear all openings, depressions, ducts, pipes, reinforcing steel, and so on.
  - c. Within or passing through the concrete structure in such a manner so as not to adversely affect the integrity of the structure. Become familiar with the Architectural and the Structural Drawings and their requirements affecting the raceway installation. If necessary, consult with the Architect.
  - d. Parallel or perpendicular to building lines or column lines.
  - e. When concealed, with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
11. Provide support spacing in accordance with NFPA 70 requirements, and at a minimum in accordance with NEMA standards. Support by the following methods:
  - a. Attach single raceway directly to structural steel with beam clamps.
  - b. Attach single raceway directly to concrete with one-hole clamps or clips and anchors. Outdoors and wherever subject to dampness or moisture, offset raceways from the surface by using galvanized clamps and clamp backs, to mitigate moisture entrapment between raceways and surfaces.
  - c. Attach groups of raceway to structural steel with slotted support system attached with beam clamps. Attach raceway to slotted channel with approved raceway clamps.
  - d. Attach groups of raceway to concrete with cast-in-place steel slotted channel fabricated specifically for concrete embedment. Attach raceway to steel slotted channel with approved raceway clamps.
  - e. Hang plumb horizontally suspended single raceway using a threaded rod. Attach threaded rods to concrete with anchors and to structural steel with beam clamps. Attach raceway

- to threaded rod with approved raceway clamps.
  - f. Hang horizontally suspended groups of raceway using steel slotted support system suspended from threaded rods. Attach threaded rods to concrete with anchors and to structural steel with beam clamps. Attach raceway to steel slotted channel with approved raceway clamps.
  - g. Support conductors in vertical raceway in accordance with NFPA 70 requirements.
  - h. Cross-brace suspended raceway to prevent lateral movement during seismic activity.
  - i. Use pre-fabricated non-metallic spacers for parallel runs of underground or under-slab conduits, either direct buried or encased in concrete.
12. Install electrically- and physically-continuous raceways between connections to outlets, boxes, panelboards, cabinets, and other electrical equipment with a minimum possible number of bends and not more than the equivalent of four 90-degree bends between boxes. Make bends smooth and even, without flattening raceway or flaking the finish.
  13. Protect all electrical Work against damage during construction. Repair all Work damaged or moved out of line after rough-in, to meet the Architect's approval, without additional cost to the Owner. Cover or temporarily plug openings in boxes or raceways to keep raceways clean during construction. Clean all raceways prior to pulling conductors or cables.
  14. Align and install raceway terminations true and plumb.
  15. Complete raceway installation before starting conductor installation.
  16. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:
    - a. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces or from building exterior to building interior.
    - b. Where otherwise required by NFPA 70.
- B. EMT
1. Use EMT in the following areas:
    - a. Where indicated.
    - b. Interior concealed locations for:
      - 1) Branch and feeder circuits.
      - 2) Low-voltage control, security, and fire alarm circuits
  2. Do not use EMT:
    - a. Below grade.
    - b. In exterior applications when exposed.
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. RMC and IMC: Use threaded rigid steel conduit fittings, unless otherwise indicated.
  2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings and installation tools approved by the manufacturer for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits. Replace all fittings and conduits that have any portion of the coating scraped off to bare metal, at no additional cost to the Owner.
  3. Join raceways with fittings designed and approved for that purpose and make joints tight.
  4. Use insulating bushings to protect conductors at raceway terminations:
    - a. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
    - b. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- D. Telephone and Signal/Data System Raceways, 2-Inch Trade Size and Smaller: In addition to above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.
- E. Surface Raceways
1. Use flat head screws, clips and straps to fasten surface raceways to surfaces. Mount plumb and level.
  2. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
  3. Close ends of surface raceway.

### 3.2 BOXES

#### A. General

1. Verify locations of device boxes prior to rough in.
2. Set boxes at elevations to accommodate mounting heights as specified or indicated on the Drawings.
3. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Adjust box locations to accommodate intended purpose.
4. Install boxes to preserve fire ratings of walls, floors, and ceilings.
5. Install flush wall-mounted boxes without damaging wall insulation or reducing its effectiveness.
6. Support boxes independently of raceway.
7. Clean the interior of boxes to remove dust, debris, and other material. Clean exposed surfaces and restore finish.
8. Adjust flush-mounted boxes to make front edges flush with finished wall material.
9. Provide boxes of the depth required for the service, device and the application, and with raised covers set flush with the finished wall surface for boxes concealed in plaster finishes. Select covers with the proper openings for the devices being installed in the boxes. Install boxes flush unless otherwise indicated.
10. Install outlet boxes in firewalls complying with UL requirements, with box surface area not exceeding 16 square inches; and, when installed on opposite sides of the wall, separate by a distance of at least 24 inches.

#### B. Outlet Boxes

1. Install all electrical devices, such as plug receptacles, lamp receptacles, light switches, and light fixtures in or on outlet boxes.
2. Locations of outlets on Drawings are approximate; and, except where dimensions are shown, determine exact dimensions for locations of outlets from plans, details, sections, or elevations on Drawings, or as directed by Architect. Locate outlets generally from column centers and finish wall lines or to centers or joints of wall or ceiling panels.
3. Locate outlet boxes so they are not placed back-to-back in the same wall, and in metal stud walls, so they are separated by at least one stud space, to limit sound transmission from room to room. Install outlet boxes in accessible locations and do not install outlets above ducts or behind furring.
4. Install extension and plaster rings as required by NFPA 70.
5. Carefully set outlet boxes concealed in non-plastered block walls so as to line up with wall joints. Coordinate the box and raceway installation with the wall construction as required for a flush and neat appearing installation. Outlet box extensions may be used where necessary.
6. Do not exceed allowable fill per NFPA 70.
7. Where multiple devices are shown grouped together, gang mount with a common cover plate.

### 3.3 CABINETS AND ENCLOSURES

- A. Unless otherwise indicated on the Drawings, provide NEMA 1 construction for indoor, dry locations;
- B. Install flush mounted in the wall in finished spaces, with the top 78 inches above finished floor. The front shall be approximately 3/4-inch larger than the box all around.
- C. Install surface mounted in unfinished spaces, with the top 78 inches above finished floor. The front shall be the same height and width as the box.
- D. Electrically ground all metallic cabinets and enclosures. Where wiring to cabinet or enclosure includes a grounding conductor, provide a grounding lug in the interior of the cabinet or enclosure. Cabinets and enclosures specified in this Section are intended to house miscellaneous electrical components assembled in a custom arrangement, such as contactors and relays.
- E. All components that are specified or indicated for assembly in cabinets and enclosures shall each be individually UL listed and labeled. Arrange wiring so that it can be readily identified. Support wiring no less than every 3 inches. Install gauges, meters, pilot lights and controls on the face of the door.
- F. Do not provide cabinets and enclosures smaller than the sizes indicated. Where sizes and types are not indicated, provide cabinets and enclosures of the size, type and classes appropriate for the use and location per the guidelines of the NEC. Provide all items complete with covers and accessories required for the intended use.

#### END OF SECTION 260533



## **SECTION 262726 WIRING DEVICES**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Receptacles: Single, duplex, , ground-fault circuit interrupters (GFCI), .
  - 2. AC Wall Switches: Single- and double-pole, three- and four-way, maintained and momentary, pilot light and lighted toggle, and dimmer
  - 3. Device Wall Plates.

#### **1.2 RELATED SECTIONS INCLUDE THE FOLLOWING:**

- A. Division 26 Section "General Electrical Requirements" for general requirements and related documents that apply to this Section.
- B. Division 26 Section "Common Work Results for Electrical Systems" for cords, caps, outlet boxes, floor service outlets, and poke-through assemblies used to support wiring devices.

#### **1.3 DEFINITIONS**

- A. GFCI: Ground-fault circuit interrupter.

#### **1.4 SUBMITTALS**

- A. General: Submit the following in accordance with Division 01 and Division 26 Section "General Electrical Requirements".
- B. Product data for the following products:
  - 1. Provide manufacturer's catalog information specifically marked to indicate which devices are being furnished, and showing dimensions, colors, and configurations for all devices, including, but not limited to: Receptacles, AC wall switches, emergency shunt relays, cover plates, power poles, and multi-outlet assemblies.

#### **1.5 QUALITY ASSURANCE**

- A. Source Limitations: Obtain each type of wiring device and associated cover plate from a single manufacturer and through one source. Where practical and possible, obtain all wiring devices and associated cover plates from a single manufacturer and one source.
- B. Materials shall be manufactured by companies that have been specializing in the products specified in this Section, for a minimum of 10 years.
- C. Electrical Components, Devices, and Accessories:
  - 1. Listed and labeled as defined in NFPA 70, Article 100, by an NRTL as defined by OSHA in 29 CFR 1910.7, and that are acceptable to authorities having jurisdiction.
  - 2. Marked for intended use.
- D. Comply with NFPA 70.

#### **1.6 COORDINATION**

- A. Receptacles for Equipment Furnished by Owner or Under Other Divisions or Contracts: Match plug configurations.

### **PART 2 - PRODUCTS AND MATERIALS**

#### **2.1 GENERAL**

- A. Wiring devices are defined as single discrete units of electrical distribution systems, such as convenience receptacles, switches, special purpose receptacles, and similar, which are intended to carry, but not use electrical energy. Install wiring devices as required by the Specifications and where indicated on the Drawings.

#### **2.2 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Receptacles and Switches:
    - a. Cooper Wiring Devices.
    - b. Hubbell Incorporated; Wiring Device-Kellems.
    - c. Leviton Mfg. Company Inc.
    - d. Pass & Seymour/Legrand; Wiring Devices Div.
- B. In other Part 2 articles below, where lists of manufacturers and device catalog numbers are included, the following additional requirements apply to product selection:
  - 1. Additional Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include manufacturers listed in individual articles below, in addition to those listed in Paragraph "Manufacturers" above.

2.3 FINISHES

- A. Color:
  - 1. Wiring devices connected to normal power systems: Match existing devices, unless otherwise indicated or required by NFPA 70. Cover plates: Match existing cover plates.
- B. Manufacturer's model numbers listed are to establish the quality of the wiring devices. Coordinate the proper suffixes in order to provide the correct color as specified above.

2.4 CONVENIENCE RECEPTACLE:

- A. The catalog numbers listed below are generally for 20A rated devices. Where 15A rated devices are indicated on the Drawings or required for circuit rating limitations, provide receptacles equivalent to those specified for 20A, but rated for 15A.
- B. Duplex convenience receptacles: Specification grade, NEMA 5-20R, 125V, 20A, grounding type, UL listed and labeled, smooth nylon face, side and back wired, self-grounding.

<u>Manufacturer</u>	<u>Duplex</u>	<u>Single</u>
Cooper	5352	5351
Hubbell	5352A	HBL5361
Leviton	5352	5891
Pass & Seymour	5352	5361

2.5 GFCI RECEPTACLES

- A. Ground fault circuit interrupter type receptacles: Specification Grade UL listed and labeled complying with UL 943, Class A and NEMA WD-1-1.10, 125V, 20A, trip at 4-6mA within 0.25 second, and feed-thru type with integral heavy duty NEMA 5-20R receptacle arranged to protect receptacles down stream on the same circuit.

<u>Manufacturer</u>	<u>Specification Grade</u>
Cooper	GF20
Hubbell	GF20LA
Leviton	6898
Pass & Seymour	2091-S

2.6 SWITCHES

- A. The catalog numbers listed below are generally for 20A rated devices. Where 15A rated devices are indicated on the Drawings or required for circuit rating limitations, provide switches equivalent to those specified for 20A, but rated for 15A.
- B. Switches: Specification grade, rated for 120/277V, 20A, back and side wired, and UL listed and labeled.

<u>Manufacturer</u>	<u>1 Pole</u>	<u>2 Pole</u>	<u>3 Way</u>	<u>4 Pole</u>
Cooper	2221	2222	2223	2224
Hubbell	1221	1222	1223	1224
Leviton	1221-2	1222-2	1223-2	1224-2
Pass & Seymour	20AC1	20AC2	20AC3	20AC4

## 2.7 COVER PLATES

- A. Single and combination types to match corresponding wiring devices and manufacturer of wiring devices specified herein.
  - 1. Plate securing screws: Metal with head color to match finish plate.
  - 2. Material for Finished Spaces: Match existing..
  - 3. Material for Unfinished Spaces and surface mounted wiring devices: Galvanized steel.
  - 4. Masonry walls and oversized wall openings: Jumbo size plates with same material as indicated above.

## **PART 3 - EXECUTION**

### 3.1 GENERAL

- A. Outlets are only approximately located on the small scale Drawings. Use great care in the actual location by consulting the various large scale detailed Drawings used by other Division trades, and by securing definite locations from the Engineer.
- B. Do not use multi-conductor circuits, with a shared neutral, for any GFCI receptacle circuit. Provide a separate neutral conductor with all GFCI receptacle circuits.

### 3.2 EXAMINATION

- A. Verify existing conditions prior to beginning work.
- B. Verify that outlet boxes are installed at proper height and are flush with the finished surface.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

### 3.3 PREPARATION

- A. If required, provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean debris from in and around outlet boxes.

### 3.4 INSTALLATION

- A. Install all wiring devices plumb, level, and square with building lines. Wiring device bodies shall extend to the finished surface of the walls, ceiling or floor, as applicable, without projecting beyond them.
- B. Connect wiring devices by wrapping conductors around screw terminals. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- C. Connect wiring device grounding terminal to branch circuit equipment grounding conductor and bond to metal outlet box. Exception: Do not bond grounding terminals of isolated ground receptacles to the outlet box.
- D. Install devices shown on wood trim, cases or other fixtures symmetrically and, where necessary, set with the long dimensions of the plate horizontal, or ganged in tandem.
- E. Unless dimensioned otherwise, install wiring devices a minimum of 24 inches from the closest edge of any sink.
- F. Install switches with OFF position down.
- G. Install cover plates on all switches, receptacles, and blank outlets.
- H. Locate wiring devices so that the cover plate does not have to be cut to be installed.
- I. Where devices are shown near wall openings, coordinate location if corner guards are to be installed so that cover plates do not require cutting.
- J. Install cover plates after the wall has been finished (painted, wall paper, etc).



- K. Install device boxes in brick or block walls such that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.

### 3.5 MOUNTING HEIGHTS

- A. Coordinate locations of outlet boxes provided under Division 26 Section "Common Work Results for Electrical".
- B. Unless noted otherwise, install wiring devices as indicated below (NOTE: All dimensions are to the BOTTOM of the outlet box unless noted otherwise):
  - 1. Receptacles:
    - a. General:
      - 1) Vertically with the ground slot mounted at the bottom: 16 inches above finished floor.
      - 2) Horizontally, with neutral slot mounted at the bottom: 16 inches above finished floor.
    - b. Above counters:
      - 1) Height as shown on drawings.
    - c. .
  - 2. Switches:
  - 3. Telephone/Data Outlet Boxes:
    - a. General: Match mounting height of adjacent wiring device listed above.
    - b. Wall-mounted telephone: 40 inches above finished floor.

### 3.6 IDENTIFICATION

- A. Label all devices fed down stream of GFCI protected receptacles as "GFCI PROTECTED".

### 3.7 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify that each receptacle device is energized. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements.
- D. Test all wiring devices for electrical continuity and proper polarity of connections.
- E. Test each GFCI receptacle device for proper operation.
- F. Correct wiring devices incorrectly installed.
- G. Repair or replace all damaged items or damaged finishes at no expense to the Owner.

### 3.8 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

### 3.9 CLEANING

- A. Clean exposed surfaces to remove splatters and restore finish.

**END OF SECTION 262726**

SECTION 31 11 00

SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Remove surface debris.
- B. Clear Site of plant life and grass.

1.02 RELATED SECTIONS

- A. Section 31 00 00 –Earthwork.
- B. Section 31 23 13 –Excavation.
- C. Section 31 23 23.13 –Backfilling.
- D. Section 31 23 16.13 –Trenching.

1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable local code for disposal of debris and well plugging.
- B. Coordinate clearing work with utility companies.
- C. Burning on-site is not allowed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prior to construction activities, the Contractor is to verify if existing plant life is to remain, and if they have been tagged or identified by the Owner.

3.02 PROTECTION

- A. Locate, identify, and protect from damage all utilities that are to remain.
- B. Protect existing structures from damage or displacement, as shown on the plans.

3.03 CLEARING

- A. Clear areas as directed by the Architect and Engineer that are required for access to site execution of work.

- B. Remove imported debris of any type. Remove imported debris from site and clearing debris from site.
- C. Clearing and removal work shall be in accordance with Sections 201 and 202 of the Clark County Area Uniform Standard Specifications.

3.04 REMOVAL

- A. Remove debris, rock, and extracted plant life from site and dispose of as required by state, local and federal statutes.

END OF SECTION

## SECTION 31 20 00

### EARTHWORK

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

A. Perform site clearing, grubbing, excavation, trenching, hauling, backfilling, compaction of materials and sub-grade preparation required to construct the facilities indicated or shown on the Contract drawings. Contractor shall perform a site visit prior to bid to confirm that no additional dumping of material has occurred since the drawings were completed. If dumping has occurred, it will be the responsibility of the Contractor to notify the Owner.

1. Preparation of Sub-grade for slabs, walks, and pavements is included as part of this work.
- B. Perform finished grading for areas shown.
- C. Protect existing utilities and improvements that are designated to remain or be protected.
- D. Dispose of unsuitable excavated material, including contaminated material off Owner's property. Disposal to be performed per governing agency requirements and specifications and in accordance with all state and federal regulations.

##### 1.02 RELATED SECTIONS

- A. Document 00 31 00 –Information Available to Bidders.
- B. Section 01 40 00 –Quality Control.
- C. Section 01 43 26 –Testing Laboratory Services.
- D. Section 31 23 16 –Excavation.
- E. Section 31 23 23.13 –Compaction & Backfilling
- F. Section 31 23 16.13 –Trenching.
- G. Section 32 11 23 –Aggregate Base Course.
- H. Section 32 12 00 –Asphaltic Concrete Paving.
- I. Section 32 13 00 –Portland Cement Concrete Paving.
- J. Section 32 91 19 –Landscape Grading.

1.03 PERMITS, ORDINANCES

- A. Procure and pay for all necessary permits or certificates required by local authorities having jurisdiction over the work.
- B. Comply with all applicable Federal, State and Local ordinances.
- C. Procure and pay for a dust permit that is to include the project site and the construction access to the project site.

1.04 LAYOUT

- A. Layout of all work under this section, including all lines and levels, shall be made by a licensed surveyor or civil engineer licensed in the State of Nevada.
- B. Maintain all benchmarks, control monuments and stakes, whether newly established by surveyor or previously existing. Protect from damage and dislocation. If necessary to disturb existing benchmarks, a Professional Land Surveyor licensed in the State of Nevada shall be used to re-establish it in a safe place.
- C. If any discrepancies are found by surveyor drawings and actual conditions at the site, the Engineer shall be notified and reserves the right to make such minor adjustments in work specified as necessary to accomplish the intent of the contract documents, without increased cost to Owner.

1.05 CODES AND STANDARDS

Apply the latest editions of the following codes and standards as indicated and applicable.

<u>Sponsor</u>	<u>Title</u>
Clark County	Uniform Standard Specifications for Public Works Construction Off-site Improvements
Clark County	Supplement to Uniform Standard Drawings and Specifications
OSHA	Occupational Safety & Health Standards
LVVWD	Uniform Design and Construction Standards for Potable Water Systems

1.06 SUBMITTALS

- A. Submit in accordance with General Conditions of this Contract.
- B. Test Reports –Excavating: Submit the following reports directly to Architect from the testing services, with copy to Contractor:
  - 1. Test reports on borrow material.
  - 2. Verification of each footing sub-grade.
  - 3. Field density test reports.

- D. Sieve analysis results submit under provisions of Section 01 33 00.

## 1.07 PROJECT CONDITIONS

- A. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner, Architect or Engineer will not be responsible for interpretations or conclusions drawn there from by Contractor. Data is made available for convenience of Contractor.
- B. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.
- C. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means to support and protection during earthwork operations. Affected utility companies shall be notified at least two working days prior to start of construction.
- D. Should un-charted, or incorrectly charted piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of engineer and utility owner. Notify Engineer and Construction Manager of conflicts with proposed utilities.
- E. Do not interrupt existing utilities serving facilities occupied and used by Owner or others during occupied hours, except when permitted in writing by Construction Manager and then only after acceptable temporary utility services have been provided. Provide minimum of forty-eight (48) hours notice to Architect and Construction Manager and receive written notice to proceed before interrupting any utility.
- F. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off services if lines are active.
- G. Use of Explosives: The use of explosives is not permitted.
- H. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
- I. Operate warning lights as recommended by authorities having jurisdiction.
- J. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- K. The Contractor shall be responsible for the preservation or re-establishment of all land survey monuments of record that are located within the limits of construction or disturbed as a result of contractors operations. The Contractor shall be responsible for the protection and re-establishment of any monument of

record shown on the plans or found during the course of construction in accordance with NRS 329. All re-established monuments shall be set under the direction of a Professional Land Surveyor licensed in the State of Nevada.

1.08 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as indicated.

1.09 REFERENCES

- A. All work shall comply with the latest edition and supplements to the Uniform Standard Specifications for the Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, and the Uniform Standard Drawings for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada.
- B. Uniform Standard Specifications for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition.
  - 1. Materials and workmanship specified herein with referenced to these Standard Specifications shall be in accordance with the referenced sections, articles and paragraphs except that contractual, measurement, and payment provisions do not apply.
- C. Uniform Standard Drawings for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition, and any addenda or supplement thereto.
- D. ANSI/ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.
- E. ANSI/ASTM D1556 – Test Method for Density of Soil in Place by the Sand Cone Method.
- F. ANSI/ASTM D1557 – Test Methods for Moisture-Density Relationships of Soils and Soil Aggregate Mixtures Using 10 pound Rammer and 18 inch Drop.
- G. ASTM D2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- H. ASTM D3017 – Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.10 SUBMITTALS

- A. Sieve analysis results submit under provisions of Section 01 33 00.

1.11 QUALITY ASSURANCE

- A. Contractor shall provide sieve analysis for its stockpiles.

- B. The Owner's Agent will be responsible for performance of proctor and in place density tests for backfilled material.

## PART 2 PRODUCTS

### 2.01 SOIL MATERIALS

#### A. Definitions

1. Artificial Fill: As documented in the original soils report.
2. Satisfactory soil materials are defined as documented in the original soils report.
3. Unsatisfactory soil materials are defined as documented in the original soils report.
4. Sub-base Material: Natural soils processed and compacted as documented in the original soils report.
5. Base Material: (Under building slabs) Type II aggregate base course (ASTM C136) compacted per original soils report recommendations. Material to conform to requirements of Uniform Standard Specification Section 704, for 1-inch maximum size material.
6. Drainage Fill: Washed, evenly graded mixture of crushed stone, crushed or uncrushed gravel, with one hundred (100) percent passing a 1 ½ inch sieve, and not more than five (5) percent passing a No. 4 sieve.
7. Backfill and Fill Materials: On-site soils conforming to the requirements set forth in the original soils report minus debris or organic matter, may be used in required fills. Imported material should be compatible with on-site soil in addition to being suitable for its intended use. All imported materials and backfill materials shall be tested and approved by Soils Engineer prior to importing. Backfill and fill materials should not contain material greater than 6-inches in diameter including oversized material generated by the excavation of cemented soil if encountered during construction. Said material should be selectively hauled off the site, crushed to acceptable size, or placed in deep fill areas outside of project area at depths of at least 5 feet below finished grade as recommended in the project Geotechnical Investigation. Contractor to confirm and provide documentation to the A/E that the import material meets or exceeds the minimum R-value provided in the original geotechnical report. Select granular materials (per soils report) should be used as backfill behind retaining walls.
8. Type/gravel base material conforming to requirements of Uniform Standard Specifications, Section 704, for 3-inch maximum size material.
9. Landscape Fill: Refer to Section 32 91 19 Landscape Grading.

## PART 3 EXECUTION

### 3.01 PROTECTION



- A. Actual soils encountered during construction may necessitate that slopes of temporary excavations and trenches be flatter than those indicated on the drawings. The Contractor shall flatten slopes of temporary excavations and trenches as required for slope stability and safe execution of the work at its own expense.
- B. The Contractor shall be fully responsible for construction of facilities required for diversion of storm water drainage around or through the construction area.
- C. The Contractor shall furnish, place, and maintain all supports and shoring that may be required for the side of the excavations, and all pumping, ditching, or other measures for the removal or exclusion of water, including taking care of storm water and wastewater reaching the site of the work from any source so as to prevent damage to the work or adjoining property.  
  
The Contractor shall be responsible for any damage to persons or property due to interruption or diversion of such storm water or wastewater on account of its operations.
- D. Slopes on the sides of excavations shall be such as to insure safe execution of the work. Excavations shall be in accordance with applicable requirements of the Standard Specifications, requirements of OSHA, and with the requirements of the rules, orders and regulations specified in these Specifications.
- E. Utilities: It shall be the Contractor's responsibility to contact "CALL BEFORE YOU DIG" not less than forty-eight (48) hours prior to starting excavation and to conform to the provisions of Section 01 50 00, Protection of Installed Work.
- F. Protection and Restoration of Surfaces: Protect newly graded areas from traffic, erosion and settlement. Repair and re-establish eroded slopes, elevations or grades, and restore surface construction prior acceptance.

### 3.02

#### EXCAVATION

- A. Excavation is unclassified and includes excavation to sub-grade elevations indicated, regardless of character of materials and obstructions encountered.
- B. Unauthorized excavation consists of removal of materials beyond indicated sub-grade elevations or dimensions without specific direction of Soils Engineer. Unauthorized excavation, as well as remedial work, directed by Soils Engineer or Construction Manager, shall be at Contractors expense.
- C. Under footings, foundation bases, or retaining walls, fill unauthorized excavation areas by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete (two sack mix) fill may be used to bring elevations to proper position, when acceptable to Soils Engineer or Construction Manager.
- D. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Soils Engineer or Construction Manager.

- E. If unsuitable bearing materials are encountered at required sub-grade elevations, carry excavations deeper and replace excavated material as directed by Soils Engineer or Construction Manager.
- F. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
- G. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- H. Shoring and Bracing: Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.
- I. Dust Control: Contractor shall dampen the area of grading and take other measures as required to prevent raising of dust and transportation of same into buildings onto adjacent properties during the duration of the contract in accordance with Clark County codes and regulations.
- J. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, shape, and protect stockpiles to ensure proper drainage and avoid erosion.
- K. Locate and retain soil materials away from edge of excavations.
- L. Dispose of excess soil material and waste materials as herein specified.
- M. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus on minus 0.10 feet and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
- N. In excavating for footings and foundations, take care not to disturb bottom of excavation. Trim bottoms to required lines and grade to leave solid base to receive other work.
- O. Perform in accordance with Section 203 of the Uniform Standard Specifications and this Section.
- P. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations, and grades as shown. Refer to Project Geotechnical Exploration Report for additional information.

1. Pavement Section (On-Site):

Material Depth (inches)

Requirements

**Drive Lane/Automobile Area:**

2" Type III Asphaltic Concrete  
(AC-30) (1/2 inch mix)

Placed in accordance with  
Section 401 of USSPWC

4.0 inches Type II Gravel Base  
or 12 inches of processed Native  
Sub-Grade per original soils report  
recommendation.

Placed in accordance with  
original Soils Report

Material Depth (inches)

Requirements

**Heavy Duty Trucks and Buses:**

3” Type III Asphaltic Concrete  
(AC-30) (1/2 inch mix)

Placed in accordance with  
Section 401 of USSPWC

4 in. Type II Gravel Base  
or 12 in. processed Native  
Sub-Grade: Per soils report recommendation.

Placed in accordance with  
original Soils Report.

Note: Refer to Civil drawings and the community’s original Geotechnical Exploration Report for location of pavement sections and additional detailed information of compaction and placement.

3.3. COMPACTION

- A. Control soil compaction during construction providing minimum percentage of density specified in the original Geotechnical Exploration Report.
- B. Percentage of Maximum Density Requirements: Compact soil to not less than the percentages of Maximum Dry Density in accordance with ASTM D1557 as specified in this section and in the original soils report.
  - 1. Structures, Building Slabs, and Paved Areas: Compact top 6 inches of sub-grade (Type II) and each layer of backfill or fill material (Type I) per soils report recommended maximum density for cohesive material or recommended relative compaction (95%) for cohesionless material.
  - 2. Lawn or Unpaved Areas: Compact top 6 inches of sub-grade and each layer of backfill or fill material at recommended maximum density for cohesive material or recommended relative compaction for cohesionless soils (85-90%).
  - 3. Walkways: Compact top 6 inches of sub-grade (Type II) and each layer of backfill or fill material at recommended maximum density for cohesive material or recommended relative compaction for cohesionless material (90%).
- C. Moisture Control: Where sub-grade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of sub-grade, or layer of soil material. Apply water in manner to prevent free water appearing on surface during or after subsequent compaction operations.

- D. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

### 3.4 GROUND SURFACE PREPARATION

- A. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills.
- B. All on-site loose, porous, or dry soils will require removal prior to the placement of fill.
- C. Following removal of un-compacted soils and prior to the placement of fill, scarify the upper 12 inches of the approved ground surface, water, or dry as necessary and re-compact in compliance with Geotechnical Report. Scarification may be terminated at a shallower depth or omitted if moderately or strongly cemented soil is encountered at the discretion of the Geotechnical Engineer.
- D. All soil and fill material approved by Soils Engineer may be reused in compacted fills.
- E. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 5 horizontal so that fill material will bond with existing surface. Bench and key in accordance with Soils Engineer.
- F. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact depth required in accordance with original Soils Report.
- G. Placement and Compaction: Place backfill and fill materials, per Soils Report, in layers not more than 9 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- H. Before compaction, moisten or aerate each layer, as per the original Soils Report, to provide optimum moisture content. Compact each layer per Soils Report recommendations. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- I. Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

### 3.5 GRADING

- A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

- B. Grading outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding.
- C. Finish surfaces free from irregular surface changes as follows:
  - 1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below required sub-grade elevations.
  - 2. Walks: Shape surface of areas under walks to line, grade, and cross section, with finish surface not more than 0.10 feet above or below required sub-grade elevation.
  - 3. Pavements: Shape surface of areas under pavement to line, grade, and cross section, with finish surface not more than ½ inch above or below required sub-grade elevation.
- D. Compaction: After grading, compact sub-grade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

### 3.6 PAVEMENT SUBBASE COURSE

- A. General sub-base course consists of placing structural fill (sub-base) material, in layers of specified thickness, over sub-grade surface to support a pavement base course. Refer to pavement section in this section and the original Geotechnical Exploration Report. See other Division 2 sections for paving specifications.
- B. Grade Control: During construction, maintain lines and grades including crown and cross slope of sub-base course.
- C. Placing: Place sub-base course material on prepared sub-grade in layers of uniform thickness, conforming to indicated cross section and thickness. Maintain optimum moisture content for compacting sub-base material during placement operations as per the original soils report.
- D. When a compacted sub-base course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

### 3.7 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Allow testing lab/Soils Engineer to inspect and approve sub-grades and fill layers before further construction work is performed.
  - 1. Testing Agency: Shall perform field density tests in accordance with ASTM D1556 (sand cone method) or ASTM D02922 or D3017 (nuclear method), as applicable.

2. Paved Areas and Building Slab Sub-grade: Make at least one field density test of sub-grade for every 2,000 square feet of paved area or building slab, but in no case less than three tests. In each compacted fill layer, make one field density test for every 2,000 square feet of overlaying building slab or paved area, but in no case less than three tests.
  3. Foundation Wall Backfill: Take at least two field density tests, at locations and elevations as directed.
- B. If, in opinion of Soils Engineer, based on testing service reports and observation, sub-grade or fills, which have been placed, are below specified density, provide additional compaction and testing at no additional expense.
  - C. Contractor shall provide sieve analysis from its stockpiles prior to construction activities.
  - D. Field inspection and testing will be performed under provisions of Section 01400.

### 3.8 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- D. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.9 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal to Designated Areas on Owner's Property: Transport acceptable excess excavated material to designated soil storage areas on Owner's property. Stockpile soil or spread as directed by Soils Engineer or Construction Manager.
- B. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property at no cost to Owner. All disposed debris and materials shall be in accordance with state, federal and local guidelines.

END OF SECTION

SECTION 31 22 13

ROUGH GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal of topsoil and subsoil.
- B. Cutting, grading, filling, and rough contouring the site.

1.2 RELATED SECTIONS

- A. Document 00 31 00 - Information Available to Bidders:" Project Geotechnical Investigation Report (Soils Report); Bore Hole Locations and Findings of Subsurface Materials.
- B. Section 01 40 00 - Quality Control: Inspection of bearing surfaces.
- C. Section 01 43 26 - Testing Laboratory Services: Testing Fill Compaction.
- D. Section 31 11 00 - Site Clearing.
- E. Section 31 23 16 - Excavation.
- F. Section 31 23 23.13 - Backfilling.
- G. Section 31 23 16 .13 - Trenching: Trenching and Backfilling for Utilities.
- H. Section 32 80 00 - Landscape Grading: Finish grading with topsoil to contours or finish grades.

1.3 REFERENCES

- A. Uniform Standard Specifications for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition and supplements. Materials and workmanship specified herein with reference to these Standard Specifications shall be in accordance with the referenced sections, articles and paragraphs except that contractual, measurement, and payment provisions do not apply.
- B. Uniform Standard Drawings for Public Works' Construction, Off-site Improvements, Clark County, Area, Nevada, latest edition and any addenda or supplements thereto.
- C. ANSI/ASTM C 136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- D. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 pound Rammer and 12 inch Drop.
- E. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- F. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 pound Rammer and 18 inch Drop.
- G. ASTM/ D 2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

- H. ASTM D3017 - Test Method for Water content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.

#### 1.5 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 78 39.
- B. Accurately record actual locations of utilities remaining, by horizontal dimension, elevations or inverts, and slope gradients.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

- A. Topsoil: See Landscape Specifications.
- B. Subsoil: As defined in the original Geotechnical Investigation Report.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify site conditions.
- B. Verify that survey benchmark and intended elevations for the work are as indicated on drawings.
- C. The Contractor shall be responsible for the preservation or re-establishment of all land survey monuments of record that are located within the limits of construction or disturbed as a result of the contractors operations. The Contractor shall be responsible for the protection or re-establishment of any monument of record shown on the plans or found during the course of construction in accordance with NRS 329. All re-established monuments shall be set under the direction of a Professional Land Surveyor licensed in the State of Nevada.

#### 3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known underground, above ground, and aerial utilities. Stake and flag locations.
- C. Protect above and below grade utilities that are to remain.
- D. Protect benchmarks from any disturbance whatsoever.
- E. Provide dust control as required per governing agency requirements.

#### 3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil as per Site Grading Section in the original Geotechnical Investigation Report.
- B. Stockpile topsoil to depth not exceeding 8 feet. Cover to protect from erosion.



### 3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil as per Site Preparation and Earthwork Section in the original Geotechnical Exploration Report.
- B. Stockpile subsoil to depth not exceeding 8 feet. Cover to protect from erosion.

### 3.5 FILL

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Granular Fill: Place and compact materials in conformance with the recommendations outlined in the project's original soils report.
- C. Subsoil and Topsoil Fill: Place and compact material per the project's original soils report recommendations.
- D. Maintain soil moisture to within optimum moisture content of fill materials as stated in original soils report to attain required compaction density in accordance with soils report.
- E. General: Except as otherwise specified herein, construction of fill shall be in accordance with Section 203 of the Uniform Standard Specifications. Fill and embankment slopes for all construction shall be within the limits indicated by the lines and grades shown on the Drawings, and/or as staked in the field. Prior to filling structural or paved areas, scarify and re-compact in accordance with Exploration Report. Fill areas to contours and elevations with unfrozen materials. Structural and General Site Fill: Place and compact materials in accordance with Section 31 20 00 and the project's original Geotechnical Exploration Report. Maintain optimum moisture content of fill materials to attain required compaction density. Slope grade away from building as indicated on drawings. Make grade changes gradual. Blend slope into level areas.
- F. Scarification of Existing Ground Surface: Areas upon which fill material is to be placed shall first be cleared of all materials required to be removed as shown on Drawings and under Section 31 11 00 and shall then be loosened by appropriate means to a minimum depth, processed and moistened, and re-compacted per the recommendations called out in the project's original Geotechnical Investigation.
- G. Compacting of Existing Ground Surface: Following scarification, the loosened material shall be compacted as per Geotechnical Evaluation Report originally prepared for the site.
- H. Fills and embankments shall be built up full width from the bottom in successive layers not exceeding 8 inches in thickness before compaction, and shall be compacted per the project's original Geotechnical Exploration Report recommendations, except as otherwise provided herein. Places inaccessible to mobile power compacting equipment shall be hand compacted by mechanical means to the above specified densities. Upon completion, the sub-grade shall be firm, hard, and unyielding with a true and uniform surface conforming to the grade and cross section as shown or ordered.
- I. Remove surplus fill materials from site.
- J. In all areas to be landscaped, the base bid shall require grade to be held to 8 inches below elevations shown on the civil drawings to allow for top soil by landscape installers for grass areas. All areas outside building envelope are to be 3 inches below curbs and sidewalks. For additional information, reference Landscape Plans and Specifications for all areas.

### 3.6 TOLERANCES

- A. Top Surface of Sub-grade: Plus or minus 1/10 foot.

### 3.7 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by an independent Geotechnical Engineer under contract with the Owner.
- B. If tests indicate work does not meet specified requirements, remove work, replace, and retest at no cost to Owner.
- C. Frequency of Tests: Per the Geotechnical Engineer's requirements. Notify Owner's representative when work is ready for testing.

END OF SECTION

## SECTION 31 23 16

### EXCAVATION

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Excavation for building foundations.
- B. Excavation for slabs-on-grade, landscaping, and utilities.
- C. Excavation for site structures.
- D. Roadway excavation.

##### 1.02 RELATED SECTIONS

- A. Section 01 40 00 – Quality Control: Inspection of Bearing Surfaces.
- B. Section 31 00 00 – Earthwork.
- C. Section 31 22 13 – Rough Grading
- D. Section 31 23 23.13 – Backfilling.
- E. Section 31 23 16.13 – Trenching: Excavation for Utility Trenches.

##### 1.03 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as indicated.
- B. The Contractor shall be responsible for the preservation or re-establishment of all land survey monuments of record that are located within the limits of construction or disturbed as a result of the contractors operations. The Contractor shall be responsible for the protection or re-establishment of any monument of record shown on the plans or found during the course of construction in accordance with NRS 329. All re-established monuments shall be set under the direction of a Professional Land Surveyor licensed in the State of Nevada.

#### PART 2 PRODUCTS

Not used.

#### PART 3 EXECUTION

##### 3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum.

- B. Over-excavated areas are to be backfilled and re-compacted with suitable excavated material.

3.02 GRADING

- A. After removal of existing vegetation, all debris, existing uncontrolled fill, and soft, loose or disturbed natural soils shall be removed from within the proposed building areas, beneath adjacent walks and slabs and in areas to be paved. The term uncontrolled fill refers to any existing fill that was not properly placed, inspected, or tested.

3.03 EXCAVATION

- A. Excavate subsoil required to accommodate building foundations, slabs-on-grade, paving and site structures, construction operations, and miscellaneous surface features.
- B. Slope banks to slope as indicated on drawings.
- C. Excavation cut shall not interfere with normal forty-five (45) degree bearing splay of foundation.
- D. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- E. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- F. Correct unauthorized excavation at no extra cost to Owner.
- G. Correct areas over-excavated by error at no extra cost to Owner.
- H. Perform in accordance with Section 203 of the Uniform Standard Specifications and this Section.
- I. Excavation and excavation slopes for all construction shall be confined within the limits indicated by the lines and grades shown on the Drawings, and/or as staked in the field.
  - 1. Any highly porous soils shall be over-excavated to a depth of at least one foot below sub-grade level if directed in writing by the Geotechnical Engineer.
  - 2. Materials outside the limits of the proposed improvements, which constitute a threat to the maintenance, or protection of the improvements, as determined by the Geotechnical Engineer, shall be removed by the Contractor at Contractor's expense.
- J. Scarification of Existing Ground Surface:

1. Areas upon which "Future" Type II gravel base material is to be placed shall first be cleared of all materials required to be removed under Article 3.02 and shall then be loosened by appropriate means per the project's original Geotechnical Report.
  2. At locations where less than 6 inches of "Future" Type II gravel base is to be placed thereon, the existing ground shall be loosened to such depth that the total compacted depth below underside of base course is not less than 12 inches.
  3. Rocks larger than 3 inches in maximum dimension shall be removed from the loosened material and disposed of by the Contractor at its own expense.
  4. The loosened material shall be alternately scarified and disked and moistened as required until the material is uniformly mixed and moistened throughout.
- K. Compacting of Existing Ground Surface: Following scarification, the loosened material shall be compacted per soils report recommendations or as directed in writing by the Soils engineer, before any fill material is deposited thereon.
- L. Excavate subsoil as required per original Geotechnical Exploration Report.
- M. Stockpile in an area designated on or near site in an area acceptable to Owner. Construction easements to be obtained by Contractor as required. Remove excess subsoil not being reused, from site.
- N. Stockpile subsoil to depth not exceeding 8 feet. Cover to protect erosion.

3.04 FIELD QUALITY CONTROL

- A. Field inspection will be performed by an independent Geotechnical Engineer under contract with the Owner.

3.05 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

3.06 OVER-EXCAVATION

- A. Beneath Miscellaneous Concrete Structures: The area beneath concrete structures shall be over-excavated as per recommendations in the referenced Geotechnical Investigation.

- B. Unauthorized Over-Excavation: Any excavation carried below the grades shown, specified herein, or below the grades requested by engineer, shall be refilled to the required grades with select well graded material not larger than 2 inches in maximum dimension, which is approved by the Engineer. Such material shall be moistened as required and compacted per the project's original Geotechnical Exploration Report recommendations beneath pavement or structures, and per soils report recommendations elsewhere, as determined by the original geotechnical engineering report. The Contractor at its own expense shall perform such work.

3.07

DISPOSAL OF EXCESS AND/OR UNSUITABLE MATERIAL

- A. Excess material and/or excavated material unsuitable for backfill, as determined by Engineer, shall be relocated to the disposal sites.

END OF SECTION

SECTION 31 23 16.13

TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavated trenches for storm drain facilities.
- B. Compacted bedding under and fill over storm drain facilities.
- C. Backfilling and compaction.

1.02 RELATED SECTIONS

- A. Section 01 40 00 – Quality Control
- B. Section 01 43 26 – Testing Laboratory Services: Testing Fill Compaction.
- C. Section 01 50 00 – Construction Facilities and Temporary Controls: Water Control in Excavations.
- D. Section 31 20 00 – Earthwork.
- E. Section 31 22 13 – Rough Grading.
- F. Section 32 91 19 – Landscape Grading: Filling of Topsoil Over Backfilled Trenches to Finish Sub-grade Elevation.
- G. Section 31 23 16 – Excavation: General Building Excavation.
- H. Section 31 23 23.13 – Backfilling: General Backfilling.

1.03 REFERENCES

- A. ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 pound Rammer and 12 inch Drop.
- C. ASTM D1556 – Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ASTM D1557 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 pound Rammer and 18 inch Drop.
- E. ASTM D2922 – Test Method for Density of Soil and Soil Aggregate in Place by Nuclear Method (Shallow Depth).

- F. ASTM D3017 – Test Method for Density of Soil and Soil Aggregate in Place by Nuclear Method (Shallow Depth).
- G. Uniform Standard Specifications for Public Works Construction, Off-site Improvements Clark County Area, Nevada, latest edition and supplements.

1.04 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as shown on drawings.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. All imported fill material shall be in accordance with the specifications stated in the project's original Geotechnical Exploration Report.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify with the Geotechnical Engineer that excavated materials to be reused for fill are acceptable.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Cut out soft areas of sub-grade not capable of in-situ compaction. Backfill with Type II fill and compact to density equal to or greater than requirements for subsequent backfill material (95%).

3.03 EXCAVATION

- A. Excavate subsoil required for all storm drain facilities.
- B. Cut trenches sufficiently wide to enable installation of pipes and allow inspection.
- C. Excavation shall not interfere with normal forty-five (45) degree bearing spay of foundations.
- D. Excavation shall be trimmed and loose matter removed.
- E. Correct unauthorized excavation at no cost to Owner.
- F. Correct areas over excavated by error in accordance with Section 31 23 16.

3.04 BEDDING



- A. Support pipe and conduit during placement and compaction of bedding fill.

3.05 BACKFILLING

- A. Backfill trenches to contours and elevations with approved materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy sub-grade surfaces.
- C. Type I and Type II Fill: Place and compact materials in continuous layers not exceeding 6 inches of compacted depth.
- D. Structural Fill: Place and compact material as defined in the project's original Geotechnical Exploration Report.
- E. Employ a placement method that does not disturb or damage conduit or pipe in trench.
- F. Maintain optimum moisture content as defined in the project's original soils report.

3.06 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus one inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus one inch from required elevations.

3.07 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by an independent Geotechnical Engineer under contract with the Owner.
- B. Compaction testing will be performed by an independent Geotechnical Engineer under contract with the Owner.
- C. If tests indicate work does not meet specified requirements, remove work, replace, and retest at no cost to Owner.
- D. Frequency of Tests: Per Owner's requirements. Notify Owner's representative when work is ready for testing.

3.08 PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01 50 00.
- B. Fills subjected to vehicular traffic shall be re-compacted to achieve the required densities as specified by Geotechnical Engineer.

END OF SECTION

SECTION 31 23 23.13

BACKFILLING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building perimeter and site structure backfilling to sub-grade elevations.
- B. Site filling and backfilling.
- C. Fill under slabs-on grade, paving, and landscaping.
- D. Consolidation and compaction.
- E. Fill for over-excavation.

1.02 RELATED SECTIONS

- A. Section 01 40 00 – Quality Control.
- B. Section 01 43 26 – Testing Laboratory Services: Testing Fill Compaction.
- C. Section 31 20 00 – Earthwork.
- D. Section 31 23 16 – Excavation.
- E. Section 31 23 16.13 – Trenching: Backfilling of storm drain.
- F. Section 32 91 19 – Landscape Grading.

1.03 REFERENCES

- A. ASTM C136 – Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 pound Rammer and 12 inch Drop.
- C. ASTM D1556 – Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ASTM D1557 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 pound Rammer and 18 inch Drop.
- E. ASTM D2922 – Test Method for Density of Soil and Soil Aggregate in Place by Nuclear Method (Shallow Depth).
- F. ASTM D3017 – Test Method for Water Content of Soil and Rock in Place by Nuclear Method (Shallow Depth).

- G. Uniform Standard Specifications for Public Works Construction, Off-site Improvements, Clark County, Nevada, latest edition and supplements thereto. Materials and workmanship specified herein with reference to these Standard Specifications shall be in accordance with the referenced sections, articles and paragraphs except that contractual, measurement, and payment provisions do not apply.
- H. Uniform Standard Drawings for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition, and any addenda or supplements thereto.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.

PART 2 PRODUCTS

2.01 FILL MATERIALS

All imported fill materials shall conform to the specifications stated in the original Geotechnical Report and per Part 1.03 of this section.

- A. Type I – Pit run, natural stone; free of shale, clay, friable material, sand, debris; graded in accordance with ASTM C136 and as specified in the Uniform Standard Specifications, Clark County, Nevada.
- B. Type II – Natural stone; free of clay, shale, organic matter; graded in accordance with ASTM C136.
- C. Type C Sand – Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with ASTM C136.
- D. Type F – Structural Fill: As approved by Soils Engineer.
- E. Subsoil: Reused, imported, free of gravel larger than 3 inch size, and debris, as approved by Soils Engineer.
- F. Type II Aggregate Base: As specified in Uniform Standard Specifications Section 704.03.04.
- G. Type I Aggregate Base: As specified in Uniform Standard Specifications Section 704.03.02.
- H. Drain Backfill: As specified in Uniform Standard Specifications Section 704.03.01.
- I. Selected Backfill: As specified in Uniform Standard Specifications Section 207.02.01.
- J. Granular Backfill: AS specified in Uniform Standard Specifications Section 207.02.02.

- K. Structural Fill: As specified in the original Geotechnical Report.
- L. Site Concrete: As specified in Section 32 13 00.
- M. Concrete: As specified in Section 32 13 00.
- N. Fill Material in Landscape Areas: Clean soils free of vegetation, debris and organic contaminates with:
  - 1. No refuse, roots, heavy clay, gravel, sticks, brush, litter and other deleterious substances.
  - 2. Less than ten percent clay content and more than 50 percent sand content.
  - 3. No fragment larger than 1 inch in size.
  - 4. 100 percent passing a 1-inch sieve.
  - 5. 90 to 100 percent passing No. 4 sieve.
  - 6. 5 to 60 percent passing No. 16 sieve.
  - 7. 0 to 10 percent passing No. 100 sieve.
  - 8. Any plant pit filled with water must be able to drain within a 24-hour period.
  - 9. Landscape fill requirements only apply to the top four (4) feet of fill. Fill areas deeper than four (4) feet may use other fill materials below the landscape fill in accordance with these specifications.
  - 10. Refer to Section 32 91 19 LANDSCAPE GRADING for additional requirements.

PART 3.01 EXAMINATION

- A. All field-testing will be performed by an independent Geotechnical Engineer under contract with the Owner. Verify with the Geotechnical Engineer if excavated materials to be re-used as fill meet the specifications as stated in the project's original Geotechnical Exploration Report.

3.02 PREPARATION

- A. Generally, compact sub-grade to density requirements for subsequent backfill materials (95%).
- B. Prior to placement of aggregate base course material at paved areas, compact subsoil per project's original soils report.
- C. Provide dust control as required. Contractor to acquire dust permit through the Department of Air Quality and Environmental Management (DAQEM), as required.

3.03 BACKFILLING

- A. Backfill areas to contours and elevations with approved materials.
- B. Do not backfill over porous, wet, frozen, or spongy sub-grade surfaces.

- C. Place and compact material in continuous layers not exceeding 6 inches compacted depth.
- D. Maintain optimum moisture content of backfill materials to attain required compaction requirements per original soils report.
- E. During backfilling operations, do not use heavy equipment within 5 feet of retaining walls.
- F. The Sub-Grading Contractor is to coordinate with the Landscape Contractor that the sub-grade cuts and sub-grade fill areas have been completed as described within this section and section 32 91 19 LANDSCAPE GRADING.
- G. Soil requirements in the landscape areas:
  - a. Non-raised planting beds outside the building envelope with a thickness of 16-inches (installed by Grading Contractor). Soil requirements for 1-inch minus soils gravel content to be no greater than 10-percent of the soil volume. The minus material no. 4 sieve shall allow 90-percent passing. The clay content shall be no greater than 10-percent of the soil volume. The noted materials are for planting beds outside of the building envelope. If existing soil is used refer to part 2.2 "using existing soils" for additional requirements.
  - b. Turf area fill conditions where turf is proposed, the landscape contractor shall provide 16-inches of soil that meets the following requirements:
    - i. 8-inch bottom layer of soil that matches the landscape topsoil requirements (no soil amendments). See section 32 91 19, 2.1 Imported Topsoil for soil vendors that are approved by Architect.
    - ii. Topsoil top layer (finish grade) 8 inches of 1/16 inch minus topsoil with the required soil amendments. See section 32 91 19, 2.1 Imported Topsoil for soil vendors that are approved by Architect.
  - c. Raised Planters and planters within the buildings envelope provide pre-mixed soils a minimum depth of 36" (Completed by the landscape contractor).
- H. Rough Grades for the landscape areas are to be free of clay, rock and debris. See soil requirements for all sub-soils used in landscape areas (Section 32 91 19 Landscape Grading, 2.2 USING EXISTING SOIL MATERIALS). It is the landscape contractor's responsibility to verify that the requirements are provided by the General Contractor or the Grading Contractor.
- I. Rough grades for planting beds:
  - a. Areas planned for 3/8" minus shall be 3 inches below all hardscape surfaces. (Prior to crushed rock installation).
  - b. Areas planned for 8-14" riprap shall be 1-14 inches below all hardscape surfaces. (Prior to crushed rock installation.)

- c. Grass Areas: Finish grade is to be flush to the concrete edge where pedestrian traffic occurs, or where water flows from the grass over the concrete curbing. Confirm with the Owner's Representative on all grade issues.

3.04 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1/10 foot from required elevations.

3.05 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by an independent Geotechnical Engineer under contract with the Owner.
- B. Compaction testing will be performed by an independent Geotechnical Engineer under contract with the Owner.
- C. If tests indicate work does not meet specified requirements, remove work, replace, and retest at no cost to Owner.
- D. Frequency of Tests: Per Owner's requirements.
- E. Field inspection and testing will be performed under provisions of Section 01 40-00.

3.06 COMPACTION REQUIREMENTS

- A. Definitions:
  - 1. Building areas: Areas within the building perimeter.
  - 2. Site areas: Areas outside of the building line but within the Contract limit lines.
- B. Moisture – Density
  - 1. Compact fill and backfill materials to not less than the minimum percentage of density and moisture content for each area as indicated in the project's original soils report.
- C. Tests made as a result of noncompliance shall be at the Contractor's expense.

3.07 COMPACTION TESTS

- A. Tests for compliance will be made by a representative of the Owner, at the expense of the Owner, using the test procedures specified in Section 111 of the Uniform Standard Specifications and ASTM D1557.

- B. Field density tests shall be performed in accordance with the test procedures specified in ASTM D1556, ASTM D2922 and ASTM D3017.
- C. The location and frequency of field tests shall be at the discretion of the Engineer. Sufficient time shall be allotted to the Engineer for performing the necessary control test for acceptance of a compacted layer, before attempting to place new fill material. Any layer, or portion thereof, that does not meet density requirements, shall be reworked and recompacted until it meets the specified density requirements as determined by the Engineer.
- D. Tests made as a result of noncompliance shall be at the Contractor's expense.

3.08 PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01 50 00.
- B. Re-compact fills subjected to vehicular traffic.

END OF SECTION



**SECTION 32 01 90**  
**OPERATION AND MAINTENANCE OF PLANTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Maintain plants in manner that promotes health, growth, color and appearance, to quality levels specified; replace dead, dying, and damaged plants at no extra cost to Owner.
  - 1. It is Contractor's responsibility to determine type and quantity of soil amendments and fertilizer required.
- B. Clean up landscaped areas.
- C. Maintenance Period: The time frame covered by these requirements is 365 days:
  - 1. Start Date: Project Date of Substantial Completion.

**1.02 RELATED REQUIREMENTS**

- A. Section 32 93 00 - Plants.

**1.03 REFERENCE STANDARDS**

- A. ANSI A300 Part 1 - American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices; 2008.
- B. ANSI Z133.1 - American National Standard For Arboricultural Operations - Pruning, Repairing, Maintaining, And Removing Trees, And Cutting Brush - Safety Requirements; 2006.
- C. ASTM C602 - Standard Specification for Agricultural Liming Materials; 2007.
- D. ASTM D4972 - Standard Test Method for pH of Soils; 2001 (Reapproved 2007).

**1.04 SUBMITTALS**

- A. Soil Tests and Analysis: Submit report showing number of samples, test results, and recommendations for soil amendments and fertilizer.
- B. Product Data: Manufacturer's data sheets on each fertilizer, herbicide, pesticide, and other chemical material to be used, showing trade name, chemical composition, mixing instructions, recommended application rate, storage and handling instructions, and application instructions.
  - 1. Pesticides and Herbicides: Also include U.S. EPA registration number and Material Safety Data Sheets.
- C. Shop Drawings:
  - 1. Maintenance plan.
- D. Installer Qualifications: As specified.

- E. Site Reports: Include date, time, personnel, condition of plants, activities, temperature, precipitation, irrigation applied; record:
  - 1. Each visit for maintenance purposes.
  - 2. Volume of water applied and area applied to.
  - 3. Diagnosis for treatment of unhealthy plants.
  - 4. Pesticide application; provide all additional reports and recordkeeping required by law.
  - 5. Herbicide application; provide all additional reports and recordkeeping required by law.
  - 6. Removal of dead plants, with quantity and diagnosis.
  - 7. Replanting.

### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications:
  - 1. Maintenance Contractor: The contractual entity that performed the planting installation.

### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver U.S. EPA-controlled materials to site in original containers with legible labels indicating registration number and registered uses.
- B. Deliver fertilizer and manufactured soil amendments to site in original containers bearing manufacturer's chemical analysis, name, trade name or trademark, and indication of compliance with applicable state and federal laws and regulations ; alternatively, bulk delivery with equivalent certificate is acceptable.
- C. Store fertilizer, soil amendments, and mulch in dry locations away from contaminants.
- D. Do not store pesticides, herbicides, or other chemical treatment materials in locations where they could damage seeds or plants.

## **PART 2 PRODUCTS**

### **2.01 FERTILIZERS AND SOIL AMENDMENTS**

- A. Fertilizers: Free flowing granular organic type containing nitrogen, phosphorus, and potassium, plus trace minerals and micro-nutrients; controlled release type is preferred.
  - 1. Determine type and quantity based on soil analysis.
- B. Soil Amendments: Type and quantity as required to achieve specified results, based on soil analysis.
- C. pH Adjuster: ASTM C602 Class O limestone.
- D. Gypsum: Commercially packaged, free flowing, minimum 95 percent calcium sulfate by volume.

## **2.02 APPLIED MATERIALS**

- A. Water: Suitable for irrigation; Owner's water supply may be used.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. If soil analysis has not already been performed, take sufficient samples to obtain a comprehensive analysis; perform analysis in accordance with ASTM D4972.

### **3.02 LANDSCAPE MAINTENANCE - GENERAL**

- A. Obtain and follow the maintenance instructions provided by the installer of new plant materials.
- B. Protect existing vegetation, pavements, and facilities from damage due to maintenance activities; restore damaged items to original condition or replace, at no extra cost to Owner.
- C. General Cleanup: Remove debris from all landscape areas at least once a week and from turf areas before each mowing.
  - 1. Debris consists of trash, rubbish, dropped leaves, downed branches and limbs of all sizes, dead vegetation, rocks, and other material not belonging in landscaped areas.
  - 2. Remove debris from site and dispose of properly.
- D. Watering, Soil Erosion, and Sedimentation Control: Comply with federal, state, local, and other regulations in force; prevent over-watering, run-off, erosion, puddling, and ponding.
  - 1. Repair temporary erosion control mechanisms provided by others.
  - 2. Repair eroded areas and replant, when caused by inadequate maintenance.
  - 3. Prevent sediment from entering storm drains.
- E. Fertilizing: Apply fertilizer only when necessary.
- F. Drainage Channels: Remove obstructions in gutters, catch basins, storm drain inlets, yard drains, swales, ditches, and overflows.
  - 1. Remove grates from catch basins to clean.
  - 2. Prevent encroachment of other vegetation on turfed surface drainage channels.
- G. Health Maintenance: Inspect all plants regularly for health:
  - 1. Eradicate diseases and damaging pests, regardless of severity or speed of effect.
  - 2. Treat accidental injuries and abrasions.
  - 3. If a plant is unhealthy but not yet dead, according to specified definitions, determine reason(s) and take remedial action immediately.
  - 4. Remove dead plants immediately upon determining that they are dead.

## **2.02 APPLIED MATERIALS**

- A. Water: Suitable for irrigation; Owner's water supply may be used.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

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  - 1. Repair temporary erosion control mechanisms provided by others.
  - 2. Repair eroded areas and replant, when caused by inadequate maintenance.
  - 3. Prevent sediment from entering storm drains.
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  - 1. Remove grates from catch basins to clean.
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- G. Health Maintenance: Inspect all plants regularly for health:
  - 1. Eradicate diseases and damaging pests, regardless of severity or speed of effect.
  - 2. Treat accidental injuries and abrasions.
  - 3. If a plant is unhealthy but not yet dead, according to specified definitions, determine reason(s) and take remedial action immediately.
  - 4. Remove dead plants immediately upon determining that they are dead.

- H. Pesticide and Herbicide Application: Comply with manufacturer's instructions and recommendations and applicable regulations.
  - 1. Obtain Owner's approval prior to each application.
  - 2. Apply in manner to prevent injury to personnel and damage to property due to either direct spray or drifting, both on and off Owner's property.
  - 3. Use backflow preventers on hose bibbs used for mixing water; prevent spills.
  - 4. Inspect equipment daily before application; repair leaks, clogs, wear, and damage.
  - 5. Do not dispose of excess mixed material, unmixed material, containers, residue, rinse water, or contaminated articles on site; dispose of off site in legal manner.
  - 6. Rinse water may be used as mix water for next batch of same formulation.
  - 7. Contractor is responsible for all recordkeeping, submissions, and reports required by laws and regulations.
- I. Replanting: Perform replacement and replanting immediately upon removal of dead plant.

### **3.03 IRRIGATION**

- A. Irrigation: Do not allow plants to wilt; apply water as required to supplement rainfall; do not waste water; do not water plants or areas not needing water; do not water during rainfall; shut off water flow when finished; repair leaks.
  - 1. New automatic irrigation system may be used.
  - 2. Owner's water source may be used.
  - 3. Provide backflow preventers on hose bibbs used for irrigation hoses.

### **3.04 PLANTING BED MAINTENANCE**

- A. Planting beds include all planted areas except turf.
- B. Begin maintenance immediately after plants have been installed; inspect at least once a week and perform needed maintenance promptly.
- C. Keep planting beds free of pests; remove weeds and grass by hand before reaching 1 inch height.
- D. Do not allow climbing, twining, or creeping plants to encroach into other species.
- E. Replace mulch as required and remove debris.

### **3.05 TREE AND SHRUB MAINTENANCE**

- A. Trees will be considered dead when main leader has died back or when 25 percent or more of crown has died ; except as otherwise indicated for palm trees.
- B. Shrubs will be considered dead when 25 percent or more of plant has died.

- C. Inspect woody plants for health by scraping up to 1/16 inch square area of bark; no green cambium layer below bark shall be evidence of death.
- D. Adjust stakes, guys and turnbuckles, ties, and trunk wrap as required to promote growth and avoid girdling.
- E. Pruning: Unless otherwise indicated, prune only to maintain balanced natural shape; follow recommendations of ANSI A300 and ANSI Z133.1 and best local practices for species involved.
- F. Shrubs: Prune at least once during maintenance period at best time to influence ultimate shape and size for the particular species.
  - 1. Prune to balance the plant's form and according to its natural growth characteristics.
  - 2. Remove water shoots, suckers, and branches not conforming to desired shape and size.

### **3.06 CLEANING**

- A. Remove fallen deciduous leaves in Fall; removal may wait until all leaves have fallen.
- B. Clean adjacent pavements of plant debris and other debris generated by maintenance activities.
- C. Remove and dispose of general cleanup debris and biodegradable debris in a proper manner; Owner's trash collection facilities may be used.
- D. Remove and dispose of general cleanup debris and biodegradable debris in a proper manner.
  - 1. Biodegradable Debris: Owner will designate a compost pile on site where biodegradable debris may be deposited; branches and bark are not considered biodegradable.
  - 2. Branches and Bark: Owner will designate a wood chip storage area; machine-chip all branch and bark debris.
  - 3. Non-Biodegradable Debris: Owner's trash collection facilities may be used.

**END OF SECTION**

SECTION 32 11 23

AGGREGATE BASE COURSE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

1.02 RELATED SECTIONS

B. Section 31 20 00 – Earthwork.

C. Section 31 22 13 – Rough Grading: Preparation of Site for Base Course.

D. Section 31 23 23.13 – Backfilling: Compacted Fill Under Base Course.

E. Section 31 23 16.13 – Trenching: Compacted Fill Under Base Course.

F. Section 32 12 00 – Asphaltic Concrete Paving: Finish Asphalt Surface Course.

1.03 REFERENCES

A. AASHTO M147-65 – Materials for Aggregate and Soil-Aggregate

B. ASTM C136 – Sieve Analysis of Fine and Coarse Aggregates.

C. ASTM D698 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 pound Rammer and 12 inch Drop.

D. ASTM D1557 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 pound Rammer and 18 inch Drop.

E. ASTM D4318 – Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

F. Type I per Uniform Standard Specifications Section 704.

G. Type II per Uniform Standard Specifications Section 704.

PART 2 PRODUCTS

2.01 MATERIALS

A. Coarse Aggregate: As specified in Base Aggregates per Section 704 of Clark County Standard Specifications.

B. Fine Aggregate: As specified in Base Aggregates per Section 704 of Clark County Standard Specifications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify sub grade has been inspected and that grades and elevations are correct.

3.02 AGGREGATE PLACEMENT

- A. Spread coarse aggregate over prepared base in areas shown on plans.
- B. Place coarse aggregate in 4 inch layers and compact as specified.
- C. Level and contour surfaces to elevations and grades indicated.
- D. Add quantities of fine aggregate to coarse aggregate as required to obtain compaction specified by Soils Engineer.
- E. Use mechanical vibrating and tamping equipment in areas inaccessible to compaction equipment.

3.03 TOLERANCES

- A. Flatness: Maximum variation on  $\frac{1}{4}$  inch measured with 10-foot straight edge.
- B. Scheduled compacted Thickness: Within  $\frac{1}{4}$  inch.
- C. Variation from True Elevation: Within  $\frac{1}{2}$  inch.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01 40 00.
- B. Gradation of Aggregate: In accordance with ASTM C136.
- C. Compaction testing will be performed in accordance with ASTM D698.
- D. If tests indicate work does not meet specified requirements, remove work, replace, and retest at no cost to Owner.
- E. Frequency of Tests: Per Owner's Requirements.

END OF SECTION



## SECTION 32 12 00

### ASPHALT CONCRETE PAVING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. All on-site asphalt concrete paving work as shown on drawings and as specified herein.
- B. The work shall consist of one or more courses of bituminous mixtures constructed on the prepared foundation in accordance with these specifications and in conformity with the lines, grades, thicknesses and typical cross sections shown on the plans.
- C. Surface Sealer.

##### 1.2 RELATED SECTIONS

- A. Document 00 31 00 - Information Available to Bidders.
- B. Section 01 40 00 - Quality Control.
- C. Section 01 43 26 - Testing Laboratory Services.
- D. Section 31 20 00 - Earthwork.
- E. Section 31 23 23.13 - Backfilling.
- F. Section 32 11 23 - Aggregate Base Course.

##### 1.3 REFERENCES

- A. Any state highway department specifications sections referred to or noted on the drawings, which pertain to asphaltic concrete paving design, materials, preparation, and/or execution of this product shall supersede this section. All materials shall be as indicated on Drawings and shall comply with applicable state highway specification regarding source, quality, gradation, and mix design proportioning.
- B. Asphaltic concrete paving design, materials, preparation, and/or execution shall be per the latest edition of the Uniform Standard Specifications for Public Works' Construction Off-Site Improvements, Clark County Area, Nevada, unless otherwise noted on construction documents. Sections 401, 402, 403, 404, 405, 406, 407, and 408, shall be used.
- C. The Asphalt Institute - Manual MS-4 - The Asphalt Handbook
- D. The Asphalt Institute - Manual MS - 13 - Asphalt Surface Treatments and Asphalt Penetration Macadam.
- E. ASTM D946 - Penetration - Grades Asphalt Cement for Use in Pavement Construction.
- F. International Building Code (IBC), 2009 edition (or latest edition).

##### 1.4 SUBMITTALS

- A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements. Copies of these certificates will be forwarded to the testing laboratory for verification of materials in the field.
- B. Composition of Mixtures: the bituminous plantmix shall be composed of a mixture of aggregate, mineral filler if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded and combined in such proportions that the resulting mixture meets the grading requirements of the job-mix formula.  
  
The Traffic Category for the permanent plantmix bituminous surface 3 inches or greater in depth shall be Traffic Category II. Plantmix bituminous surface depths of less than three inches shall be Traffic Category II.
- C. Before starting work, the Contractor shall submit a proposed job-mix formula in writing for review by the test laboratory prior to setting the job-mix formula to be used. The proposed job-mix formula shall be determined by a testing laboratory under the direction and control of a Registered Professional Engineer, based on tests performed in accordance with "Marshall Methods of Mix Design" as described in Chapter III of the Asphalt Institute Manual Series No. 2 (MS-2), Latest Edition, using fifty (50) compaction blows. Voids and effective asphalt contents will be determined and reported in accordance with procedures described in Chapter V of the same publication.
- D. The job-mix formula asphalt content shall satisfy all Marshall design criteria as shown on the appropriate table in Section 401.02.01 in the Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area, Nevada.

1.5 SITE CONDITIONS

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees F., and when temperature has not been below 35 degrees F. for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
- B. The bituminous mixture shall not be placed upon wet surface or when the surface temperature of the underlying course is less than specified in Table I. The temperature requirements may be modified, but only when so directed by the Engineer when recommended by the Testing Laboratory.

C. **TABLE I - BASE TEMPERATURE LIMITATIONS**

<u>Mat Thickness</u>	<u>Base Temperature</u>	
	<u>Degrees F</u>	<u>Minimum Degrees C</u>
3 Inches or Greater	40	4
Greater than 1 Inch but Less than 3 Inches	45	7
1 Inch or Less	50	10

The open-graded plantmix surface shall be placed only when the pavement surface temperature is above 60 degrees F.

- D. Grade Control: Establish and maintain required lines and elevations.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Use locally available materials and gradations, which exhibit a satisfactory record of previous installations. All materials shall comply with the Uniform Standard Specifications for Public Works' Construction Off-Site Improvements, Clark County Area, Nevada (latest edition).
- B. Base Course Aggregate: Base course aggregate material shall be Type II gravel conforming to the Standard Specifications (latest edition) and the following:

<b>Sieve Size</b>	<b>Percentage Passing</b>
1 inch	100
¾ inch	90-100
No. 4	35-65
No. 16	15-40
No. 200	2-10

C. The base course aggregate shall conform to the Standard Specifications.

D. Aggregate for Bituminous Course:

- The aggregate shall conform to the following requirements and to the Uniform Standard Specifications for Public Works' Construction Off-Site Improvements, Clark County Area, Nevada:

**Percentage By Weight**

<b>Sieve Size</b>	<b>Passing Sieve</b>
1/2 inch	100
3/8 inch	90-100
No. 4	55-85
No. 8	32-67
No. 50	7-27
No. 200	2-10

<b>Project Tests</b>	<b>Test Methods</b>	<b>Requirements</b>
Sieve Analysis	ASTM D-422	Above
Sampling Aggregate	ASTM D-75	_____
Fractured Faces	NEV T-230	50% Minimum
Plasticity Index	ASTM D-424	6% Maximum
Liquid Limit	ASTM D-423	35% Maximum

<b>Source Tests</b>	<b>Test Methods</b>	<b>Requirements</b>
Stripping Tests	ASTM D-1664	Satisfactory
Percentage of Wear (500 Rev.)	ASTM C-131	45% Maximum

E. Bituminous Materials:

- The grade of bituminous material shall be AC-30 asphalt cement for Traffic Category I pavements. AC-20 asphalt cement shall be used for Traffic Category II pavements. The grade may be changed one step by the Engineer.
- Bituminous material may be conditionally accepted at the source.
- Certificates of Compliance for asphalt, showing test values necessary for specification compliance, shall be made available upon request by the Testing Laboratory.

F. Prime Coat: Cut-back asphalt type; MC-70 liquid asphalt.

- G. Tack Coat: Emulsified asphalt, SS-1h, or CSS-1h, diluted with one part water to one part emulsified asphalt by weight. Must conform to Uniform Standard Specification 405 and related sections.
- H. Traffic and Lane Marking and Striping:
  - 1. Factory-mixed, quick drying, and non-bleeding.
  - 2. Manufacturer: Bauer Division - Whittaker coatings.  
1746A9 formula PT-700 or PT-701 or approved manufacturer.
  - 3. Color: White
- I. Fog Seal: Homogeneous, slow setting, liquid asphalt SS-1h or CCS-1h, conforming to applicable provisions of Uniform Standard Specifications Section 407 and related sections, and with the requirements contained herein.
- J. Sand Blotter: Conforming to applicable provisions of Uniform Standard Specifications Sections 406, 407, 705.03.06, and related sections, and with requirements contained herein.

### PART 3 EXECUTION

#### 3.1 EQUIPMENT

- A. Contractor shall have the proper equipment to accomplish the work specified. Contractor shall maintain his equipment and keep in good operating condition throughout the paving and grading operations.

#### 3.2 SURFACE PREPARATION

- A. The sub-grade to receive asphalt concrete or asphalt concrete base immediately prior to applying prime coat, shall conform to the compaction and elevation tolerance specified for the material involved and shall be free of loose or extraneous material.
- B. Notify the Owner of unsatisfactory conditions. Do not begin paving work until deficient base areas have been corrected and are ready to receive paving.
- C. Prime Coat: Apply at rate of 0.20 to 0.50 gallons per square yard over compacted sub-grade. Apply material to penetrate and seal, but not flood surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.
- D. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gallons per square yard of surface.
- E. Allow to dry until at proper condition and per manufacture's specifications prior to receiving paving.

#### 3.3 SPREADING AND FINISHING

- A. The mixture shall be laid upon an approved surface, and shall be spread and struck off to the grade and elevation established. Bituminous pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable.
- B. The forward rate of travel of the paving machine(s) shall be regulated to a speed that accommodates the capacity of the mixing plant to furnish the mixture, but provides a uniformly compacted surface. The machine(s) shall move at a uniform rate with minimum amount of stopping. The paving

machine shall be operated so that material does not accumulate and remain along the sides of the receiving hopper.

- C. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be spread, raked, and compacted by hand tools. For such areas, the mixture shall be dumped, spread, and screeded to give the required compacted thickness, correct grade, and cross section.
- D. The Contractor may windrow plant mixed bituminous base or surface material in front of the spreading and finishing machine, provided that the following conditions and requirements are strictly adhered to:
  - 1. The windrow is properly sized, thereby insuring the delivery of the correct amount of material to the spreading and finishing machine at all times.
  - 2. The bituminous mixture shall be transferred from the windrow to the spreading and finishing machine in such a manner that the materials in the spreading machine will be a uniform mixture. The base, upon which the windrow was formed, shall not be disturbed and there shall be no paving material remaining on this base between the pickup device and the spreading and finishing machine.
  - 3. The temperature requirements for the material in the hopper of the spreading and finishing machine are complied with. Plantmix bituminous mixture that does not meet the minimum temperature specified shall not be incorporated in the work, but shall be wasted in a manner satisfactory to the Architect based upon recommendations from the testing laboratory.
- E. Should any course of bituminous mixture placed by utilizing a windrow be inferior, as determined by the testing laboratory, to that placed by transferring the bituminous mixture directly from the hauling vehicle to the spreading machine, the use of a windrow shall be discontinued.
- F. The bituminous mixture spread through the paving machine during one (1) day's operation shall come from a single plant manufacturer. Intermixing from more than one (1) source shall not be allowed.

### 3.4 ROLLING AND COMPACTION

- A. The initial or breakdown rolling shall consist of one (1) complete coverage of the bituminous mixture with a steel wheeled roller. Initial rolling shall commence at the lower edge and shall progress toward the highest portion of the edge. Under no circumstances shall the center be rolled first.
- B. The initial or breakdown rolling shall be followed by rolling such that uniform density is obtained throughout the depth of the layer of the material being compacted.
- C. The total number of rollers used shall be sufficient to obtain the required compaction while the mixture is in a workable condition.
- D. The final rolling of the bituminous mixture shall be performed with the same type of roller used for breakdown rolling.
- E. Rolling shall be performed in such a manner that the roller is capable of changing directions smoothly.
- F. The roller shall be kept in continuous motion while rolling so that all parts of the pavement shall receive equal compression.
- G. The motion of the roller shall be slow enough at all times to avoid displacement of the pavement.

- H. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected immediately by the use of takes and fresh mixture, when required.
- I. To prevent adhesion of the mixture to the roller, the wheel shall be kept properly moistened.
- J. The use of diesel oil on the roller wheels shall be kept to a minimum by means of occasional mist spray.
- K. Roller drums containing diesel oil will not be allowed.

### 3.5 TACK COAT

- A. A tack coat shall be applied between lifts of the asphalt concrete paving where directed by Engineer and shall be applied at the rate of 0.10 gallon per square yard of surface, unless otherwise directed by Engineer.

### 3.6 FOG SEAL

- A. The fog seal coat shall be applied to the top surface of the asphalt concrete pavement immediately after the asphalt concrete has set and cooled, in accordance with Section 407 of the Standard Specifications and as specified herein. Apply at a rate of 0.10 gallon per square yard of surface, unless otherwise requested by Engineer.

### 3.7 ACCEPTANCE SAMPLING AND TESTING OF BITUMINOUS MIXTURE (COMPACTION)

- A. Field density determinations of the bituminous mixture shall be made in lots by the testing laboratory, each lot representing one (1) day's placement. A lot shall be divided into five (5) equal sublots, and one (1) test shall be made for each subplot. The location of the field density test may be chosen on a random basis through the use of an appropriate random numbers table.
- B. Determination of the field density of the compacted bituminous mixture shall be accomplished not later than the end of the following work day by either ASTM D 2950, "Density of the Bituminous Concrete in Place by Nuclear Method", or ASTM D 1188, "Bulk Specific Gravity of compacted Bituminous mixtures using Paraffin-coated Specimens". Zinc stearate may be substituted for paraffin. When the nuclear method is used, the nuclear devices shall first be correlated with the density of core samples. The nuclear method shall not be used when the thickness of the bituminous pavement is 2 inches or less. In case of dispute, ASTM D 1188 test method shall control.
- C. The theoretical maximum density of the bituminous mixture shall be determined by taking random samples of the mixture delivered to the job site and testing in accordance with ASTM D 2041, "Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures". At least one (1) theoretical maximum density determination shall be made, but not less than two (2) determinations for each days production over five hundred (500) tons.
- D. Each lot of the compacted bituminous mixture will be accepted when the average of the five (5) density determinations is equal to, or greater than, ninety-two (92) percent and when no individual determination is lower than ninety (90) percent of the theoretical maximum density.

### 3.8 MAINTAINING TRAFFIC

- A. Traffic shall not be allowed on newly placed pavement for at least twenty-four (24) hours and until the bituminous paving mix in-place temperature has dropped below 140 deg. F.
- B. Exceptions shall be made at the discretion of the Construction Manager. Artificial means to reduce the pavement temperature may be used as approved by the Architect upon recommendations of the testing laboratory.

- C. Erect barricades to protect paving from traffic until mixture has cooled enough to become marked.

### 3.9 TRAFFIC AND LANE MARKINGS AND STRIPING

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust. Refer to drawings for size and layout of traffic and lane markings and parking lot striping. Refer to Section 32 17 23 for additional information.

### 3.10 FIELD QUALITY CONTROL

- A. General: The testing laboratory shall test in-place asphalt concrete courses for compliance with requirements for thickness density and surface smoothness. Repair or remove and replace unacceptable paving as directed by Architect.
- B. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
  - 1. Aggregate Base Course: 1/2 inch, plus or minus.
  - 2. Bituminous Surface Course: 1/4 inch, plus or minus.
- C. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
  - 1. Bituminous Surface Course: 1/8 inch.
- D. Check surface areas at intervals as directed by Engineer.

END OF SECTION

SECTION 32 13 00  
PORTLAND CEMENT PAVING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Concrete sidewalks, curbs, gutters, concrete channel, and parking areas.
- B. Reinforcement.
- C. Surface finish.
- D. Curing.

1.2 RELATED SECTIONS

- A. Section 31 23 23.13 - Backfilling: Compacted fill for paving.
- B. Section 32 12 00 - Asphalt Concrete Paving.
- C. Section 03 30 00 - Cast-in-Place Concrete.
- D. Section 07 92 00- Joint Sealers: Sealant for joints.

1.3 REFERENCES/REQUIREMENTS

- A. ACI 304 - Recommended practice for Measuring, Mixing, Transporting, and Placing Concrete.
- B. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- C. ANSI/ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- D. ANSI/ASTM A615 - Deformed and Plain Billet-Steel for Concrete Reinforcement.
- E. ASTM C31 – Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Field.
- F. ASTM C33 - Standard Specifications for concrete Aggregates.
- G. ASTM C39 - Method of Test for compressive Strength of Molded concrete cylinders.
- H. ASTM C94 - Standard Specifications for Ready-Mixed Concrete.
- I. ASTM C143 - Portland Cement Concrete.
- J. ASTM C150 - Standard Specifications for Portland Cement.
- L. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- K. ASTM C494 - Chemical Admixtures for Concrete.
- M. ANSI/ASTM D1751 and D1752 - Preformed Expansion Joint Fillers for Concrete Paving.
- N. Reference Standard Specifications: Materials and workmanship specified herein with reference to the Uniform Standard Specifications for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition, and with reference to the Standard Specifications for Ready-



Mixed Concrete (ASTM C94, latest edition), shall be in accordance with the referenced articles, sections and paragraphs of the standards except that contractual, measurement, and payment provisions do not apply.

#### 1.4 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301 (latest edition) requirements and Division 3 -Concrete.
- B. Obtain cementaceous materials from same source throughout construction.

#### 1.5 REGULATORY REQUIREMENTS

- A. Conform to Uniform Standard Specifications, for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada, latest edition and supplements, for site concrete work on public or private property.

#### 1.6 TESTS

- A. Testing and analysis will be performed under provisions of Section 01 40 00.
- B. Submit proposed mix design of each class of concrete to Architect/Engineer for review prior to commencement of work.
- C. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.

#### 1.7 SUBMITTALS

- A. Submit product data under provisions of Section 01 33 00 and 01 33 23.
- B. Include data on joint filler, admixtures, and curing compounds.
- C. Submit manufacturer's instructions under provisions of Section 01 33 00 and 01 33 23.
- D. The Contractor's proposed concrete mix design shall be submitted to the Engineer for review prior to use on the work.

### PART 2 PRODUCTS

#### 2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150 Sulphate Resistant-Type V low alkali Portland type only, gray color. Shall conform to Section 701 of the Clark County Uniform Standard Specifications.
- B. Fine and Coarse Aggregates: Shall conform to Section 706 of the Standard Specifications and to the requirements of ASTM C33. Coarse aggregate shall be of 1 1/2 inches maximum size, except as otherwise specified herein.
- C. Water: Clean and not detrimental to concrete. Water shall be of potable quality.

#### 2.2 FORM MATERIALS

- A. Conform to ACI 301.

#### 2.3 ACCESSORIES

- A. Curing Compound: FS TT-C-800, Type 1, 30 percent solids.

- B. Joint materials shall conform to Section 707 of the Uniform Standard Specifications, except as otherwise noted on Drawings or by Engineer.

2.4 ADMIXTURES

- A. Chemical Admixture: ASTM C494, Type A - water reducing, or Type D water reducing and retarding.

2.5 AGGREGATES

- A. Aggregates shall conform to Section 706 of the Uniform Standard Specifications and to the requirements of ASTM C33. Coarse aggregate shall be of 1-1/2 inch maximum size, except as otherwise specified herein.

2.6 CONCRETE MIX

- A. Concrete shall conform to the requirements of Section 501 of the Standard Specifications and to the requirements of ASTM C94, subject to the modifications and supplemental requirements contained in these Specifications. Fly Ash will be permitted only in concrete used for curb and gutter construction.

- B. Water-Cement Ratio and compressive Strength

1. The minimum compressive strength and cement content of concrete shall be not less than that shown in the following tabulation. The Engineer may request the cement content for any concrete to be increased over the quantity specified herein or contained in the concrete mix designs if he determines that such increase is necessary in order to attain the required strengths. Such increased quantities of cement, if so requested, shall be furnished by the Contractor at no additional cost to Owner. The maximum water-cement (W/C) ratio by weight, normal weight, and aggregate concrete shall be 0.45 for 4,500 psi concrete.

- 2.

Min. 28-day Class of Concrete	Compressive Strength (psi)	Type of work	Max Size Aggregate (inches)	Min Cement Per cubic Yard
AA(Modified)	4,500	RGB Culverts	1 1/2	6.0
A or AA	4,500	Headwall, Drop Inlets, Rise Pipe Inlets	1 1/2	6.0
PCAA	4,500	Concrete pavement	2	6.0
B	4,500	All other work	2	5.5

NOTE: One sack of cement equals 94 pounds. Above strengths are to be used unless otherwise noted on drawings.

3. The Contractor is hereby cautioned that the cement contents shown above are minimum values and for general information. The contractor or concrete supplier shall, at its own expense, furnish additional quantities of cement as required to consistently obtain the compressive strengths designated above. Mix design shall be in accordance with governing agency standards and specifications and 2006 IBC, Table 1904.3 (latest edition).

## 2.8 PIGMENTED CURING COMPOUND

- A. Techkote Product No. 82 as manufactured by National Expansion Joint Co., Oakland, California; Burke Pigmented Cure; or approved equal.
- B. A type which will not prevent the adherence of paint or coating to the concrete surface.

## PART 3 EXECUTION

### 3.1 INSPECTION

- A. Provide written verification that compacted granular base is ready to support paving and imposed loads.
- B. Provide written verification that gradients and elevations of base are correct.
- C. Beginning of installation means acceptance of existing conditions.

### 3.2 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Notify Architect/Engineer and Construction Manager and required agencies a minimum of twenty-four (24) hours prior to commencement of concreting operations.
- C. Coat surfaces of manholes, catch basins, and other surfaces with oil to prevent bond with concrete pavement.

### 3.3 FORMING

- A. Place and secure forms to correct location, dimension, and profile.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

### 3.4 REINFORCEMENT

- A. Place reinforcement at mid-height of slabs-on-grade unless otherwise indicated on Drawings.
- B. Interrupt reinforcement at joints as shown on Drawings.
- C. Provide doweled joints at interruptions of concrete with one end of dowel lubricated to allow longitudinal movement.

### 3.5 FORMED JOINTS

- A. Locate joints as specified herein or shown on the plans.
- B. Make all joints perpendicular and straight.

C. Contraction Joints.

1. Sidewalk: Weakened plane joints shall be constructed every 10 feet (maximum) and shall conform to Section 613 of the Uniform Standard Specifications unless otherwise noted on Drawings or by Engineer.
2. Curb and Gutter: Contraction joints shall be constructed every 10 feet (maximum) by using steel templates not less than 1/8 inch nor more than 3/16 inch in thickness. The templates shall be removed as soon as the concrete has set sufficiently to hold its shape. Where curbs and gutters are placed by slip form methods, the contraction joints every 10 feet may be provided by cutting into the fresh concrete to a minimum depth of 1-1/2 inches to create a plane of weakness. The edges of such joints shall be rounded to provide a neat workmanship appearance.
3. Mow Strips: Every 10 feet by scoring the strip to 1/4 inch thickness.
4. Immediately after the forms are removed, the owner's representative shall inspect the contraction joints carefully. Any concrete or mortar that has sealed across the joint shall be cut neatly and removed.

D. Expansion joints.

1. Sidewalk: Expansion joints shall be one-half inch except on accessible path where one-quarter inch in thickness shall be constructed every 30 feet by using pre-molded expansion joint material and shall conform to Section 613 of the Uniform Standard Specifications. Expansion joints shall be placed where the new sidewalk meets existing sidewalks and new curbs. Also, expansion joints and caulking shall be placed where the new sidewalk meets fixed objects. No dowel bars shall be required at the joints. Top of joint material shall be 1/2 inch below top of finished concrete, under provisions of Section 07 90 00.
2. Curb, Gutter, and Mow Strips: Expansion joints, 1/2 inch in thickness, shall be constructed every 30 feet and at changes in direction by using pre-molded expansion joint filler and shall conform to Section 613 of the Uniform Standard Specifications. Where curbs, and curb and gutter are placed by slip form methods, expansion joints required at 300' maximum. For both formed and slip formed curb and gutter, joint filler shall also be placed between the curb and/or gutter and storm drainage structures.

### 3.6 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301 and Section 502 of the Uniform Standard Specifications.
- B. Ensure reinforcement, inserts, embedded parts, formed joints and dowels are not disturbed during concrete placement.
- C. Place concrete continuously between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- D. Place concrete to straight line pattern. Saw cut contraction joints 1/2 inch wide at an optimum time after finishing. Cut 1/4 inch into depth of slab. Refer to contract drawings for spacing requirements.

### 3.7 FINISHING OF CONCRETE SURFACES

- A. All finished or formed surfaces shall conform accurately to the shape, alignment, grades and sections as shown or requested. Surfaces shall be free of fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous, hard surface.
- B. Exposed vertical corners of all concrete structures shall be given a 3/4 inch chamfer. Forms shall not be removed until permission to do so has been received from Engineer.

- C. Excessive floating of surfaces while the concrete is plastic will not be permitted. Exposed uniformed surfaces of concrete shall be given the following finishes: Area paving - broom finish; concrete aprons - heavy broom finish; Sidewalk paving - broom finish, radiused to 1/2 inch, and trowel joint edges; curbs and gutters-broom finish; Inclined vehicular ramps -broomed perpendicular to slope; Other surfaces - steel trowel finish.
- D. Dusting on of dry cement or sand to absorb excess moisture will not be permitted. Unless otherwise shown, the edges of all exposed horizontal surfaces shall be finished with an edging tool to a radius of 1/2 inch.
- E. All concrete surfaces on which pedestrians can walk shall be finished such that the minimum static coefficient of friction between the surface and normal hard soled shoes shall be in strict accordance with ADA Guidelines, latest edition.

### 3.8 CURING

- A. Place curing compound on exposed concrete surfaces immediately after finishing. All structural concrete shall be cured by being moist for fourteen (14) days after placing or, at the option of the Contractor, may be cured by use of a curing compound meeting the requirements of Section 702 of the Uniform Standard Specifications, and which has been approved by the Engineer.
- B. The curing compound shall be applied in accordance with the manufacturer's instructions at a minimum coverage rate of 150 square feet per gallon in such a manner as to cover the surface with a uniform film, which will seal thoroughly.

### 3.9 CONCRETE CURB AND GUTTER

- A. General. Concrete curb and gutters shall be constructed in accordance with Section 613 of the Uniform Standard Specifications, except as otherwise provided herein. Unless otherwise specified in the project Geotechnical Investigation, all on-site curbing shall be constructed over 6" minimum Type II base, compacted per the project's soils report.
- B. Extruded Curb and Gutter and/or Curb. Extruded curb and gutter shall be in accordance with the requirements of Section 613 of the Uniform Standard Specifications, and the requirements contained herein.
  - 1. Upon prior approval by Engineer, a curb and gutter extrusion machine may be used to produce the curb and gutter and/or curb in place. However, the product produced by such a machine must be equal to or exceed the product produced by steel forms. Extruded curb and gutter and/or curbs shall not be permitted for longitudinal slopes of 0.4 percent or less for on-sites.
  - 2. When the concrete is in place, the voids in the concrete shall not exceed seven (7) percent of the total volume of the concrete mass.
  - 3. Where curb and gutter extrusion machines are approved for use, expansion joints shall be required at the E.C. and B.C. of curb returns, and also along the line of the work at regular intervals not to exceed 30 feet. Unless otherwise specified, transverse weakened plane joints on curb and gutter produced by an extrusion machine shall be constructed at 10-foot intervals along the line of work.

### 3.10 PARKING BUMPERS

- A. Install pre-cast concrete parking bumpers as shown on the drawings.
- B. Drill through pavement and secure with steel rods.

### 3.11 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01 40 00 and 01 43 26.

B. Concrete Tests

1. Three (3) concrete cylinders will be taken for every 75 or less cubic yards of each class of concrete placed each day. One (1) additional test cylinder will be taken during cold weather and cured on site under the same conditions as the concrete it represents.
2. One (1) slump test will be taken for each set of test cylinders taken.
3. Maintain records of placed concrete items. Record data, location of placement, quantity, air temperature, and test samples taken.
4. Portland cement concrete shall be subject to the requirements and test methods contained in Section 501.02.04 of the Uniform Standard Specifications.
5. The determination of compressive strength in psi will be made by testing 6-inch diameter by 12-inch cylinders, made and cured in accordance with ASTM C31 and ASTM C39. Tests and analysis of the aggregates and of the resulting concrete will be made by Engineer and the mixes used shall be changed whenever, in the opinion of the Engineer, such change is necessary or desirable to secure the required workability, density, impermeability, surface finish and strength; and the Contractor shall be entitled to no additional compensation because of such changes. The cost of laboratory tests on cement, aggregate, and concrete will be borne by the Owner, but the Contractor shall assist the Engineer in obtaining specimens for testing.

3.12 PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury.

END OF SECTION

## SECTION 32 17 23

### PAVEMENT MARKING

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Raised and painted pavement markers shall be furnished and applied in accordance with Section 628 and 633 of the Standard Specifications. This work shall also include the furnishing and installing of thermoplastic crosswalks and stop bars including glass beads.
- B. Reference Standard Specifications: Materials and workmanship specified herein with reference to the Uniform Standard Specifications for Public Works' construction, Off-site Improvements, Clark County Area, Nevada, latest edition, and supplements shall be in accordance with the referenced articles, sections, and paragraphs of the Standard Specifications except that contractual and payment provision do not apply.

##### 1.02 QUALITY ASSURANCE

- A. The manufacturer of thermoplastic materials, and primer if required, shall furnish to the Engineer a Certificate of Compliance to Specifications. The certificate shall also include a list, by title and section, of all applicable State and Federal packaging and labeling laws and regulations and a statement that all such laws and regulations have been compiled with.

#### PART 2 PRODUCTS

##### 2.01 COLD POLYMER PAVEMENT MARKING

- A. Crosswalks shall be per governing agency specifications and details.

##### 2.02 PAVEMENT MARKING PAINT

- A. Alkyd-resin type, ready mixed, complying with FS TT-P-115, Type I or AASHTO M-248, Type N. Paint shall meet all applicable Clark County Area Standard Specifications.

#### PART 3 EXECUTION

##### 3.01 PREPARATION

- A. Surfacing which is to receive the cold polymer marking material or marking paint shall be mechanically wire brushed to remove all dirt and contaminants.
- B. Surfaces of new Portland cement concrete pavement to receive the cold polymer marking or marking paint material shall be mechanically wire brushed or abrasive blast cleaned to remove all laitance and curing compound.

- C. Pavement markers, which are damaged by blast cleaning or wire brushing shall be removed and replaced by the contractor at its expense.

### 3.02 APPLICATION

- A. The cold polymer pavement marking material shall be applied per manufacturer's specifications.

### 3.03 PAVEMENT MARKING PAINT

- A. Apply pavement marking paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

END OF SECTION



**SECTION 32 18 16.13**  
**PLAYGROUND PROTECTIVE SURFACING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Removal of existing protective surfacing and correction of grades as necessary.
- B. Protective surfacing for playground area.
- C. Subbase under resilient surfacing.
- D. Containment curbs.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 11 68 13 - Playground Equipment: Playground layout (staking).

**1.03 REFERENCE STANDARDS**

- A. ASTM A106/A106M - Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service; 2010.
- B. ASTM C94/C94M - Specification for Ready-Mixed Concrete; 2011.
- C. ASTM C136 - Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.
- D. ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu ft (2,700 kN-m/cu m)); 2009.
- E. ASTM D2047 - Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine; 2004.
- F. ASTM D6662 - Standard Specification for Polyolefin-Based Plastic Lumber Decking Boards; 2009.
- G. ASTM F1292 - Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment; 2009.
- H. ASTM F1487 - Standard Consumer Safety Performance Specification for Playground Equipment for Public Use; 2007a.
- I. ASTM F2075 - Standard Specification for Engineered Wood Fiber for Use as a Playground Safety Surface Under and Around Playground Equipment; 2010a.
- J. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2010.
- K. CPSC Pub. No. 325 - Handbook for Public Playground Safety; Consumer Products Safety Commission; 2008.

#### 1.04 DEFINITIONS

- A. Use Zone: The area beneath and immediately adjacent to a play structure or equipment (play event) that is designated for unrestricted circulation around equipment, and on whose surface it is predicted that a user would land when falling from or exiting the equipment.
- B. Critical Fall Height: The maximum fall height at which the protective surfacing meets the requirements of ASTM F1292.
- C. High Play Activity Area: Areas where the fall height is especially great, such as at swings. A high play activity area is defined only where the protective surfacing of the entire playground area is not designed for the greatest fall height. High play activity areas are defined on the drawings.
- D. Fall Height: The vertical distance between the finished elevation of the designated play surface and the finished elevation of the protective surfacing beneath it as defined by ASTM F1487.
- E. Protective Surfacing: Resilient ground surfacing. The characteristics of the protective surfacing are based on the fall height of the playground equipment. Changes in either the surfacing or the fall height, particularly reducing the resilience of the protective surfacing or increasing the fall height, will reduce safety-related performance.
- F. Subbase: A layer under the resilient layer of the protective surfacing but over the subgrade; may be rigid, as in concrete or bituminous, or aggregate.
- G. Subgrade: The surface of the ground on which the protective surfacing is installed.

#### 1.05 SUBMITTALS

- A. Product Data: For all manufactured surfacing products, provide manufacturer's product data showing materials of construction, compliance with specified standards, installation procedures, and safety limitations.
  - 1. Include IPEMA certifications where required.
  - 2. Treated Wood Products: Provide information on wood treatment chemical content, toxicity level, and life-cycle durability.
- B. Product Data: For natural surfacing materials, provide supplier's certification or mill certificate showing compliance with specified requirements.
- C. Shop Drawings: Detailed scale drawings showing locations of existing playground equipment and exposed footings, bases, and anchorage points.
  - 1. Clearly identify footing and base elevations in relation to a fixed survey point on site and to subgrade elevation and depth of protective surfacing, surveyed by land surveyor licensed in Nevada .
  - 2. Show locations of underground utilities, storm-drainage system and irrigation system.
  - 3. Show locations of related construction such as walkways and roadways, fences, site furnishings, and plantings.

4. Show measured fall height for each playground equipment item, determined in accordance with ASTM F1487.
  5. Show Use Zone perimeters, determined in accordance with ASTM F1487.
- D. Samples: For each product for which color must be selected provide color chart showing full range of colors.
- E. Percolation Test Report: Describing test method used and results.
- F. Maintenance Data:
1. For manufactured surfacing products, provide manufacturer's recommended maintenance instructions and list of repair products, with address and phone number of source of supply.
  2. For loose fill surfacing products, provide detailed re-ordering information to enable Owner to match installed material exactly.
- G. Manufacturer's Field Report.

#### **1.06 QUALITY ASSURANCE**

- A. Maintain one copy of the latest edition of ASTM F1487 and CPSC Pub. No. 325 at project site.
- B. Manufacturer Qualifications: Company regularly engaged in manufacturing products specified in this section, with not less than three years of experience.
1. Surfacing installed in minimum 10 sites and been in successful service minimum 5 years.
  2. Provide certificate of Insurance AA rated for minimum 1,000,000 dollars covering both product and general liability.
  3. Manufacturer's Representative: Provide name, company name and address, and qualifications.
- C. Installer Qualifications: Company certified by manufacturer for training and experience installing the protective surfacing; provide installer's company name and address, and training and experience certificate.

#### **1.07 PRE-INSTALLATION MEETING**

- A. Coordinate with Section 11 68 13 - Playground Equipment.
- B. Convene a meeting one week before starting earthwork for playground to discuss coordination between various installers.
1. Require attendance by personnel responsible for grading and installers of playground equipment, protective surfacing, footings, and adjacent work.
  2. Include representatives of Contractor.
  3. Notify Architect at least 2 weeks prior to meeting.

## **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, handle, and store protective surfacing to project site in accordance with manufacturer's recommendations.
- B. Store materials in a dry, covered area, elevated above grade.

## **1.09 WARRANTY**

- A. Provide minimum 5 year warranty for playground surfacing.

## **PART 2 PRODUCTS**

### **2.01 DESIGN CRITERIA**

- A. Because the safety of the playground depends on strict conformance to the design criteria, this information is provided for Contractor's information.
  - 1. The protective surfacing constitutes a resilient layer installed over a non-resilient layer, which is installed over the subgrade, with the top of playground equipment footings and anchorage devices covered by full depth of the resilient portion of the protective surfacing.
  - 2. The total depth available for protective surfacing, from surface of subgrade, is indicated on the drawings.
  - 3. The top elevation of the protective surfacing is intended to be flush with adjacent grades.
  - 4. Use Zone: The protective surfacing has been designed to provide acceptable impact attenuation as defined in ASTM F1292 for Critical Height of 6 feet.
- B. If deviation from specified depth is required, it is the Contractor's responsibility to make all changes required to maintain specified top elevation and required impact attenuation at no extra cost to Owner; obtain approval prior to proceeding; follow approval request procedure as specified for substitutions.

### **2.02 MATERIALS**

- A. Poured-In-Place Permeable Surfacing: Shredded rubber bonded with polyurethane adhesive, allowing water penetration, over aggregate subbase.
  - 1. Rubber: 100 percent recycled shredded styrene butadiene rubber (SBR) shreds or granules.
  - 2. Color: As selected from manufacturer's full range.
  - 3. Resilient Depth - Other Than High Play Activity Area: 3 inches, maximum.
  - 4. Resilient Depth - High Play Activity Area: 4 inches, maximum.
  - 5. Manufacturers:
    - a. GameTime, Inc : [www.gametime.com](http://www.gametime.com).
    - b. No Fault Industries : [www.nofault.com](http://www.nofault.com).

- c. Play Safe Surfacing, Inc : [www.playsafesurfacing.com](http://www.playsafesurfacing.com).
  - 6. Accessories: Provide manufacturer's standard containment curbs and tapered transition elements to support surfacing between changes of surface grade.
- B. Aggregate Subbase: As specified in Section 32 11 23.

### **PART 3 EXECUTION**

#### **3.01 PREPARATION FOR REPLACEMENT OF EXISTING LOOSE FILL SURFACING**

- A. Remove existing loose fill.
- B. Measure the location of all playground elements, including perimeter of existing protective surfacing, access and egress points, hard surfaces, walls, fences, and structures, and planting locations.
- C. Stake the layout of the entire Use Zone perimeter before starting any work, based on contract documents.
  - 1. Verify that Use Zone perimeters do not overlap hard surfaces, whether currently installed or not.
  - 2. If overlaps exist, notify Architect.
  - 3. Do not proceed until revised drawings have been provided, showing corrected layout.
- D. Inside Use Zones remove all obstructions that would extend into the resilient protective surfacing.
- E. Make surface of subgrade smooth and evenly sloped.
  - 1. Fill holes and depressions with borrow from same area or soil of similar type.
  - 2. Make changes to grades as indicated on the drawings.
- F. After subgrade is correct, mark intended depth of surfacing on the base supports of each item of playground equipment using paint or tape in a manner that will be easily verifiable during installation of surfacing.
- G. Perform percolation test at the lowest elevation of the subgrade in the areas to be covered by protective surfacing.
  - 1. Report results to Architect.
  - 2. If percolation is less than 1 inch in a 3 hour period, do not proceed.

#### **3.02 EXAMINATION**

- A. Playground equipment installer will perform playground layout prior to installation of footings; verify correctness of layout before starting this work.
- B. Verify that playground equipment and site furnishings and irrigation system located within playground area are complete.

- C. Verify location of underground utilities and facilities in the playground area. Damage to underground utilities and facilities will be repaired at Contractor's expense.
- D. Verify that subgrades are at proper elevations and that smooth grading is complete.
- E. Verify that proper depth of surfacing is marked on base supports of playground equipment.

### **3.03 PREPARATION**

- A. Correct subgrade irregularities to ensure that required depth of protective surfacing can be installed, and subgrade elevation is in accordance with manufacturer's requirements.
- B. Inside Use Zones remove all obstructions that would extend into the resilient protective surfacing.
- C. Remove rocks, debris, and other similar items.
- D. Install containment curbs with top surface flush with intended elevation of top surface of protective surfacing.

### **3.04 SUBBASE**

- A. Install aggregate subbase as indicated on drawings . Compact aggregate to maximum 95 percent, in accordance with ASTM D1557.
- B. Install with top surface of subbase no higher than grades and levels indicated and not more than 1/4 inch lower than grades and levels indicated.
- C. Install in true, even plane, sloped to provide positive drainage.
- D. Flatness Tolerance: 1/4 inch in 10 feet, maximum.

### **3.05 RESILIENT SURFACING LAYER**

- A. Install in accordance with CPSC Pub. No. 325, ASTM F1487, manufacturer's instructions, and requirements of authorities having jurisdiction.
- B. Install proper thickness throughout Use Zone(s).
- C. Clean and dry surface of subbase.
- D. Cover aggregate subbase with geotextile fabric:
  - 1. Verify that aggregate is free of ruts or protruding objects.
  - 2. Lap minimum 4 inches width at seams. Adhere seams in accordance with manufacturer's recommendations.
  - 3. Install fabric smooth, and free of tensile stresses, folds, or wrinkles.
  - 4. Protect fabric from clogging, tears, or other damage during surfacing installation.
  - 5. Repair or replace damaged fabric in accordance with manufacturer's recommendations.

E. Poured In Place Surfacing:

1. Mix components mechanically on-site in accordance with manufacturer's directions; do not mix by hand.
2. Install seamlessly; ensure complete bond to subbase.
3. Cover footings and foundations and adhere tightly around penetrating elements.
4. Maintain full thickness of resilient layers within Use Zone; cover or abut containment curbs as indicated on drawings; completely cover tapered transition edges.
5. Hand trowel exposed surface to smooth, even finish.
6. Impact Attenuation Layer: Install entire layer in one continuous pour on the same day.
7. Wear Surface: Bond wear surface to substrate with adhesive. Apply adhesive in small quantities so that wear surface can be applied before adhesive dries.
  - a. Install surfacing seamlessly. When wear surface is composed of different color patterns, pour surface continuously and seamlessly.
  - b. When seams are required due to color change or field conditions, place adjacent wear surface as soon as possible, before initial pour has cured. Coat edge of initial pour with adhesive and apply wear surface mixture immediately.
  - c. Add a minimum of 1/16 inch depth to specified surfacing depth to ensure required impact attenuation performance is met.
  - d. Install wear surface to cover foundations and adhere tightly around elements penetrating the surface.

**3.06 FIELD QUALITY CONTROL**

- A. Obtain the services of the equipment manufacturer's field representative to review the finished installation for compliance with specified requirements and with design criteria to the extent known to the Contractor; submit report of field review.
- B. Repair or replace rejected work until compliance is achieved.

**3.07 CLEANING AND PROTECTION**

- A. Restore adjacent existing areas that have been damaged from the construction.
- B. Clean playground equipment of construction materials, dirt, stains, filings, and blemishes due to shipment or installation. Clean in accordance with manufacturer's instructions, using cleaning agents as recommended by manufacturer.
- C. Clean playground area of excess construction materials, debris, and waste.
- D. Remove excess and waste material and dispose of off-site in accordance with requirements of authorities having jurisdiction.
- E. Protect installed products until Substantial Completion.

F. Replace damaged products before Substantial Completion.

**END OF SECTION**



**SECTION 32 93 00  
PLANTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preparation of subsoil.
- B. Topsoil bedding.
- C. New trees, plants, and ground cover.
- D. Relocated trees, plants, and ground cover.
- E. Mulch and Fertilizer.
- F. Maintenance.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 22 00 - Grading: Topsoil material.
- B. Section 31 23 23 - Fill: Topsoil material.

**1.03 PRICE AND PAYMENT PROCEDURES**

- A. Allowances:
  - 1. See Section 01 21 00 - Allowances, for cash allowances affecting this section.
  - 2. Allowance includes purchase and delivery of trees, plants, and ground cover. Installation is included in this section and is part of the Contract Sum.
- B. Unit Prices:
  - 1. See Section 01 22 00 - Unit Prices, for additional unit price requirements.
  - 2. Topsoil: By the cubic yard. Includes topsoil, placing topsoil.
  - 3. Plants: By the unit. Includes preparation of subsoil, placing topsoil, planting, watering and maintenance to specified time period.

**1.04 DEFINITIONS**

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.
- B. Plants: Living trees, plants, and ground cover specified in this Section , and described in ANSI Z60.1.

### **1.05 REFERENCE STANDARDS**

- A. ANSI/ANLA Z60.1 - American Standard for Nursery Stock; 2004.
- B. ANSI A300 Part 1 - American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices; 2008.

### **1.06 SUBMITTALS**

- A. Maintenance Data: Include cutting and trimming method ; types, application frequency, and recommended coverage of fertilizer .
- B. Submit list of plant life sources.
- C. Maintenance Contract.

### **1.07 QUALITY ASSURANCE**

- A. Nursery Qualifications: Company specializing in growing and cultivating the plants with three years documented experience.
- B. Tree Pruner Qualifications: Company specializing in pruning trees with proof of Arborist Certification.
- C. Tree Pruning: NAA - Pruning Standards for Shade Trees.
- D. Maintenance Services: Performed by installer.

### **1.08 REGULATORY REQUIREMENTS**

- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- B. Provide certificate of compliance from authority having jurisdiction indicating approval of plants, fertilizer and herbicide mixture.
- C. Plant Materials: Certified by federal department of agriculture; free of disease or hazardous insects.

### **1.09 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- B. Protect and maintain plant life until planted.
- C. Deliver plant life materials immediately prior to placement. Keep plants moist.

### **1.10 FIELD CONDITIONS**

- A. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F.
- B. Do not install plant life when wind velocity exceeds 30 mph.

## **1.11 WARRANTY**

- A. Provide one year warranty.
- B. Warranty: Include coverage for one continuous growing season; replace dead or unhealthy plants.
- C. Replacements: Plants of same size and species as specified, planted in the next growing season, with a new warranty commencing on date of replacement.

## **PART 2 PRODUCTS**

### **2.01 PLANTS**

- A. Plants: Species and size identified in plant schedule, grown in climatic conditions similar to those in locality of the work.

### **2.02 SOIL MATERIALS**

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; minimum pH value of 5.4 and maximum 7.0.

### **2.03 SOIL AMENDMENT MATERIALS**

- A. Fertilizer: Containing fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis..
- B. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 85 percent organic material measured by oven dry weight, pH range of 4 to 5; moisture content of 30 percent.
- C. Bone Meal: Raw, finely ground, commercial grade, minimum of 3 percent nitrogen and 20 percent phosphorous.
- D. Lime: Ground limestone, dolomite type, minimum 95 percent carbonates.
- E. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of plants.

### **2.04 MULCH MATERIALS**

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

### **2.05 TOP SOIL MIX**

- A. A uniform mixture of 1 part peat and 3 parts topsoil by volume.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that prepared subsoil and planters are ready to receive work.

- B. Saturate soil with water to test drainage.
- C. Verify that required underground utilities are available, in proper location, and ready for use.

### **3.02 PREPARATION OF SUBSOIL**

- A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.
- C. Scarify subsoil to a depth of 3 inches where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.
- D. Dig pits and beds 6 inches larger than plant root system.

### **3.03 PLACING TOPSOIL**

- A. Spread topsoil to a minimum depth of 4 inches over area to be planted. Rake smooth.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Remove vegetable matter and foreign non-organic material from topsoil while spreading.
- D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- E. Install topsoil into pits and beds intended for plant root balls, to a minimum thickness of 6 inches.

### **3.04 FERTILIZING**

- A. Apply fertilizer in accordance with manufacturer's instructions.
- B. Apply after initial raking of topsoil.
- C. Mix thoroughly into upper 2 inches of topsoil.
- D. Lightly water to aid the dissipation of fertilizer.

### **3.05 PLANTING**

- A. Place plants for best appearance.
- B. Place plants for best appearance for review and final orientation by Architect.
- C. Set plants vertical.
- D. Remove non-biodegradable root containers.
- E. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches under each plant. Remove burlap, ropes, and wires, from the root ball.

- F. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch layers. Maintain plant life in vertical position.
- G. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

### **3.06 MAINTENANCE**

- A. Provide maintenance at no extra cost to Owner; Owner will pay for water.
- B. Irrigate sufficiently to saturate root system and prevent soil from drying out.
- C. Remove dead or broken branches and treat pruned areas or other wounds.
- D. Neatly trim plants where necessary.
- E. Immediately remove clippings after trimming.
- F. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions.
- G. Control insect damage and disease. Apply pesticides in accordance with manufacturers instructions.
- H. Remedy damage from use of herbicides and pesticides.
- I. Replace mulch when deteriorated.
- J. Maintain wrappings, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.

**END OF SECTION**

SECTION 33 41 00

STORM WATER SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation of storm water drainpipe, fittings, accessories, and bedding materials.
- B. Installation of storm water culverts, inlets, catch basins, manholes, underdrains, and appurtenances.

1.02 RELATED SECTIONS

- A. Section 00 01 00 – Coordination
- B. Section 01 33 00 – Submittals.
- C. Section 01 40 00 – Quality Control.
- D. Section 31 23 23.13 – Backfilling.
- E. Section 31 23 16.13 – Trenching.
- F. Section 03 30 00 – Cast-in-Place Concrete.

1.03 REFERENCES

- A. The current edition of the Uniform Standard Specifications for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada referred to herein as the Uniform Standard Specifications.
- B. The current edition of the Uniform Standard Drawings for Public Works' Construction, Off-site Improvements, Clark County Area, Nevada referred to herein as the Uniform Standard Drawings.
- C. The current edition of the Clark County Regional Flood Control District Hydrologic Criteria and Drainage Design Manual referred to herein as the Drainage Design Manual.
- D. ASTM C76 – Specifications for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
- E. ASTM C150 – Specification for Portland Cement
- F. ASTM C443 – Specifications for Joint for Circular Concrete Sewer and Culvert pipe, Using Rubber Gaskets.
- G. ANSI/ASTM D2729 – Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.

- H. ASTM D2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- I. ASTM D3017 – Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- F. ASTM D3034 – Specification for Type PSM PVC Sewer Pipe and Fittings.
- G. ASTM A48 – Specification for Gray Iron Castings.
- H. ASTM D698 – Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort.
- I. ASTM F2648 / F2648M - 10 Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications
- J. All products must be on the governing agency’s approved product’s list.
- K. ASTM D2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

#### 1.04 REGULATORY REQUIREMENTS

- A. Conform to the Uniform Standard Specifications and Uniform Standard Drawings.
- B. Conform to the Drainage Design Manual where applicable.
- C. Conform to the local jurisdictional agency where applicable.

#### 1.05 SUBMITTALS

- A. Product Data: Provide data indicating pipe and pipe accessories.
- B. Manufacturers Installation Instructions: Indicate special procedure required to install products specified.
- C. Manufacturers Certificate: Certify that products meet or exceed specified requirements.
- D. Shop drawings, layout diagrams, and verification of D-loading for all reinforced concrete pipes shall be submitted to the Engineer for review in accordance with Section 01 33 00.
- E. Copies of all three-edge bearing test results per ASTM C76 shall be submitted to the Engineer.

#### 1.06 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of General Conditions.

- B. Record location of pipe runs, connections, clean-outs, manholes, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of unmapped utilities.
- D. Verify that field measurements and elevations are as indicated on drawings. Notify the Engineer of any discrepancies immediately.
- E. All field quality control inspections and tests shall be recorded and become record documents.

#### 1.07 COORDINATION

- A. Coordinate work under provisions of Section 01040.
- B. Verification of elevations of all existing storm drain pipes or manholes shall be made prior to installation of new storm drain pipes. Any discrepancies shall be reported to the Engineer immediately.

#### 1.08 RECEIVING, STORAGE AND HANDLING

- A. Upon receiving HDPE pipe, the pipe should be placed on a smooth, flat area, free of rocks and debris.
- B. Examine load quantities and quality of all pipes immediately after unloading. Inspect pipe carefully for possible damage from transportation or unloading.
- C. Note damage or missing items on delivery receipt.
- D. Damaged material is not to be used and shall be removed from the site with no additional cost to owner. Re-order replacement material.
- E. To avoid damage to the pipe and fittings, the following handling recommendations should be followed:
  1. OSHA safety requirements
  2. Do not drop pipe
  3. For HDPE pipe, 18" and smaller pipe can be moved by hand. Larger pipe requires a backhoe with nylon sling.
  4. Lift 36" and larger diameter pipe with a sling at two points, spaced approximately 10 feet apart. Smaller diameters can use one lift point.
  5. Contractor assistance may be required to unload palletized pipe.
  6. Do not use a forklift or boom directly on or inside of pipe.
- F. Job site pipe storage for pipe shall follow the recommendations below:
  1. Non-palletized pipe may be temporarily stockpiled on a flat, clear area.
  2. Use securing timbers (or block) to ensure the stockpile does not collapse.
  3. Stack pipe no higher than approximately 6 feet.
  4. While supporting lengths of pipe evenly, alternate bells for row of pipe.
  5. To prevent damage to the bell or spigot when moving pipe sections, do not drag or strike pipe ends against anything.

#### PART 2 PRODUCTS



## 2.01 POLYVINYL CHLORIDE (PVC) PIPE AND THERMOPLASTIC PIPE AND FITTINGS

- A. Unplasticized Polyvinyl Chloride (PVC) storm drain pipe and fittings shall meet the extra strength minimum of SDR-35 and or C900 (as specified on the approved improvement plans) of the requirements of ASTM D3034 and shall satisfy all requirements of Sections 601, 605, and 709 of the Uniform Standard Specifications.
- B. High density corrugated polyethylene (HDPE) watertight pipe shall satisfy all requirements of Sections 601 and 709 of the Uniform Standard Specifications and shall be designated Corrugated HDPE for corrugated exterior construction with a smooth inner liner per Subsection 709.03.10.

## 2.02 REINFORCED CONCRETE PIPE (RCP) AND FITTINGS

- A. RCP shall conform to the requirements of ASTM C76 and shall satisfy all requirements of Sections 601, 603, and 708 of the Uniform Standard Specifications.

## 2.03 PIPE - OTHER

- A. For pipe other than listed above, the contractor to provide specifications and approval list by governing agency, if applicable.

## 2.04 PIPE ACCESSORIES

- A. Fittings shall be the same material as pipe molded or formed to suit pipe size and end design and in required tees, bends, elbows, clean-outs, reducers, traps and other configurations required.

## 2.05 BEDDING MATERIALS

- A. Comply with applicable sections of the Uniform Standard Specifications including Subsection 208.03.02 and with the individual sections of these Specifications.

## 2.06 DROP INLETS AND AREA DRAINS

- A. Drop inlets shall be constructed in accordance with Section 609 of the Uniform Standard Specifications and per the Standard Drawings 411 through 419 where applicable, unless otherwise noted on the Project Drawings.
- B. Onsite area drains shall be High-Density Polyethylene or PVC as manufactured by ADS, NYLOPLAST or approved equal. Grates shall be cast iron or ductile iron. Onsite area drains and grates shall hinged and rated for "Pedestrian – H-10 Rated" load requirements.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that trench excavation is ready to receive work and all dimensions and elevations are as indicated on drawings and per the Specifications.
- B. Beginning of installation means Contractor's acceptance of existing conditions.

### 3.02 PREPARATION FOR INSTALLATION

- A. Trim excavations to required elevations and correct overexcavation with type II aggregate. The trench or ditch should be wide enough to place and compact backfill around the entire pipe.
- B. Remove large rocks or other oversized hard matter, which could damage pipe or impede consistent bedding, backfilling, or compaction.
- C. Where the trench bottom is unstable, the contractor shall excavate to a depth required by the engineer and replace with suitable material as is specified by the engineer.
- D. Prior to commencing excavation for piping, the Contractor shall have materials, labor and equipment available which are suitable for making emergency repairs to any existing utility systems should the existing facilities be damaged by the Contractor's operations.
- E. Prior to commencing trench excavation for piping, the Contractor at its own expense shall pothole and expose all underground utilities that could affect the elevation or slope of the new piping.

### 3.03 PROTECTION OF STORM DRAIN PIPE

- A. At all times when the work of installing pipe is not in progress, all open end of the pipe(s) shall be closed with a tight fitting cap or plug to prevent the entrance of animals and foreign materials. These provisions shall apply throughout the day as well as over night.
- B. The Contractor shall take all necessary precautions to prevent pipe from floating due to water entering the trench from any source and shall assume full responsibility of any damage due to this cause and shall at its own expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating.
- C. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until final inspection and acceptance.

### 3.04 INSTALLATION OF STORM DRAIN PIPE

- A. Storm drain pipe installation shall comply with Sections 601 through 605 of the Uniform Standard Specifications.
- B. Except as otherwise shown the lengths of pipeline as shown are lengths measured horizontally. Closure pieces shall be provided to insure proper alignment as shown on the Drawings. The cost of closure pieces, closure sections or fittings

required by the Contractor's laying operations, shall be included in the prices for each applicable bid item. Closure pieces, closure sections, and fittings shall be installed in accordance with the applicable sections of the Uniform Standard Specifications.

- C. Ends of storm drain piping at drop inlet structures shall be saw cut such that the end of pipe conforms with details shown thereon (not right angles to the pipe centerline) prior to pouring concrete for the floors or walls of the structure.
- D. Trenches shall be in a reasonably dry condition when the pipe is laid. Necessary facilities shall be provided for lowering and properly placing pipe sections in the trench without damage.
- E. Pipe sections shall be laid carefully to the lines and grades shown, and to the minimum depths where so indicated on the Drawings, and the sections shall be closely jointed to form a smooth flow line.
- F. Immediately before placing each section of pipe in final position for jointing, the bedding for the pipe shall be checked for firmness and uniformity of surface. Exceptional care shall be taken in placing the pipe and making the field joints. Bumping of the pipe in the trench will not be permitted.
- G. Concrete encasement shall be provided where indicated in the Drawings.
- H. Pursuant to Subsection 603.03.03 of the Uniform Standard Specifications, in advance of jointing sections of non-gasketed concrete pipe, the ends of each section shall be washed clean with a wet brush and, immediately prior to placing mortar and jointing the sections, the ends shall be thoroughly wetted. After the laying, the joints on the inside shall be swabbed smooth and excess mortar removed from the pipe. The outside joint recesses shall then be filled with mortar. Backfill over the pipe may be completed while the joint mortar is still plastic. Should the mortar become set before the backfill is placed, backfilling shall not be commenced before sixteen (16) hours has elapsed after jointing pipe sections.
- I. Reinforced concrete pipe shall be placed with the major axis of the reinforcement in a horizontal position. The trench bottom shall be carefully graded to insure uniform support contact with the bottom of the pipe for the full length of each pipe section.
- J. Trench excavation, bedding, and backfill shall be in accordance with Sections 31 23 16.13, 31 23 23.13, applicable requirements contained within the Uniform Standard Specifications, and details shown on the Drawings. Granular Backfill per 207.02.02 of the Uniform Standard Specifications shall be used for all storm drain pipe installations, unless otherwise noted on construction drawings. Inorganic silts, and gravelly, sandy or silty clays, and other Class IV materials are not permitted.
- K. Backfill material for HDPE pipe must be adequately "knifed" into haunch and in between corrugations. Compaction and backfill shall be uniform throughout entire backfill zone.

- L. In addition to the installation procedures of Thermoplastic Pipe by the Manufacturer, ASTM D2321, and those cited in 605.03.03 of the Uniform Standard Specifications, the following procedures shall be incorporated.
1. Begin by inspecting the bell and remove any foreign matter.
  2. Use a clean rag or brush to lubricate bell of pipe lubricant.
  3. Clean spigot end of pipe.
  4. Remove protective wrap from gasket.
  5. Using clean rag or brush, lubricate exposed gasket with pipe lubricant. DO NOT allow lubricated section to touch dirt or backfill. Foreign matter could adhere to surface and compromise joint integrity.
  6. Pipe laying shall begin at the downstream end, pushing spigots into bells with the bells facing upstream. ALWAYS push spigot ends into bell, not bell end into spigot.
  7. All pipes shall be laid true to the designated line and grade.
  8. The contractor shall make every effort to provide a tight connection and pull the pipe completely home. If no homing mark is present, measure the depth of the bell and use a crayon or other material to place a homing mark on appropriate corrugation of the spigot end.
  9. Contractor shall follow the recommendations of the Manufacturer when standard lengths of pipe must be cut to fit in a field application.
  10. Contactor shall follow the recommendations of the Manufacturer for fittings assembly.
- M. Vertical installations of corrugated HDPE for catch basins and similar applications shall follow the following recommendations:
1. Backfill should extend a minimum of 12" completely around the vertical structure.
  2. Maximum lift should not exceed half the diameter of the pipe. Backfill material and compaction shall be per Section 31 23 23.13 and Section 208 of the Uniform Standard Specifications.
  3. Height of the vertical structure shall not exceed 8 feet, unless approved by the engineer.
  4. Cast iron frames holding grates or lids must be seated on a concrete collar or similar structure so that the weight of the frame and grate or lid is transferred into the ground, and not to the vertical pipe.

### 3.05 FIELD QUALITY CONTROL

- A. Field inspection required under provisions of General Conditions and Section 01 40 00. Results should be recorded and become project record documents.
- B. Request inspection of the trench prior to placement of bedding materials.
- C. Compaction testing will be performed in accordance with ANSI/ASTM D698 or ASTM D2922 by the Quality Assurance Testing Laboratory provided by the Owner.

- D. If tests indicate work does not meet specified requirements, Contractor at no additional cost to the Owner shall remove work, replace, and request for retesting in order to pass all requirements.
- E. Frequency of Compaction Tests: A minimum of one test for every 100 lineal feet of trench bedding and for every lift of backfill including the pipe zone (one lift is 6 inches to 8 inches) or per the project's geotechnical report.
- F. Thermoplastic pipe including PVC and HDPE require Deflection Testing per Subsection 605.03.04 of the Uniform Standard Specifications.
- G. Thermoplastic pipe shall be tested for leakage by employing test methods in accordance with either ASTM F2487 for water and F1417 or C1103 for air.

### 3.06 PROTECTION OF INSTALLATION

- A. Protect finished installation under provisions of General Conditions.
- B. Protect pipe, pipe bedding, and pipe zone backfill cover from damage or displacement until backfilling operation is completed.

END OF SECTION