

GREGG COUNTY, TEXAS  
GREGG COUNTY BID NO. 2020-13  
FOR  
ELDERVILLE COMMUNITY CENTER  
IMPROVEMENTS

AUGUST 2020



HAYES ENGINEERING, INC.  
Texas Registered Engineering Firm F-1465  
2126 Alpine Rd.  
Longview, TX 75601  
(903) 758-2010

GREGG COUNTY, TEXAS  
 GREGG COUNTY BID NO. 2020-13  
 FOR  
 ELDERVILLE COMMUNITY CENTER IMPROVEMENTS

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## BID DOCUMENTS



GREGG COUNTY INVITATION TO BID NO. 2020-13  
for  
ELDERVILLE COMMUNITY CENTER IMPROVEMENTS

Sealed proposals addressed to Kelli Davis, Gregg County Purchasing Agent, 101 E. Methvin St., Ste. 205, Longview, TX 75601 will be received on or before 2:00 p.m., Thursday, October 1, 2020, for furnishing all labor, materials, equipment, supplies, and supervision necessary for the construction of the Gregg County Elderville Community Center Improvements project. At the time stated, bids will be opened and publicly read aloud in the Purchasing Agent's Conference Room, located on the 2<sup>nd</sup> Floor of the Gregg County Courthouse.

The proposed work consists of remodeling the interior and exterior of the existing 2,400 SF Elderville Community Center including but not limited to floors, walls, ceilings and associated work and appurtenances.

A pre-bid meeting will be held at 2:00 p.m., Thursday, September 24, 2020, at the Elderville Community Center

Plans and specifications will be available on September 16, 2020 and may be examined without charge, obtained electronically at no charge, or a hard copy obtained for \$30 at the office of Hayes Engineering, Inc., 2126 Alpine Rd., Longview, TX 75601, (903) 758-2010.

Gregg County is wholly committed to developing, establishing, maintaining, and enhancing minority business involvement in the total procurement process.

EEO/M/F/V/H/D

The Honorable Bill Stoudt, County Judge  
Gregg County, Texas

Advertising Dates: Wednesdays, September 16, 2020 and September 23, 2020.



Gregg County Bid No. 2020-13  
Elderville Community Center Improvements

INTENT

Gregg County, Texas is requesting sealed bids for interior improvements and exterior painting of the existing Elderville Community Center located at 10450 Hwy. 349, Longview, Texas.

INSTRUCTIONS TO BIDDERS

Site Visit – *It is highly preferred* that contractors schedule a site visit to inspect the facility. Site visits must be scheduled. A pre-bid site visit will be held at 2:00 p.m. on Thursday, September 24, 2020 and is not mandatory. Contractors should carefully examine the construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions which can be determined by examining the site and bid documents.

Due Date - Sealed bids must be submitted to Kelli Davis, Gregg County Buyer, 101 E. Methvin St., Suite 205, Longview, Texas 75601, on or before **Thursday, October 1, 2020 at 2:00 P.M.** Bids may be withdrawn any time prior to the official deadline. Bids may not be amended, altered or withdrawn after the official deadline.

Compliance - Successful vendor agrees to comply with any and all Federal, State and local laws, rules and regulations pertaining to wages, hours of employment and minority hiring practices.

Measurement Calculation - Measurement estimates are approximate and subject to error in computation. Each contractor must measure and calculate to his satisfaction.

Performance, Payment, and Maintenance Bonds – Within 15 days after the date of the award, the issuance of a purchase order and prior to commencement of the actual work the successful bidder shall furnish all bonds for the full amount of the contract if that contract exceeds \$50,000. If the contract is for \$50,000 or less, any payment will be made after the Purchasing Agent and/or the Auditor have been notified that services have been received in accordance with the award.

Award - Gregg County expressly reserves the right to accept or reject in whole or in part any bid submitted and to waive any technicalities or formalities, considered to be in the best interest of Gregg County. The contract will be awarded to the firm that is determined to be the best value to the County. The Commissioner's Court intends to award the contract on **Monday, October 12, 2020 at 10:00 a.m.** and the awarded contractor should plan on commencing work as soon as possible thereafter.

Completion Date – All work **MUST BE COMPLETED within 30 days of Notice to Proceed.**

Conflict of Interest - No public official shall have interest in this contract, in accordance with Vernon's Texas Codes Annotated, Local Government Code Title 5, Subtitle C, and Chapter 171.

Ethics - The bidder shall not offer or accept gifts or anything of value nor enter into any business arrangement with any employee, official or agent of Gregg County.

Gregg County Standard Terms & Conditions – By submitting and signing this bid documents Contractor agrees to all terms and conditions as set forth in the Gregg County Standard Terms & Conditions and that they have carefully read and will follow all instructions, requirements and specifications. Fill out all required forms properly and completely. Submit all appropriate supplements and or samples with your bid. Sign your bid. ***Unsigned bids will be disqualified.***

Questions - Questions regarding the Work should be addressed in writing to Stanley R. Hayes, P.E., Hayes Engineering, Inc., 2126 Alpine Road, Longview, TX, 75601, (903) 758-2010, Ext. 22 or by e-mail to [stan@hayesengineering.net](mailto:stan@hayesengineering.net)

To: Vendors of Gregg County, Texas  
From: Kelli L. Davis, CPPB, Purchasing Agent  
Re: ***Conflict of Interest Form (CIQ)***

Vendor:

Attached, please find link below to a Conflict of Interest Questionnaire. Please complete this form if you have a conflict of interest with any Gregg County Official, Employee, or Department. The questionnaire should reflect the name of the individual with whom the conflict of interest occurs. If you have any questions regarding compliance with Chapter 176 of the Texas Local Government Code, please consult your legal representative. Compliance is the responsibility of each individual, business, agent or representative who is subject to the law's filing requirements.

**<http://www.ethics.state.tx.us/forms/CIQ.pdf>**

Original completed forms should be filed with the County Clerk's Office and a copy sent to the Gregg County Purchasing Department either through bid return, fax, or email. Please see contact information below.

**Gregg County Clerk**

Gregg County Courthouse  
101 East Methvin, Ste. 200  
Longview, Texas 75601  
Ph: 903-236-8430

**Gregg County Purchasing Department**

Email: [purchasing@co.gregg.tx.us](mailto:purchasing@co.gregg.tx.us)  
Ph: 903-237-2684  
Fx: 903-237-2682

***Applicable Law***

Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of Gregg County (County Clerk) no later than the 7<sup>th</sup> business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Texas Local Government Code.

STATEMENT OF QUALIFICATIONS

CONTRACTOR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

1. Name of Project: \_\_\_\_\_

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Approximate Quantities of Major Items: \_\_\_\_\_

Value of Contract: \$ \_\_\_\_\_

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

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

2. Name of Project: \_\_\_\_\_

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Approximate Quantities of Major Items: \_\_\_\_\_

Value of Contract: \$ \_\_\_\_\_

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

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

3. Name of Project: \_\_\_\_\_

Owner: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Approximate Quantities of Major Items: \_\_\_\_\_

Value of Contract: \$ \_\_\_\_\_

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

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

4. Other Project References: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

***CERTIFICATION OF ELIGIBILITY***

By submitting a bid or Bid in response to this solicitation, the bidder/proposer certifies that at the time of submission, he/she is ***not*** on the Federal Government's list of suspended, ineligible, or debarred contractors.

In the event of placement on the list between the time of bid/Bid submission and time of award, the bidder/proposer will notify the Gregg County Purchasing Agent. Failure to do so may result in terminating this contract for default.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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

**PROPOSAL**

**TO: Kelli Davis, Gregg County Buyer**

**FOR: Gregg County Bid No. 2020-13  
Elderville Community Center Improvements**

The undersigned, as bidder, declares that the only person or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm, or corporation; that he has carefully examined the form of Contract, Notice to Bidders, and Specifications herein referred to, and has carefully examined the locations, conditions and classes of materials of the proposed work; and agrees that he will provide all the necessary labor, machinery, tools, apparatus, and other items incidental to construction, and will do all the work and furnish all the materials called for in the Contract and Specifications in the manner prescribed therein and according to the requirements of the Engineer as therein set forth.

It is further agreed that the quantities of work to be done at unit prices and materials to be furnished may be increased or diminished as may be considered necessary, in the opinion of the Engineer, to complete the work fully as planned and contemplated, and that all quantities of work, whether increased or decreased, are to be performed at the unit prices set forth below except as provided for in the Specifications.

It is further agreed that lump sum prices may be increased to cover additional work ordered by the Engineer and agreed to by Owner, but not required by the Specifications, in accordance with the provisions of the General Conditions. Similarly, they may be decreased to cover deletion of work so ordered.

It is understood and agreed that the work is to be completed in full within **thirty (30)** calendar days beginning on the date stated in the work order on which work is to be commenced. Bidder further agrees to pay as liquidated damages, the sum of **\$200.00** for each consecutive calendar day thereafter as provided in the General Conditions.

Accompanying this proposal is a certified or cashier's check or bid bond (5% of largest amount bid), payable to Gregg County, Texas for:

Dollars

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).

The bid security accompanying this proposal shall be returned to the bidder, unless in case of the acceptance of the proposal the bidder shall fail to execute a Contract and to file a Performance, Payment, and Maintenance Bond within fifteen (15) days after its acceptance, in which case the bid security shall become the property of the Gregg County and shall be considered as payment for damages due to delay and other inconveniences suffered by the Owner on account of such failure of the bidder. It is understood that the Gregg County reserves the right to reject any and all bids and to waive any informalities in the bidding.

In the event of the award of a Contract to the undersigned, the undersigned will furnish a Performance and Payment Bond and Maintenance Bond for the full amount of the Contract to secure proper compliance with the terms and provisions of the contract, to insure and guarantee the work until final completion and acceptance, and to guarantee Payment of all lawful claims for labor performed and materials furnished in the fulfillment of the Contract.

GREGG COUNTY BID NO. 2020-13  
ELDERVILLE COMMUNITY CENTER IMPROVEMENTS  
BID PROPOSAL

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
<b>A. <u>Kitchen L x W x H 12' 10" x 11' 6" x 10'</u></b>					
1	Remove existing cabinets, furr down, countertops, sink, sink faucet plumbing supply, and drain (24')	1	LS	\$ XXXXXXXX	\$ _____
2	Repair existing sheetrock on walls	500	SF	\$ _____	\$ _____
3	Furnish and install 1/2" sheetrock on walls behind cabinets	500	SF	\$ _____	\$ _____
4	Skim coat on ceiling	150	SF	\$ _____	\$ _____
5	Seal the walls and ceiling with latex based stain blocker - 1 coat	650	SF	\$ _____	\$ _____
6	Texture and paint the walls and ceiling - two coats	450	SF	\$ _____	\$ _____
7	Remove existing and install new flexible duct	15	LF	\$ _____	\$ _____
8	Furnish and install 8' stainless steel prep sink with adjustable shelf	1	LS	\$ XXXXXXXX	\$ _____
9	Furnish and install sink faucet and sink drain with stop	1	LS	\$ XXXXXXXX	\$ _____
10	Remove and replace angle stop valve, plumbing supply line, and P-trap (ABS plastic)	1	LS	\$ XXXXXXXX	\$ _____
11	Remove and replace 4 bulb LED surface mount fluorescent light with lens (4')	1	EA	\$ _____	\$ _____
12	Furnish and install and paint base shoe, 3-1/4" baseboard, 4-1/4" crown moulding, panel cap, and door trim	1	LS	\$ XXXXXXXX	\$ _____
13	Remove and replace electric recepticals, switches and covers, and A/C heat louver	1	LS	\$ XXXXXXXX	\$ _____
14	Remove and replace outside metal door and frame	1	EA	\$ _____	\$ _____
15	Furnish and install and paint paneling and panel cap over sheetrock on walls	200	SF	\$ _____	\$ _____
16	Furnish and install Laminate- simulated wood flooring	600	SF	\$ _____	\$ _____
17	Paint door and window trim (two coats per side)	1	LS	\$ XXXXXXXX	\$ _____
18	Furnish and install wood blind on window	1	EA	\$ _____	\$ _____
19	Paint inside pantry (walls, ceiling, and shelves)	1	LS	\$ XXXXXXXX	\$ _____
20	Install Microwave oven over range with built-in hood	1	EA	\$ _____	\$ _____
<b>B. <u>Hallway L x W x H 17' x 4' x 10'</u></b>					
1	Remove and replace 4 bulb LED surface mount fluorescent light with lens (4')	1	EA	\$ _____	\$ _____
2	Furnish and install base shoe	25	LF	\$ _____	\$ _____
3	Paint base shoe, baseboard, crown moulding, paneling, panel cap, and door trim (two coats)	1	LS	\$ XXXXXXXX	\$ _____
4	Paint door slab only - 2 coats (per side)	3	EA	\$ _____	\$ _____
5	Furnish and install Laminate - simulated wood flooring	75	SF	\$ _____	\$ _____
6	Paint walls and ceiling - two coats	500	SF	\$ _____	\$ _____
7	Furnish and install return air grill (30" x 16")	1	EA	\$ _____	\$ _____
<b>C. <u>Entry Room L x W x H 17' 3" x 17' 3" x 10'</u></b>					
1	Remove and replace 4 bulb LED surface mount fluorescent light with lens (4')	1	EA	\$ _____	\$ _____
2	Remove and replace paneling and panel cap	200	SF	\$ _____	\$ _____
3	Remove and replace electric recepticals, switches and covers, and A/C heat register	1	LS	\$ XXXXXXXX	\$ _____
4	Mask and prep for paint - plastic, paper, tape	1	LS	\$ XXXXXXXX	\$ _____
5	Paint door slab only - 2 coats (per side)	2	EA	\$ _____	\$ _____
6	Paint door/ window trim and jamb - 2 coats (per side)	100	LF	\$ _____	\$ _____
7	Paint walls and ceiling - two coats	300	SF	\$ _____	\$ _____
8	Furnish and install base shoe	70	LF	\$ _____	\$ _____
9	Paint base shoe, baseboard, crown moulding, paneling, and panel cap	1	LS	\$ XXXXXXXX	\$ _____
10	Detach and remove glass and aluminum cabinet	1	LS	\$ XXXXXXXX	\$ _____



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 BID PROPOSAL

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
11	Furnish and install Laminate - simulated wood flooring	300	SF	\$	\$
12	Furnish and install wood blinds on windows	3	EA	\$	\$
13	Heat/ AC register- mechanically attached- detach and reset	2	EA	\$	\$

**D. Entry Restroom L x W x H 6' x 5' x 10'**

1	Remove and replace mirror	1	EA	\$	\$
2	Remove and replace light fixture	1	EA	\$	\$
3	Furnish and install toilet paper holder	1	EA	\$	\$
4	Furnish and install toilet and sink and plumbing	1	EA	\$	\$
5	Mask and prep for paint- plastic, paper, tape	1	LS	\$ XXXXXXXX	\$
6	Paint door/ window trim and jamb - 2 coats (per side)	40	LF	\$	\$
7	Paint door slab only- 2 coats (per side)	1	EA	\$	\$
8	Paint walls and ceiling - two coats	250	SF	\$	\$
9	Install base shoe and 3 1/4" baseboard	20	LF	\$	\$
10	Paint base shoe, baseboard, crown moulding, paneling, and panel cap	60	LF	\$	\$
11	Install 1" x 4" trim board to cover plumbing on walls	20	LF	\$	\$
12	Paint trim boards	1	LS	\$ XXXXXXXX	\$
13	Remove and replace handicap grab bar (24")	1	EA	\$	\$
14	Remove and replace light switch and cover, and A/C Heat louvers	1	LS	\$ XXXXXXXX	\$
15	Furnish and install Laminate - simulated wood flooring	30	LF	\$	\$
16	Furnish and install wood blind on window	1	EA	\$	\$
17	Install skim coat on ceiling	30	SF	\$	\$

**E. Hall Restroom L x W x H 6' 3" x 5' x 10'**

1	Remove and replace mirror	1	EA	\$	\$
2	Remove and replace light fixture	1	EA	\$	\$
3	Detach and reset toilet paper holder	1	LS	\$ XXXXXXXX	\$
4	Furnish and install handicap toilet and sink and plumbing	1	LS	\$ XXXXXXXX	\$
5	Mask and prep for paint - plastic, paper, tape	1	LS	\$ XXXXXXXX	
6	Paint vinyl paneling and panel cap	80	SF	\$	\$
7	Paint door slab only - 2 coats (per side)	1	EA	\$	\$
8	Paint door/ window trim and jamb - 2 coats (per side)	1	EA	\$	\$
9	Paint walls and ceiling - two coats	250	SF	\$	\$
10	Furnish and install base shoe	20	LF	\$	\$
11	Paint base shoe, baseboard, crown moulding, and panel cap	20	LF	\$	\$
12	Detach and reset handicap grab bars (24" and 42")	1	LS	\$ XXXXXXXX	\$
13	Furnish and install Laminate - simulated wood flooring	36	SF	\$	\$
14	Install skim coat on ceiling	30	SF	\$	\$

**F. Main Room L x W x H 48' 8" x 28' 8" x 9'**

1	Remove and replace 4 bulb LED fluorescent light with lens (2' x 4' lay in)	6	EA	\$	\$
2	Remove and replace lay in AC/Heat registers (2' x 2')	8	EA	\$	\$
3	Remove and replace paneling	500	SF	\$	\$
4	Remove and replace panel cap	135	LF	\$	\$
5	Mask and prep for paint- plastic, paper, tape	1	LS	\$ XXXXXXXX	\$
6	Paint door slab only- 2 coats (per side)	5	EA	\$	\$
7	Paint door trim and jamb- 2 coats (per side)	5	EA	\$	\$
8	Paint window trim - 2 coats (per side)	6	EA	\$	\$
9	Paint the walls - 2 coats	1200	SF	\$	\$

**GREGG COUNTY BID NO. 2020-13  
ELDERVILLE COMMUNITY CENTER IMPROVEMENTS  
BID PROPOSAL**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
10	Furnish and install base shoe	150	LF	\$ _____	\$ _____
11	Paint base shoe, baseboard, and panel cap	135	LF	\$ _____	\$ _____
12	Furnish and install faux stone veneer on fireplace	100	SF	\$ _____	\$ _____
13	Furnish and install electric wiring from panel for future fireplace insert	1	LS	\$ XXXXXXXX	\$ _____
14	Furnish and install Laminate - simulated wood flooring	1425	SF	\$ _____	\$ _____
15	Remove and replace ceiling tiles (suspended ceiling)	1350	SF	\$ _____	\$ _____
16	Furnish and install wood blinds on windows	6	EA	\$ _____	\$ _____
17	Furnish and install return air grill (36" x 16")	1	EA	\$ _____	\$ _____
18	Remove and replace electric recepticals, switches and covers	1	LS	\$ XXXXXXXX	\$ _____
<b>G. <u>Big Storage Room L x W x H 10' x 20' x 10'</u></b>					
1	Paint walls, ceiling, and trim	600	SF	\$ _____	\$ _____
2	Remove existing flourescent lights (2 - 8' 2-bulb) and install 4-bulb LED surface mount flourescent light with lens (2' x 4')	2	EA	\$ _____	\$ _____
3	Remove and replace A/C heat louver	1	EA	\$ _____	\$ _____
4	Replace switch and cover plate	1	EA	\$ _____	\$ _____
<b>H. <u>Small Storage Closet L x W x H 10' x 4' x 10'</u></b>					
1	Paint walls and ceiling	325	SF	\$ _____	\$ _____
<b>I. <u>Outside Work</u></b>					
1	Remove and replace outside windows (vinyl) (9 - 40" x 60", 1 - 24" x 36", 1 - 32" x 36")	1	LS	\$ XXXXXXXX	\$ _____
2	Paint exterior of building	4000	SF	\$ _____	\$ _____
3	Replace shutters on building	11	EA	\$ _____	\$ _____
<b>J. <u>General Items</u></b>					
1	General clean-up	1	LS	\$ XXXXXXXX	\$ _____
2	Debris disposal	1	LS	\$ XXXXXXXX	\$ _____
<b>TOTAL AMOUNT BID</b>				\$ _____	_____

The undersigned certifies that the bid prices contained in this proposal have been carefully checked and are submitted as correct and final.

NOTE: Should bid prices on any items be omitted, the right is reserved to apply the lowest prices submitted by any other bidders for the omitted items in payment for work done under this Proposal. In the event of discrepancies, the Owner reserves the right to accept or reject informalities.

Receipt is hereby acknowledged of the following addenda to the contract Documents:

Addendum No. 1 dated _____	Rec. _____
Addendum No. 2 dated _____	Rec. _____
Addendum No. 3 dated _____	Rec. _____
Addendum No. 4 dated _____	Rec. _____
Addendum No. 5 dated _____	Rec. _____

CONTRACTOR: \_\_\_\_\_

BY: \_\_\_\_\_  
*(Authorized Signature)*

PRINT NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

COUNTY: \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

DATE: \_\_\_\_\_

## ***BID SIGNATURE FORM***

The undersigned agrees this bid becomes the property of Gregg County after the official opening.

The undersigned affirms he has familiarized himself with the local conditions under which the work is to be performed; satisfied himself/herself of the conditions of delivery, handling and storage of equipment and all other matters which may be incidental to the work, before submitting a bid.

The undersigned agrees if this bid is accepted, to furnish any and all items/services upon which prices are offered, at the price(s) and upon the terms and conditions contained in the Specifications. The period for acceptance of this Bid will be ninety (90) calendar days unless a different period is noted by the bidder.

The undersigned affirms that they are duly authorized to execute this contract, that this bid has not been prepared in collusion with any other Bidder, nor any employee of Gregg County, and that the contents of this bid have not been communicated to any other bidder or to any employee of Gregg County prior to the official opening of this bid.

Vendor hereby assigns to purchase any and all claims for overcharges associated with this contract which arise under the antitrust laws of the United States, 15 USCA Section 1 et seq., and which arise under the antitrust laws of the State of Texas, Tex. Bus. & Com. Code, Section 15.01, et seq.

The undersigned affirms that they have read and do understand the specifications and any attachments contained in this bid package. ***Failure to sign and return this form will result in the rejection of the entire bid.***

**Signature** \_\_\_\_\_ **X**

Company Name		
Address		
City/State/Zip Code		
Phone:	Office:	Fax:
	Cell:	Email:
Print Name		
Job Title		

**Bid Bond**

*(INSERT)*

CONTRACT DOCUMENTS

## **Certificate of Interested Parties (Form 1295)**

In 2015, the Texas Legislature adopted House Bill 1295, which added Section 2252.908 of the Government Code. The law states that a government entity may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the government entity. The disclosure of interested parties Form 1295 will be completed online and must be submitted to the governmental entity prior to any signed contract and/or vote by the governing authority.

### **The Filing Process:**

1. Prior to award by Commissioners Court, your firm will be required to log in to the Texas Ethics Commission, [https://www.ethics.state.tx.us/whatsnew/elf\\_info\\_form1295.htm](https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm) and fill out the Electronic Filing Application.
2. Once submitted, the system will generate an electronic Form 1295 displaying a "Certificate Number." Your firm must print and sign Form 1295.
3. **Within ten (10) business days** from notification of pending award by the Gregg County Purchasing Agent, the completed Form 1295 **must** be submitted to Gregg County.
4. Your firm will need to repeat this process and obtain a separate Form 1295 each time you enter into a new contract, renew a contract or make modification and/or amendments to a Gregg County contract.

Instructions and information are available at <https://www.ethics.state.tx.us/tec/1295-Info.htm> or you may call the Texas Ethics Commission at (512) 463-5800.

# STANDARD FORM OF AGREEMENT

Approved as to Legal Form by  
Legal Counsel

STATE OF TEXAS     }  
COUNTY OF GREGG   }

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, A.D. 2020, by and between the County of Gregg, and State of Texas, acting through its County Judge, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and \_\_\_\_\_ of the City of \_\_\_\_\_, County of \_\_\_\_\_, and State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows:

**Gregg County Bid No. 2020-13  
Elderville Community Center Improvements**

and all extra work in connection therewith, under the terms as stated in this Standard Form of Agreement; all of the documents attached to this Standard Form of Agreement; all Plans, Specifications and drawings for the project as prepared by the OWNER's engineer Hayes Engineering, Inc. (herein entitled "ENGINEER"); and all printed or written explanatory materials of said Plans, Specifications and drawings. The CONTRACTOR hereby agrees with the OWNER that the CONTRACTOR shall commence and complete all such construction and work at the CONTRACTOR's own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction and work.

The documents that are attached to and for all purposes made part of this Standard Form of Agreement include the Notice to Bidders, Instructions to Bidders, Statement of Qualifications, CONTRACTOR's Bid Proposal, Bid Bond, Construction Performance Bond, Construction Payment Bond, Maintenance Bond, Certificate of Insurance, General Conditions, Special Conditions, Gregg County, Texas Standard Terms and Conditions, and Technical Specifications. This agreement shall also include all Plans, Specifications and drawings for the project, as prepared by the ENGINEER, and all printed or written explanatory materials of said Plans, Specifications and drawings. This Standard Form of Agreement and the documents listed herein shall collectively evidence and constitute the entire contract between the parties hereto regarding the subject matter hereof.

The CONTRACTOR hereby agrees to commence work within ten (10) days after the date written notice to do so shall have been given to him, and to complete the same within thirty (30) calendar days after the date of the written notice to commence work, subject to such extensions of time as are provided by the General and Special Conditions.

CONTRACTOR's failure to timely commence work or diligently pursue completion of the work within the time limitations set out herein shall constitute a material breach of this contract. TIME IS OF THE ESSENCE IN THE PERFORMANCE OF THIS CONTRACT.



The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the Proposal, which forms a part of this contract, such payments to be subject to the terms and conditions of this contract, including without limitation the General and Special Conditions of Agreement.

Without regard to and notwithstanding any rules on conflicts of law, this contract shall be subject to and interpreted in conformance with the laws of the State of Texas, unless expressly required otherwise by federal law or regulations.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

GREGG COUNTY, TEXAS  
Party of the First Part (OWNER)

\_\_\_\_\_  
Party of the Second Part (CONTRACTOR)

By: \_\_\_\_\_  
The Hon. Bill Stoudt, County Judge

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

ATTEST:

ATTEST:

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

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

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_ (Name of Contractor or Company)

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

a \_\_\_\_\_ hereinafter called Principal, and  
(Corporation / Partnership)

\_\_\_\_\_ (Name of Surety Company)

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

hereinafter called Surety, are held and firmly bound unto

\_\_\_\_\_ (Name of Recipient)

\_\_\_\_\_ (Recipient's Address)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the \_\_ day of \_\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

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

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or

the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_ counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

\_\_\_\_\_  
(Principal)

\_\_\_\_\_  
(Principal Secretary) By \_\_\_\_\_

(SEAL)

\_\_\_\_\_  
(Witness as to Principal) \_\_\_\_\_  
(Address)

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

ATTEST:

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

\_\_\_\_\_  
(Witness as to Surety) By \_\_\_\_\_  
(Attorney in Fact)

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

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor or Company)

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

a \_\_\_\_\_, hereinafter called Principal,  
(Corporation / Partnership)

and \_\_\_\_\_  
(Name of Surety Company)

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

hereinafter called Surety, are held and firmly bound unto

\_\_\_\_\_  
(Name of Recipient)

\_\_\_\_\_  
(Recipient's Address)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_ Dollars, (\$\_\_\_\_\_) in lawful money of the United States, for this payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ a copy of which is hereto attached and made a part hereof for the construction of:

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

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does

hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_\_ counter-parts, each on of (Number) which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ATTEST: \_\_\_\_\_  
(Principal)

\_\_\_\_\_ By \_\_\_\_\_  
(Principal Secretary)

(SEAL)

\_\_\_\_\_ (Witness as to Principal) \_\_\_\_\_ (Address)

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

ATTEST: \_\_\_\_\_  
(Surety)

\_\_\_\_\_ By \_\_\_\_\_  
(Witness as to Surety) (Attorney in Fact)

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

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

MAINTENANCE BOND

STATE OF TEXAS §  
COUNTY OF \_\_\_\_\_ §

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_  
as principal, and the other subscriber hereto authorized under the laws of the State of Texas to act as surety on  
bonds for principals, do hereby acknowledge ourselves to be held and firmly bound unto  
\_\_\_\_\_, "Owner", in the penal sum of  
\_\_\_\_\_ DOLLARS (\$) for the  
payment whereof the said principal and surety do bind themselves and their heirs, administrators, executors,  
successors and assigns, jointly and severally. The conditions of this obligation are such that:

WHEREAS, the said principal has entered into a certain written contract with  
\_\_\_\_\_, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for the  
completion of:

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

all of such work to be done as set out in full in said contract and the plans and specifications therein referred to  
and made a part hereof as fully and to the same extent as if copied at length herein.

WHEREAS, under the plans, specifications and contract, it is provided that the Contractor shall  
maintain and keep in good repair the work herein contracted to be done for a period of one (1) year from the  
date of written acceptance of said work and to do all necessary repairing and/or reconstructing in whole or in  
part of said improvements that should be occasioned by settlement of foundation, defective workmanship or  
materials furnished in the construction of any part thereof, or any of the accessories thereof constructed by the  
Contractor; be it understood that the purpose of this section is to cover all defective conditions arising by reason  
of defective material or workmanship and charge the same against that said Contractor and Surety on this  
obligation, and the said Contractor and Surety shall be subject to the liquidation damages mentioned in said  
contract for each day's failure on its part to comply with the terms of said provisions of said contract;

NOW, THEREFORE, if the said Contractor shall keep and perform its said agreement to maintain said  
work and keep the same in repair for the said maintenance period of one (1) year, as provided, then these  
presents shall be null and void and have no further effect. If default shall be made by the said Contractor in the  
performance of its contract to so maintain and repair said work, then these presents shall have full force and  
effect and said Owner shall have and recover damages from said Contractor and its Principal and Surety. It is  
further agreed that this obligation shall be continuing, one against the Principal and Surety herein, and that  
successive recoveries may be hereon for successive breaches until the full amount shall have been exhausted. It

is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period and the same shall not be changed, diminished or in any manner affected from any cause during said time.

PROVIDED, the aggregate liability of Surety hereunder is limited to the penal sum of this bond.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument on the respective dates written below their signatures.

ATTEST/SEAL: (if a corporation)  
WITNESS: (if not a corporation)

\_\_\_\_\_  
(Full Name of Principal)

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

ATTEST/SEAL: (if a corporation)  
(if not a corporation)

\_\_\_\_\_  
(Full Name of Surety) WITNESS:

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_

By \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

The name and address of the resident agent of Surety is:

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

NOTE: Date of Maintenance Bond must not be prior to date of contract.

**CERTIFICATE OF INSURANCE**

*(INSERT)*



## SEPARATION OF MATERIALS FORM

STATE SALES TAX. The Contractor's attention is directed to paragraph No. 3 of Ruling No. 9 by obtaining the necessary permit or permits from the State Comptroller allowing the purchase of materials for incorporation in this project without having to pay the Limited Sales, Excise and Use Tax at the time of purchase. Such bidders must submit segregated prices for the total cost of materials and total cost of services, and the successful bidder must require his sub-contractors to obtain such permits and to sign written sub-contracts in which the prices are segregated for the total cost of materials and the total cost of services. Total materials cost should not include materials which are used or consumed in performing the work, but do not become a part of the completed installation.

After the bid opening and prior to execution of contract, the low bidder will be required to provide a separation of materials costs and labor costs for the amounts of the base bid and any alternatives. The following form shall be used to provide this information. This form shall be submitted with the executed contract and such statement will become a part of the contract:

### STATEMENT OF MATERIALS AND SERVICES

**Gregg County, Texas Bid No. 2020-13**

Project Name: **Elderville Community Center Improvements**

Total Materials Cost:                   \$ \_\_\_\_\_

Total Service Cost:                    \$ \_\_\_\_\_

**TOTAL CONTRACT PRICE:**        \$ \_\_\_\_\_

Note: The total materials cost plus the total services cost must equal the amount shown of the total contract price.

CERTIFICATE OF FINAL COMPLETION  
OF  
Gregg County Bid No. 2020-13 for  
Elderville Community Center Improvements

CONTRACT DATED: \_\_\_\_\_

STATE OF TEXAS }  
COUNTY OF \_\_\_\_\_}

Before me, the undersigned authority, a Notary Public in and for \_\_\_\_\_ County, Texas, on this day personally appeared \_\_\_\_\_ who, being by me duly sworn on his oath, says that he is/represents \_\_\_\_\_, the contractor who has performed a contract with Gregg County for the construction of the work described above, and is duly authorized to make this affidavit; that he has personally examined the work described above as required by the specifications of Gregg County attached to the contract; that said work and all items thereof have been completed and all known defects made good; that thereof have been completed and all known defects made good; that all surplus material, refuse, dirt and rubbish have been cleaned up, removed and disposed of; that all parts of the work are in a neat, tidy, finished condition and ready in all respects for acceptance by the County; that all the required work has been performed in accordance with the specifications, that rates of pay for all labor employed on said work have not been below the minimum set out in Labor Classification and Minimum Wage Scale in said Specifications and that within the knowledge of affiant all just bills for labor and material and for the rental or use of any equipment or apparatus used in, on, or in connection with the work have been paid in full by the Contractor.

CERTIFIED TRUE AND CORRECT

\_\_\_\_\_  
Contractor Signature

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public in and for  
\_\_\_\_\_ County, Texas

GREGG COUNTY, TEXAS  
STANDARD TERMS AND CONDITIONS

## GREGG COUNTY, TEXAS STANDARD TERMS AND CONDITIONS

Bids are solicited for furnishing the merchandise, supplies, services and or equipment set forth in this document. **By returning this bid with the price(s) submitted, Vendors certify and agree to the following:**

1. All delivery and freight charges are to be included, on the basis of deliveries being FOB destination, inside delivery, unless otherwise specified elsewhere in bid document.
2. If applicable, a packing list or other suitable documents shall accompany each shipment and shall show:
  - a. Name and address of Vendor
  - b. Name and address of receiving department
  - c. Gregg County purchase order number
  - d. Description of material shipped, including item numbers, quantity, number of containers and package number (if any)
3. Samples may be requested for testing by Gregg County. Any sample that fails testing shall be considered sufficient reason to reject bid.
4. Non-performance of the bid requirements regarding specifications or non-compliance with terms of this contract shall be basis for termination of the contract by the County. Termination in whole or in part, by the County may be made at its option, without prejudice to any other remedy to which it may be entitled by law or in equity, or elsewhere under this contract, by giving thirty (30) days written notice to the Vendor with the understanding that all work being performed under this Contract shall cease upon the date specified in such notice. The County shall not pay for work, equipment, services or supplies, which are unsatisfactory. The Vendor may be given reasonable opportunity prior to termination to correct any deficiency. This however shall in no way be construed as negating the basis for termination for non-performance.
5. Quantities indicated in the bid are estimates based upon the best available information. The County reserves the right to increase or decrease the quantities by any amount deemed necessary to meet its needs without any adjustments in the bid price.
6. The bid award shall be based on, but not necessarily limited to, the following factors:
  - a. Unit price
  - b. Total bid price
  - c. Delivery date
  - d. Results of testing samples
  - e. Any special needs and requirements
  - f. Gregg County's experience with the products bids were submitted on
  - g. Vendor's past performance record with Gregg County
  - h. Vendor's safety record
  - i. Gregg County's evaluation of Vendor's ability
  - j. Estimated costs for supplies, services, maintenance, etc.
  - k. Estimated surplus value
7. Invoices shall be sent directly to the Departments placing order. Invoices must detail the materials/equipment delivered and must reference the Gregg County purchase order number. Payments are processed after the Auditor's Department has been notified that the material or equipment has been delivered in good condition and that no unauthorized substitutions have been made according to specifications.
8. Whenever an article or material is defined by describing a proprietary product or by using the name of the manufacturer, the term "OR EQUAL" if not inserted shall be implied unless otherwise indicated by "NO SUBSTITUTIONS". The specified article or material shall be understood as descriptive, not

restrictive. In case the unit price of an item differs from the extended price for the quantity quoted, the unit price shall govern.

9. The Vendor shall be considered an independent contractor and not an agent, servant, employee, or representative of the County in the performance of the work. No term or provision, hereof, or act of the Vendor shall be construed as changing that status.
10. The Vendor shall defend, indemnify, and save whole and harmless the County and all its officers, agents and employees from and against all suits, actions, or claims of the character, name and description brought for or on account of any injuries or damages (including but not restricted to death) received or sustained by any person(s) or property on account of, arising out of, or in connection with the performance of the work, including without limiting the generality of the foregoing, any negligent act or omission of the Vendor in the execution or performance of the Contract.
11. The Vendor agrees, during the performance of the work, to comply with all applicable codes and ordinances of the appropriate City, County or State, as they may apply, and as these laws may now read or as they may hereafter be changed or amended.
12. The Vendor shall obtain from the appropriate City, County or State, the necessary permit(s) required by the ordinances of the City, County or State, for performance of the work.
13. The Vendor shall not sell, assign, transfer or convey this Contract in whole or in part, without the prior written consent of the County.
14. In case, any one or more, of the provisions, contained in this Contract, shall, for any reason, be held to be invalid, illegal, or unenforceable, in any respect, such invalidity, illegality or unenforceability shall not affect, any other provision, thereof and this Contract shall be considered as if such had never been contained herein.
15. The parties herein agree that this Contract shall be enforceable in Gregg County, Texas and if legal action is necessary to enforce it, exclusive venue shall lie in Gregg County, Texas.
16. This Contract shall be governed by and construed in accordance with the laws of the State of Texas and all applicable Federal Laws.
17. Bids may be withdrawn any time prior to the official opening. Alterations made before opening time must be initialed by Vendor guaranteeing authenticity. Bids may not be amended, altered or withdrawn after the official opening, except upon the explicit recommendation of the Purchasing Agent and the formal approval of the Commissioners Court.
18. This Contract embodies the complete agreement of the parties hereto, superseding all oral or written previous and contemporary agreements between the parties and relating to matters herein, and except as otherwise provided herein cannot be modified without written agreement of the parties.
19. Funding Clause - Gregg County intends to make all payments required to be made under this Agreement. However, in the event, through no action initiated by the End User, its legislative body does not appropriate funds for the continuation of this agreement for any fiscal year after the current fiscal year and it has no funds to continue this Agreement from other sources, this Agreement may be terminated. To effect the termination of this Agreement, Gregg County shall, thirty days prior to the beginning of the fiscal year for which its legislative body does not appropriate funds, send written notice stating that funds have not been appropriated for the next fiscal year. The Vendor will submit a final invoice and coordinate with the Purchasing Agent to remove all property belonging to said Vendor as soon as possible. The final invoice will be verified and approved by the Purchasing Agent. Thereupon, Gregg County will be released from its obligation to make all further payments.
20. Insurance Requirements – Gregg County requires the following insurance coverages for Vendors doing business with Gregg County, Texas.
  - a. Workers' Compensation insurance with \$500,000.00 Employer Liability limits under Coverage B (no deductible)
  - b. General Liability insurance with limits of \$1,000,000.00 per occurrence/aggregate, including products and completed operations coverage
  - c. Auto liability limits \$1,000,000.00

- d. County named as “*additional insured*” not “*additional named insured*”
- e. Deductible shall be \$5,000.00 or less on each of the above listed coverage

The Vendor must provide a certificate of insurance conforming to the above listed requirements or a statement from their insurance carrier certifying that the required coverages shall be obtained by the Vendor within ten (10) days of formal award of a contract. In cases where a certification letter from an insurance carrier is attached to the bid in lieu of an insurance certificate, any formal award of a contract shall be contingent upon required coverages being put into force prior to any performance of any duties outlined in the contract.

- 21. Gregg County is exempt from federal excise and state sales taxes, ad valorem taxes and personal property taxes; therefore, tax must not be included in bids tendered. Bid prices offered must be complete and all-inclusive. Gregg County will not pay additional taxes, surcharges or other fees not included in bid prices.
- 22. Disclosure of Private Health Information (“PHI”) - Any contractor doing business with Gregg County that may have any potential of disclosing PHI will be required to submit an executed Business Associate Agreement guaranteeing in writing to provide *security* for PHI at the time the contract is approved and/or awarded. The executed Business Associate Agreement submitted shall also require the contractor to disclose unauthorized releases of PHI to the Gregg County Co-HIPAA Security Compliance Officers.
- 23. BUY AMERICA- The Contractor acknowledges to and for the benefit of the HUD Grantee (Gregg County) that it understands that any goods and services under this Agreement are being funded or could be funded with monies made available by the American Reinvestment and Recovery Act of 2009 (Recovery Act) (or are being made available for a project being funded with monies made available by the Recovery Act) and Section 1605 of such law contains provisions commonly known as “Buy American.” The Buy American requirement prohibits the use of Recovery Act funds for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States (“Buy American requirement”) including iron, steel and manufactured goods provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the HUD Grantee that (a) the Contractor has reviewed and understands the Buy American requirement, (b) all of the iron, steel, and manufactured goods used in the project will be and/or have been produced in the United States in a manner that complies with the Buy American requirement, unless exception to the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support and exception to the Buy American requirement, as may be requested by the HUD Grantee or HUD. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the HUD Grantee to recover as damages against the Contractor any loss, expense or cost (including without limitation attorney’s fees) incurred by the HUD Grantee resulting from any such failure (including without any limitation any impairment or loss of funding, whether in whole or in part from HUD). Neither this paragraph (nor any provision of the Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the HUD Grantee.
- 24. DEBARMENT-by signing this agreement, Vendor certifies that it will not award any funds provided under this agreement to any party which is debarred, suspended, or otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order No. 12549 and 24 CFR Part 24.
- 25. Gregg County expressly reserves the right to accept or reject in part or in whole any bids submitted, and to waive any technicalities or formalities, considered to be in the best interest of Gregg County.
- 26. Bonds may be required in accordance with State Statutes if outlined in the specifications.
- 27. **Minority Businesses** - Gregg County is wholly committed to developing, establishing, maintaining, and enhancing minority business involvement in the total procurement process.

**SPECIAL CONDITIONS**

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69.	Confined Space Entry .....	SC-14
70.	Allowance for Miscellaneous Extra Work .....	SC-14

## SPECIAL CONDITIONS

1. OWNER. Whenever the term "Owner" appears in these specifications, it shall be understood to mean Gregg County, Texas.

2. ENGINEER. The word "Engineer" in these specifications shall be understood as referring to Hayes Engineering, Inc., 2126 Alpine St., Longview, Texas 75601, Engineer of the Owner, or such other Engineer, Supervisor or Inspector as may be authorized by said Owner to act in any particular position.

3. EXAMINATION OF SITE OF PROJECT. Prospective bidders shall make a careful examination of the site of the project, soil and water conditions to be encountered, improvements to be protected, disposal sites for surplus materials not designated to be salvaged materials, and methods of providing ingress and egress to private properties and of handling traffic during construction of the entire project.

4. QUALIFICATION OF LOW BIDDER. Before being awarded a contract, the low bidder shall submit such evidence as the Engineer may require to establish his financial responsibility, experience, and possession of such equipment as may be needed to prosecute the work in an expeditious, safe, and satisfactory manner.

Should the low bidder fail to produce evidence satisfactory to the Engineer on any of the foregoing points, he may be disqualified and the work awarded to the next low bidder so qualifying.

5. AWARD OF THE CONTRACT. The Owner, acting through its authorized representatives, will notify the successful bidder, in writing, within ninety (90) days after the date of receiving bids of its acceptance of this proposal. The Contractor shall complete the execution of the required Bond and Contract within fifteen (15) days of such notice.

6. ADDENDA. Bidders desiring further information or interpretation of the Plans or Specifications must make request for such information to the Engineer, prior to 48 hours before the bid opening. Answers to all such requests will be given in writing to all bidders in Addendum form, and all Addenda will be bound with, and made a part of, the Contract Documents. No other explanation or interpretation will be considered official or binding. Should a bidder find discrepancies in, or omission from the Plans, Specifications, or other Contract Documents, or should he be in doubt as to their meaning, he should at once notify the Engineer in order that a written Addendum may be sent to all bidders. Any addenda issued prior to 24 hours of the opening of bids will be mailed or delivered to each Contractor contemplating the submission of a proposal on this work. The proposal as submitted by the Contractor will be so constructed as to include any addenda if such are issued by the Engineer prior to 24 hours of the opening of bids.

7. BASIS FOR BID AWARD. If no alternates are specified in the bid proposal, award will be made to the lowest responsible, responsive bidder. However, the Owner reserves the right to reject any and all bids and to waive any irregularities as may be deemed best and in the Owner's interest.

8. TIME FOR COMPLETION. The time allowed for completion of all items of work shall be thirty (30) consecutive calendar days, which time shall begin the tenth (10th) day after issuance of the Work Order. The Work Order shall consist of a written request by the Engineer for the Contractor to proceed with the construction of the project.

9. LIQUIDATED DAMAGES FOR DELAY. The Contractor agrees that time is the essence of this Contract, and that for each day of delay beyond the number of calendar days herein agreed upon for the completion of the work herein specified and contracted for (after due allowance for such extension of time as is provided for in the General Conditions of Agreement) the Owner may withhold, permanently from the

Contractor's total compensation, the sum of Two Hundred Dollars (\$200.00) per calendar day or an amount equal to actual damages incurred by the Owner, whichever is greater, as stipulated damages for such delay.

10. RIGHTS OF VARIOUS INTERESTS. Wherever work being done by the Owner's employees or by other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work in general harmony.

11. CORPORATE CONTRACTS. Corporate contractors to be eligible to enter into contract with the Owner shall be qualified to do business in the State or States where the work is to be performed. All licensing requirements shall be complied with. Foreign corporations which have not domesticated or otherwise become licensed in the State or States where work will be performed shall obtain a permit to do business in such State or States pursuant to the State's requirements.

12. PROPOSALS. Proposals must be submitted on forms furnished by the Owner or the Owner's Engineer, Hayes Engineering, and endorsed as provided in the Contract Documents.

Proposals must be submitted filled out with ink or typewriter and without erasure, interlineation or changes, and if not made in accordance with the General Conditions and other contract documents, will be subject to rejection as irregular, yet the Owner reserves the right to waive any irregularities.

Proposals will be made in the name of the principal and, in a co-partnership, the names of all partners shall be given. Exact post office address shall be given in all cases. If proposals are submitted by an agent, satisfactory evidence of agency authority must accompany the proposal.

13. IRREGULAR PROPOSALS. Proposals shall be considered irregular and may be rejected for the following reasons unless otherwise provided by law:

- a. If the proposal form furnished to the Contractor by the Owner or the Owner's Engineer is not used or is altered;
- b. If there are unauthorized additions or conditional bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning;
- c. If the bidder adds any provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award;
- d. If the unit or lump sum prices contained in the bid schedule are obviously unbalanced either in excess or below the reasonable cost analysis values;
- e. If the bidder fails to insert a unit price for every pay item indicated except in the case of authorized alternate pay items;
- f. If the bidder fails to complete the proposal in any other particulars where information is requested so bidder's proposal may be properly evaluated.

The Owner reserves the right to reject any or all bids and to waive irregularities as may be deemed best and in the Owner's interest.

14. RETURN OF BID SECURITY. Bid security of the lowest two or more bidders may be retained until a contract is executed or rejection made by the Owner. Other bid security will be returned only after the canvass and tabulation of bids is completed.

15. **FAILURE TO EXECUTE CONTRACT.** Should the successful bidder fail to execute the contract and furnish bonds satisfactory to the Owner to validate the same within ten (10) days after award of contract, his bid security shall be forfeited to the Owner as liquidated damages.

16. **RIGHT-OF-ENTRY.** Contractor shall provide the Owner, the Owner's Architect or Engineer, or representative of the Federal, State, County, District and Municipal governmental services proper facilities for access to the work wherever it is in preparation or progress.

17. **PERMITS AND RIGHT-OF-WAY.** The Owner will provide rights-of-way for the purpose of construction without cost to the Contractor by securing permits in areas of public dedication or by obtaining easements across privately owned property. It shall be the responsibility of the Contractor, forty-eight (48) hours prior to the initiation of construction on easements through private property, to inform the property owner of his intent to begin construction. Before beginning construction in areas of public dedication, the Contractor shall inform the agency having jurisdiction in the areas forty-eight (48) hours prior to initiation of the work.

18. **CONSTRUCTION IN PUBLIC ROADWAYS AND PRIVATE DRIVEWAYS.** No public road shall be entirely closed overnight. It shall be the responsibility of the Contractor to build and maintain all weather by-passes and detours, if necessary, and to properly light, barricade and mark all by-passes and detours that might be required on and across the road involved in the work included in this contract.

The Contractor shall make every effort to complete construction and allow immediate access to adjacent property at all driveway entrances located along the roads. Owners or tenants of improvements where access and/or entrance drives are located shall be notified at least eight (8) hours prior to the time the construction will be started at their drive-ins or entrances and informed as to the length of time driveways will be closed, which period shall not exceed six (6) hours.

The Contractor shall be responsible for all road and entrance reconstruction, and repairs and maintenance of same for a period of one year from the date of such reconstruction. In the event the repairs and maintenance are not made immediately to the satisfaction of the Engineer, and it becomes necessary for the Owner to make such repairs, the Contractor shall reimburse the Owner for the cost of such repairs.

The Contractor shall at all times keep a sufficient width of the roadway clear of dirt and other material to allow the free flow of traffic. The Contractor shall assume any and all responsibility for damage, personal or otherwise, that may be caused by the construction along public roadways or private driveways.

19. **REFERENCE SPECIFICATIONS.** Where reference is made in these specifications to specifications compiled by other agencies, organizations or departments, such reference is made for expediency and standardization from the material supplier's point of view, and such specifications referred to are hereby made a part of these specifications. Any reference to standard specifications in any of the Contract Documents shall always imply the latest edition of said standard specification or specifications available at time notice inviting Contractors to bid is published unless otherwise stated.

20. **TRADE NAMES AND MATERIALS.** No material which has been used by the Contractor for any temporary purpose whatever is to be incorporated in the permanent structure without written consent of the Engineer.

Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against an equal product of another manufacturer, but rather to set a definite standard of quality of performance, and to establish an equal basis for the evaluation of bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the thing referred to

shall be proper, the equivalent of, or equal to some other thing, in the opinion or judgment of the Engineer. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "or equal to" or other such expressions may be used in the specifications in connection with a material, manufactured article or process, the materials, article or process specifically designated shall be used, unless a substitute shall be approved in writing by the Engineer, and the Engineer shall have the right to require the use of such specifically designated material, article or process.

21. **QUALITY OF MATERIALS.** In the absence of detailed specifications in other sections, all materials shall conform to the latest standards of the American Society for Testing Materials.

22. **MATERIALS, SERVICES, AND FACILITIES.** It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, equipment rental, water, heat, light, fuel, power, transportation, superintendence, temporary construction of every nature and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the work within the specified time.

23. **WORKMANSHIP, MATERIALS, EQUIPMENT, AND STORAGE.** All work done and all materials and equipment furnished by the Contractor shall strictly conform to the plans, drawings, and specifications. Competent labor, mechanics, and tradesmen shall be used to supervise the installation of equipment as may be required by the Engineer. Any special tools or equipment which may be required for first class work shall be provided by the Contractor.

The acceptance at any time of materials by or in behalf of the Owner shall not be a bar to future rejection if they are subsequently found to be defective or inferior in quality or uniformity to the material specified, or are not as represented to the Engineer or Owner.

Contractor shall be responsible for the care and storage of materials delivered on the work site or purchased for use thereon. Stored materials shall be carefully and continuously protected from damage or deterioration and so located as to facilitate inspection by the Owner and Engineer. This responsibility for the care and storage of materials shall be with the Contractor whether such materials are furnished by the Contractor or by the Owner.

24. **INSPECTION AND TESTING OF MATERIALS.**

- a. During the progress of the work, it shall be subject to the inspection and observance of the Engineer, and the contractor shall afford every reasonable facility and assistance to the Engineer to make such inspection thorough and intelligent. If any work is covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination at the Contractor's expense.
- b. The fact that the Engineer is on the job site shall not be taken as an acceptance of the Contractor's work or any part of it. contractor shall notify the Engineer upon completion of his contract and the work shall be given final inspection by the Engineer and any tests shall be witnessed by the Engineer. If all parts of the work are acceptable and substantially comply with the intent of the plans, drawings, and specifications, a recommendation of final acceptance will be made by the Engineer to the Owner. If parts of the work are not acceptable and require additional work by the Contractor to complete the project, necessitating additional inspection by the Engineer, the cost of such additional inspections including time, travel, and lodging, shall be paid for by the Contractor to the Owner who will reimburse the Engineer.

- c. Contractor shall submit to the Engineer seven (7) days in advance of construction, and without charge, samples or specifications of materials he proposes to use and shall not use these materials until he has received approval from the Engineer.
- d. The Owner shall direct and furnish all items necessary for the testing of all materials called for in the specifications. The Owner shall pay the cost of the tests, including all transportation charges unless otherwise noted in the specifications. The cost of re-testing any failed specimens shall be paid by the Contractor.
- e. All tests, unless otherwise provided, shall be in accordance with the pertinent sections of the latest edition of the standards applicable to the material or devices to be tested. A partial list of the principal societies referred to and their abbreviations follows:
 

ASTM	American Society for Testing Materials
AISC	American Institute of Steel Construction
ACI	American Concrete Institute
FS	Federal Specifications
AASHTO	American Association of State Highway Officials
AWWA	American Water Works Association
- f. All parts of the improvements shall conform to the standard of construction as given in detail under the various items, and in general to the intent thereof, and if they do not conform, shall be made to do so by rebuilding or replacing or otherwise as directed by the Engineer or Owner before acceptance shall be made.

25. **BARRICADES, LIGHTS, AND WATCHMEN.** Where the work is carried on in or adjacent to any street, alley or public place, the Contractor shall at his own cost and expense furnish and erect such barricades, fences, lights, and danger signals, shall provide such watchmen, and shall provide such other precautionary measures for the protection of persons or property and of the work as are necessary. Barricades shall be painted in a color that will be visible at night. From sunset to sunrise the Contractor shall furnish and maintain at least one light at each barricade and sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction. The Contractor shall furnish watchmen in sufficient numbers to protect the work.

The Contractor will be held responsible for all damage to the work due to failure of barricades, signs, lights, and watchmen to protect it, and whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by the Contractor at his cost and expense. The Contractor's responsibility for the maintenance of barricades, signs, and lights, and for providing watchmen shall not cease until the project shall have been accepted by the Owner.

The Contractor shall use only battery powered lights, enclosed lanterns or other lights satisfactory to the Engineer. Smudge pots or other lights which have an open flame will not be permitted.

26. **DISPOSAL OF WASTE AND SURPLUS EXCAVATION.** All trees, stumps, slashings, brush or other debris removed from the job site as a preliminary to the construction of the work or its appurtenances shall be removed from the property and disposed of in a manner approved by the Engineer.

All excavated earth in excess of that required for backfilling shall be removed from the job site and disposed of in a satisfactory manner except in locations where, in the judgment of the Engineer, it can be neatly spread over and along the right-of-way.

27. GUARANTY AGAINST DEFECTIVE WORK. The Contractor shall indemnify the Owner against any repairs which may become necessary to any part of the work performed under the contract, arising from defective workmanship or materials used therein, for a period of one (1) year from the date of final acceptance of the work.

28. RESTORATION OF SITE & CLEANUP. Upon completion of the project (or major portions thereof) the Contractor shall restore the site to its original condition or better. Driveways and streets shall be compacted and resurfaced as originally found. All private property disrupted during construction including fences, patios, retaining walls, sidewalks, wooden decks, etc. shall be mended or repaired to their original condition. At the conclusion of the work, all tools, temporary structures and materials belonging to the Contractor shall be promptly removed, and all dirt, rubbish and other foreign substances shall be disposed of.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver over such materials and equipment in an undamaged, clean condition.

29. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE. The Contractor shall not commence work under this contract until he has obtained at his expense all insurance required under this section of the General Conditions and by the Contract Documents, and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on any subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Such insurance shall remain in full force and effect on all phases of the work, whether or not the work is occupied or utilized by the Owner, until all work under the Contract is completed and has been accepted by the Owner.

Nothing contained in the insurance requirements shall be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under the Contract.

Any insurance bearing an adequacy of performance will be maintained after completion of the project for the full guarantee period.

The Contractor shall obtain and maintain for the full period of the Contract the following types of insurance in the form, minimum limits and amounts herein specified or as may be otherwise required in the Contract Documents. The Contractor shall automatically renew any policy which expires during the performance of his Contract and notify the Owner and Engineer of such a renewal prior to expiration date.

A. Workmen's Compensation including Occupational Disease, and Employer's Liability Insurance. Before commencement of the work, the Contractor shall take out and maintain during the life of this contract Statutory Workmen's Compensation Insurance and Occupational Disease Disability Insurance for all of his employees to be engaged in work under this Contract, and in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation and occupational Disease Disability Insurance for the latter's employees engaged in such work unless such employees are covered by the protection afforded by the Contractor's insurance. In case any class of employees engaged in hazardous work under the Contractor is not protected under the Workmen's Compensation statute, or in case there is no applicable Workmen's Compensation Statute, the Contractor shall provide, and shall cause each subcontractor to provide adequate insurance for the protection of his employees not otherwise protected.

B. Public Liability and Property Damage Insurance: (Note "Indemnity" clause hereinafter). Before commencement of the work, the Contractor shall submit written evidence that he and all his subcontractors have obtained for the period of the Contract full Comprehensive General Liability and Property Damage Insurance coverage. This coverage shall protect the Contractor; the Owner; the Engineer, its architects and engineers; and each of their officers, agents and employees; from claims for damages for bodily or personal

injury, sickness or disease, including death, and from claims for damages to property, which may arise directly or indirectly out of, or in connection with the performance of work under this Contract by the Contractor, by any of his Subcontractors, or by anyone directly or indirectly employed of either of them, or under the control of either of them, and the minimum amount of such insurance shall be as follows unless higher minimum amounts are otherwise required in the Contract Documents:

Public Liability Insurance in an amount not less than One Million Dollars (\$1,000,000) for damages arising out of bodily or personal injury, sickness or disease, or death of one person and subject to the same limit for each person and in an amount not less than One Million Dollars (\$1,000,000) in any one occurrence; and Property Damage Insurance in an amount not less than Five Hundred Thousand Dollars (\$500,000) for all damages arising out of injury to or destruction of property of others in any one occurrence with an aggregate limit in the same amount.

The Property Damage portion of this coverage shall include where applicable explosion, collapse and underground exposure coverage. In addition, where Completed Operation Insurance coverage is applicable, such coverage will be maintained after completion and acceptance of the project for the full guarantee period.

C. Automobile Liability and Property Damage Insurance: Before commencement of the work, the Contractor shall submit written evidence that he and all his subcontractors have obtained Automobile Liability and Property Damage Insurance coverage on all self-propelled vehicles used in connection with the Contract, whether owned, non-owned, or hired. The liability limits shall be not less than One Million Dollars (\$1,000,000) for injury or death of one person and in an amount not less than One Million Dollars (\$1,000,000) in any one occurrence; and Property Damage limits of not less than Five Hundred Thousand Dollars (\$500,000) in any one occurrence.

D. Contractual Liability Coverage: Each and every policy for Liability Insurance carried by each Contractor and Subcontractor will include a "Contractual Liability Coverage" endorsement sufficiently broad to insure the provision titled "Indemnity" hereinafter set forth.

E. Indemnity: The Contractor shall defend, indemnify and hold harmless the Owner; the Engineer, its Engineers; and each of their officers, agents, servants and employees; from any and all suits, actions, claims, losses or damage of any character and from all expenses incidental to the defense of such suits, actions or claims, based upon or arising out of or alleged to be based upon or arising out of (1) any injury, disease, sickness or death of any person or persons, (2) any damages to any property including in part loss of use thereof, caused by any act or omission of the Contractor, of any Subcontractor of the Contractor, or by their officers, agents, servants, employees, or anyone else under the Contractor's direction and control, and arising out of, occurring in connection with, resulting from, or caused by the performance or failure of performance of any work or services called for by the Contract or from conditions created by the performance or non-performance of said work or services, but not including the sole negligence of any party herein indemnified.

F. Builder's Risk "All-Risk" Insurance: In addition to such Fire and extended Insurance coverage which the Contractor or his Subcontractors elect to carry for their own protection, the Contractor, before commencement of the work, shall effect and maintain for the life of his Contract Builder's Risk "All-Risk" Completed Value Insurance coverage upon the full insurable value of all portions of the project which is the subject of this Contract and subject to a loss for which Builder's Risk "All-Risk" Insurance coverage gives protection, and shall include completed work and work in progress. This coverage shall be with an insurance company or companies acceptable to the Owner.



Such insurance shall include as Additional Named Insureds: the Owner; The Engineer, its architects and engineers; and each of their officers, agents, and employees; and any other persons with an insurable interest designated by the Owner as an Additional Named Insured.

Duplicate originals of the policy of insurance required herein shall be furnished to the Engineer as provided under "Evidence of Insurance Coverage" hereinafter.

G. Evidence of Insurance Coverage: Before commencement of any work, the Contractor shall submit written evidence that he and all his Subcontractors have obtained the minimum insurance required by the Contract Documents. Such written evidence shall be in the form of a Certificate of Insurance (see attached form) executed by the Contractor's insurance carrier showing such policies in force for the specified period or by furnishing a copy of the actual policy or policies. Each policy or certificate will bear an endorsement or statement waiving right of cancellation or reduction in coverage without minimum ten (10) days notice in writing to be delivered by registered mail to the owner.

The Contractor shall furnish duplicate originals of Builders' Risk "All-Risk" Completed Value Insurance coverage to the Engineer, one copy of which shall be for the Owner and one copy for the Engineer.

30. SAFETY.

- a. In accordance with generally accepted construction practices, the Contractor alone will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- b. The duty of the Engineer or Architect to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

31. EXISTING UTILITIES AND SERVICE LINES. The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operations. Where existing utilities or service lines are cut, broken or damaged, the Contractor shall replace or repair the utilities or service lines with the same type of original material and construction, or better, at his own cost and expense.

32. DURING CONSTRUCTION. During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove same from any portion of the site, if in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

33. COPIES OF PLANS AND SPECIFICATIONS FURNISHED. Three (3) sets of plans and specifications shall be furnished to the Contractor, at no charge, for construction purposes. Additional copies may be obtained at cost of reproduction upon request.

34. LIGHT AND POWER. The Contractor shall provide, at his own expense, temporary lighting and facilities required for the proper prosecution and inspection of the work.

35. EXISTING STRUCTURES. The plans show the locations of all known surface and subsurface structures. However, the Owner assumes no responsibility for failure to show any or all of these structures

on the plans, or to show them in their exact location. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for extra work or for increasing the pay quantities in any manner whatsoever, unless the obstruction encountered is such as to necessitate changes in the lines or grades, or requires the building of special work, provisions for which are not made in the plans and proposal, in which case the provisions in these specifications for extra work shall apply.

36. USE OF EXPLOSIVES. Use of explosives will be allowed only upon written approval of their use by the Engineer.

Should the Contractor elect to use explosives in the prosecution of the work, the utmost care shall be exercised so as not to endanger life or property. The Owner shall not be held liable for damages done by the Contractor in the use of explosives. The Contractor shall notify the proper representatives of any public service corporation, any company, or any individual, not less than eight (8) hours in advance of the use of explosives which might endanger or damage their or his property along or adjacent to the work. Whenever explosives are stored or kept, they shall be stored in a safe and secure manner and all storage places be plainly marked "DANGER EXPLOSIVES", and shall be under the care of a competent watchman at all times.

37. SUNDAYS, HOLIDAYS, AND OVERTIME. Any work necessary to be performed after regular working hours, on Sundays, or legal holidays, shall be performed without additional expense to the Owner. The Contractor shall notify the Engineer if any work is to be performed on Sundays or holidays.

38. PAYMENTS NO EVIDENCE OF PERFORMANCE. No progress or final estimate certificate given or payment made under this contract shall be evidence of the performance of this contract or construed to be acceptance of defective work or improper materials, either wholly or in part.

39. TEMPORARY SUSPENSION OF THE WORK. The Engineer shall have authority to suspend the work wholly or in part for such period or periods of time as he may deem necessary due to unsuitable weather or other conditions considered unfavorable for the suitable prosecution of the work; or for the failure of the Contractor to carry out instructions or to perform any provisions of the contract. During periods of suspension, the Contractor shall properly protect the work from possible injury.

40. OWNER'S RIGHT TO DO WORK. If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner, after seven (7) days written notice to the Contractor, may, without prejudice to any other remedy the Owner may have, make good such deficiency and may deduct the cost thereof from the payment then or thereafter due the Contractor. Any money due the Owner after such deduction shall be paid by the Contractor or his sureties who hereby agree to these provisions.

41. RIGHT OF OWNER TO TERMINATE CONTRACT. Should it appear at any time that the work is not being prosecuted with sufficient competence or rapidity to insure the proper completion of the work within the stipulated time, and, if upon seven (7) days written notice to the Contractor, he fails to increase the quality or the quantity of his work, or both, the Owner reserves the right to annul and cancel this contract and relet the work or any part thereof, or at the Owner's option to complete it by day labor. The Contractor shall not be entitled to any claims for damages on account of such annulment, and he will be held liable for costs and expenses incurred in reletting or completing the work under this contract. All money due the Contractor will be retained until the work is completed and all expenses and costs have been deducted and any money due the Owner, after such deductions have been made, shall be paid by the Contractor or his Sureties who hereby agree to these provisions.

42. TERMINOLOGY. Throughout these specifications, the word "shall" denotes mandatory. The word "may" implies only permission. All other "terms" or "word phrases" shall be interpreted as having the meaning customarily ascribed to them by the several building trades of the United States.

43. CERTIFICATES AND GUARANTEES. Four (4) copies of any manufacturer's guaranty or certificate as may be required by the Contract Documents shall be submitted to the Owner prior to the acceptance of the work by the Owner.

44. STATE SALES TAX. This Contract is issued by an organization which qualifies for exemption pursuant to the provisions of Article 20.04 (F) of the Texas Limited Sales, Excise and Use Tax Act. The Contractor performing this contract may purchase, rent or lease all materials, supplies, equipment used or consumed in the performance of this contract by issuing to his suppliers an exemption certificate.

45. COORDINATION WITH OTHERS. In the event other contractors are doing work in the same area simultaneously with this project, the Contractor shall coordinate his proposed construction with that of the other contractors.

46. DEWATERING EXCAVATION. The prospective bidders shall make sufficient subsurface explorations to determine the location of groundwater which might be encountered. The Contractor shall, at his own expense, utilize a pumping system in order to place materials in dewatered excavations.

47. PUBLIC UTILITIES AND OTHER PROPERTY TO BE CHANGED. In case it is necessary to change or move the property of any owner or of a public utility, such property shall not be moved or interfered with until ordered to do so by the Engineer. The right is reserved to the owner of public utilities to enter upon the limits of the project for the purpose of making such changes or repairs of their property that may be made necessary by performance of this Contract.

Any time the Contractor intends to expose, cross, or otherwise work in the area of the existing petroleum pipelines, telephone lines, water lines, etc., the Contractor shall notify the Owner(s) of the respective facilities forty-eight (48) hours in advance.

48. PAY ITEMS. Pay items are listed in the Proposal. All other items necessary to complete the work as shown and specified shall be considered subsidiary obligations of the Contractor.

49. MUTUAL RESPONSIBILITY OF CONTRACTORS. If, through acts or neglect on the part of the Contractor, any other Contractor or Subcontractor shall suffer loss or damage to his work, the Contractor agrees to settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor asserts been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against such claims and for any costs in connection with such claims.

50. PROTECTION OF PROPERTY. The Contractor shall, at no additional expense to the Owner, protect by false work, braces, shoring or other property along his line of work or affected directly by his work, against damage and shall repair the damages or repay the injured Owners if such damage occurs.

The Contractor shall exercise care to protect from injury all water pipes, sanitary sewer pipes, gas mains, telephone cables, electric cables, service pipes, and other utilities or fixtures which may be encountered during the progress of the work. All utilities and other service facilities or fixtures if damaged, shall be repaired by the Contractor without additional compensation.

The Contractor shall personally check and verify utility information on the plans. Where existing utilities or structures are shown on the plans or drawings, they are believed to be accurate but are not guaranteed to

such or that these are the only utilities or structures in the construction area. Protection is Contractor's responsibility and he must satisfy himself as to the existence and location of all utilities and structures.

The Contractor shall give notice in writing at least 48 hours before breaking ground, to all persons, superintendents, inspectors, or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, railroads or otherwise, who may be affected by the Contractor's operation, in order that they may remove any obstruction for which they are responsible and have a representative on the ground to see that their property is properly protected.

51. EXTENSION OF CONTRACT PERIOD. The Contractor may be granted an extension of time due to Acts of God, Acts of War, Strikes, or non-delivery of materials provided he submits a request in writing to the Engineer not later than ten (10) days from the date of such occurrence. A separate request must be made for each occurrence.

52. FAILURE TO COMPLETE WORK WITHIN CONTRACT PERIOD. If the Contractor fails to complete his work within the contract period, or any extension thereof, as provided in the "Extension of Contract Period" said contract shall upon written notice to the Contractor and Surety be in default.

The Owner may, at its (his) option, permit the Contractor or his surety to complete the work included in the contract, or may proceed to complete the work in accordance with "Completion of Contract in Default". In either event, the Contractor or his Surety shall be responsible for all costs incidental to the completion of the work and also for the liquidated damages stipulated in the proposal form. The Owner may waive such portion of the liquidated damages as may occur after the work is in condition for the safe and convenient use by the Owner.

53. CONTRACTS IN DEFAULT. The Owner may declare a contract in default for any one or more of the following reasons:

- a. Failure to complete the work within the contract period or any extension thereof.
- b. Failure or refusal to comply with an order of the Engineer or Architect within a reasonable time.
- c. Failure or refusal to remove rejected materials.
- d. Failure or refusal to perform anew any defective or unacceptable work.
- e. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors.
- f. Failure to provide a qualified superintendent, competent workmen or subcontractors to carry on the work in an acceptable manner or failure to prosecute the work according to the agreed schedule of completion.
- g. Disregard or violation of any other important provisions of the Contract Documents as determined by the Engineer.

54. COMPLETION OF CONTRACTS IN DEFAULT. If for any reason, a contract is declared in default, the Owner shall have the right, without process or action at law to take over all or any portion of the work and complete it at its (his) option, either by day labor or by reletting same. Written notice shall be given the Contractor by the Owner that his contract has been declared in default and upon receiving such notice, the Contractor shall peaceably relinquish possession of said work or the parts thereof specified in the notice.

The Owner may, at its (his) option and at a rental which it considers reasonable, retain all materials, equipment, and tools on the work until the work is complete.

Neither the Owner nor the Owner's officers, agents, or employees shall be in any way liable or accountable to the Contractor or his Surety for the method by which the completion of the said work, or any portion thereof, may be accomplished, or for the price paid therefor. Should the cost of completing the work be in excess of the original contract price, the Contractor and his Surety shall be held responsible for such excess cost. Should the cost of such completion including all proper charges, be less than the original contract price, the amount so saved shall be paid to the Contractor. Neither by taking over the work nor by declaring the contract in default shall the Owner forfeit the right to recover damages from the Contractor or his Surety for failure to complete the entire contract. Maintenance of the work shall continue to be the Contractor's and Surety responsibilities as provided for in the Bond and Guaranty of the Contractor.

55. EXCAVATION IN HIGHWAY RIGHTS-OF-WAY. No trench excavation within a highway right-of-way shall be carried closer than 10 feet of all pavement edges. No dirt from trench excavation shall be piled on roadway shoulders, slopes, ditches, and berms shall be restored to their original condition.

The Contractor shall notify the Highway Department of his construction schedule not less than five (5) days prior to commencing the work within the right-of-way. The Contractor shall conform to the requirements of the Texas Highway Department as to details of construction methods and time of construction.

56. PROVISIONS FOR REROUTING AND DETOUR OF TRAFFIC. The Contractor will be required to furnish all barricades, lights, signs, and flagmen where it becomes necessary to reroute traffic during the time construction is in progress in the City streets or highways. The detour will be determined by the Engineer and approved by the Owner and the Texas Highway Department.

57. REMOVAL AND REPLACEMENT OF EXISTING PIPE CULVERTS. Existing pipe culverts in conflict with the proposed construction shall be unearthed carefully, disjointed, and stockpiled adjacent to the right-of-way. The pipe culverts shall be cleaned and replaced immediately after the sewer line construction is clear so as to cause no serious inconveniences to the property owners and to allow access to their property as quickly as possible. Pipe culverts shall be laid to grade on a firm bedding and shall be backfilled and mechanically tamped to a density such that settlement will not occur. Where existing rubble or concrete headwalls are cut, damaged, or removed, they shall be replaced in an equal or better condition as determined by the Engineer.

Removal and replacement of existing pipe culverts will not be measured and paid for each. No separate payments will be made for removing and replacing headwalls on culverts and all costs in connection therewith shall be included in other items listed in the Proposal.

58. SCHEDULE OF WORK SEQUENCE. Upon award and prior to any construction, it shall be the responsibility of the Contractor to present, to the Owner and Engineer for approval, a tentative schedule of the sequence in which the work will be performed. The schedule should include the following information:

- a. The sequence of work in which the construction will be done.
- b. The approximate period of time in constructing and testing of the facilities.
- c. Coordination of work using two (2) or more crews.
- d. Schedule of possible night work in making tie-ins and road crossings.

59. COST BREAKDOWN. Immediately after being awarded a contract for the work, the Contractor shall furnish the Engineer with a cost breakdown of each lump sum bid. Such a breakdown shall be in sufficient detail to permit its use in the preparation of progress estimates by the Engineer. Progress payments for materials and equipment on hand shall be based on invoice prices and invoice copies must be presented to the Engineer.

60. FINAL FIELD TESTS. Upon completion of the work and prior to final payment, all equipment and appliances installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.

The Contractor shall furnish labor, fuel, energy, water and all other material, equipment, and instrument necessary for all acceptance tests, at no additional cost to the Owner.

61. WATER FOR CONSTRUCTION. Water used for testing and flushing of the pipe line or any other purpose incidental to this project will be furnished by the Contractor. The Contractor shall make the necessary arrangements for securing and/or transporting such water and shall take such water in a manner and at such times that will not produce a harmful drain on the source of water. The Contractor shall be fully responsible for the draining and disposal of all water used in flushing and testing. The Contractor shall obtain approval of the Owner and Engineer of the manner in which the water will be drained and disposed of.

62. ELECTRICITY FOR CONSTRUCTION. Except as provided elsewhere in these specifications, the Contractor shall provide all electricity required.

63. SPECIAL CONSTRUCTION REQUIREMENTS IN STATE HIGHWAY RIGHT-OF-WAY.

- a. All Highway signs removed or disturbed shall be restored to original condition.
- b. All surplus material shall be removed from right-of-way and the excavation finished flush with surrounding natural ground.
- c. Operation along highways shall be performed in such a manner that all excavated materials be kept off the pavements at all times as well as all operating equipment.
- d. Barricades, warning signs and flagmen shall be provided by the Contractor.

64. CONTRACT DOCUMENTS. The Contract Documents shall consist of all documents contained herein as stated in the Table of Contents including the Notice to Bidders (Advertisement), Special Conditions, Instructions to Bidders, Proposal, signed Agreement, Performance and Payment Bonds (when required), Special Bonds (when required), General Conditions of Agreement, Technical Specifications, Plans, and all modifications thereof incorporated in any of the documents before the execution of the Agreement.

65. POLES, SIGNS, GUY WIRES, ETC. All utility poles, guy wires, private sign posts, signs, and similar private obstructions which interfere with the construction of this project will be removed and replaced by the Contractor at his own expense.

The removal and replacement of City street sign posts and signs is the responsibility of the Contractor. The Contractor shall be responsible for all damage to street sign posts and signs within the limits of his operations that remain in place or are removed and replaced.

In event street sign posts and signs are injured or destroyed by the Contractor's operations, they shall be replaced by the Contractor. No separate compensation will be paid for this work, but the costs thereof shall be included in such contract pay items as are provided.

66. PROTECTION OF TREES, PLANTS AND SHRUBS. The Contractor shall make every effort to protect all trees, plants, and shrubs encountered during construction and shall notify property owners, as specified above, before removal of any such item. In all cases where questions arise, the Contractor shall request clarification from the Engineer.

67. PROPERTY LINES AND MONUMENTS. The Contractor shall protect all property lines, monuments and stakes encountered in his work. All monuments, and stakes for later use, that are disturbed or destroyed by the Contractor shall be replaced at his expense.

68. HORIZONTAL AND VERTICAL CONTROL POINTS. Location of the centerlines and grades will be determined and staked by the Contractor. The Contractor shall assume full responsibility for construction in accordance with the approved lines and grades.

69. CONFINED SPACE ENTRY. The Contractor shall be responsible for compliance with any and all Federal and State confined space entry and permitting requirements.

70. ALLOWANCE FOR MISCELLANEOUS EXTRA WORK. A discretionary allowance may have been established in the Bid Proposal for miscellaneous extra work which may arise during the construction phase of the project due to the discovery of unknown obstructions or other unexpected project conditions for which a method of payment, such as individual bid items, is not established. This allowance, if established in the Bid Proposal, is not intended to be used to procure payment for items specifically named as subsidiary to other bid items within the contract documents. Prior to initiating any item of extra work under this bid item, the Owner, Engineer, and Contractor will agree as to the scope of extra work to be performed and the amount of payment to be made for the particular item of extra work under consideration. A written field order for the extra work will be approved by all parties before commencing with extra work. Expenditure of the allowance funds is at the sole discretion of the Owner. The allowance may be used in full or in part as the Owner deems necessary. If no extra work is identified and approved by the Owner, the allowance funds will not be expended.

## TECHNICAL SPECIFICATIONS



**GREGG COUNTY, TEXAS  
ELDERVILLE COMMUNITY CENTER IMPROVEMENTS**

**TECHNICAL SPECIFICATIONS  
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## SECTION 011000 - SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of the Contract.
  - 3. Use of premises.
  - 4. Work restrictions.
  - 5. Specification formats and conventions.
  - 6. Miscellaneous provisions.

#### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Elderville Community Center Improvements
  - 1. Project Location: 10450 Hwy. 349, Longview, TX, 75601, Gregg County Precinct #4
- B. Owner: Gregg County, 101 E. Methvin, Ste. 205, Longview, TX 75601
  - 1. Owner's Representative: Bill Stoudt, County Judge, (903) 236-8430
  - 2. Precinct #4 Representative: Shannon E. Brown, Commissioner, (903) 981-1117  
710 W. South Martin Luther King Boulevard, P.O. Box 1898, Kilgore, TX 75663
- C. Engineer: Hayes Engineering, Inc., 2126 Alpine Rd., Longview, TX 75601
  - 1. Engineer's Representative: Stanley R. Hayes, P.E., Principal, (903) 758-2010, Ext. 22.
- D. The Work consists of the following:
  - 1. Gregg County intends to make improvements to the interior and exterior of the existing Elderville Community Center. Updates will include floors, ceilings, and walls on the interior, and painting of the exterior.
  - 2. Repair to drywall caused from removal of existing components or existing wall damage shall be considered subsidiary to other pay items in the Bid Proposal.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

1.5 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations as defined by the construction plans and the following. Contractor must:

1. Allow Owner to use facilities that are currently available for use.
  - a. A diligent effort will be made by the Owner to coordinate the Contractor's work schedule with the Owner's planned uses; however, the Contractor will be required to adjust his work schedule and progress if necessary to allow the Owner the use of existing facilities.
2. Owner Occupancy: Owner will not occupy the building during construction.
3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner and emergency response vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize use of driveways and entrances.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

- B. Use of Existing Buildings: Maintain existing buildings in weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.6 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except as otherwise indicated.
1. Weekend Hours: Weekend work is permitted, however, costs for inspection by Project Representative Services by Engineer on Saturdays and Sundays will be required to be reimbursed at the rate of \$60/hr.
  2. Hours for Utility Shutdowns: Permitted only when accompanied by a 48-hour written notice to affected areas and then when permitted by the Owner and in accordance with the applicable Specification Section.

END OF SECTION 011000

## SECTION 012200 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
  - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

#### 1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, bonding, project administration costs, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to Measurement and Payment Specification Section 012901 for methods of measurement and payment, and for general descriptions of items included in each bid item. Refer to the specific Specification Sections for work that requires establishment of unit prices.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor. In cases of dispute, the decision of the Engineer shall be considered final.

END OF SECTION 012200

## SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
  - 1. Division 01 Section "Unit Prices" for administrative requirements for using unit prices.
  - 2. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Engineer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, by written order.

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within ten (10) working days after receipt of Proposal Request, submit a quotation outlining cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship.

B. Contractor-Initiated Proposals: If unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change order to Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

#### 1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor.

END OF SECTION 012600

## SECTION 012900 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
    - c. Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Engineer at earliest possible date but no later than ten (10) working days following execution of the Contract Documents.
  - 3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Bid Proposal to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
    - 1. Identification: Include the following Project identification on the Schedule of Values:
      - a. Project name and location.

- b. Name of Engineer.
  - c. Engineer's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
- a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value.
    - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Use the Bid Proposal format to establish the Schedule of Values. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
4. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
- a. Note: Items stored off-site will NOT be eligible for payment.
5. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
6. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place are to be distributed as general overhead expense.
7. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as approved by Engineer and paid for by Owner.



1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Progress payments shall be submitted to Engineer by the 3<sup>rd</sup> day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Payment Application Forms: Use forms provided by Engineer for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders issued before last day of construction period covered by application.
  3. Retainage of 10% shall be withheld on this project.
- F. Transmittal: Submit 1 signed original copies of each Application for Payment to Engineer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
  1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Products list.
  5. Submittals Schedule (preliminary if not final).
  6. List of Contractor's staff assignments.

7. List of Contractor's principal consultants.
  8. Copies of building permits. (Contractor must obtain building permits from the Building Inspection Division of the City of Longview. The City will waive building permit fees.)
  9. Initial progress report.
  10. Report of preconstruction conference.
  11. Certificates of insurance and insurance policies.
  12. Performance and payment bonds.
  13. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation attesting all items in any and all punch list(s) have been satisfactorily addressed.
  2. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  3. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Include documentation attesting all items in any and all pre-final and / or final punch list(s) have been satisfactorily addressed.
  2. Evidence of completion of Project closeout requirements.
  3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  4. Updated final statement, accounting for final changes to the Contract Sum.
  5. Affidavit of Payment of Debts and Claims
  6. Affidavit of Release of Liens
  7. Consent of Surety to Final Payment
  8. Evidence that claims have been settled.
  9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  10. Final, liquidated damages settlement statement.

END OF SECTION 012900

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. See Division 01 Section "Closeout Procedures" for submitting warranties.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
  - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
- C. Identification: Place a permanent label or title block on each submittal for identification.
  - 1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor(s) {if related to specific submittal}.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Other necessary identification.
- D. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- E. Additional Copies: Contractor shall submit one (1) PDF set of submittals.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals received from sources other than Contractor.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of revision in label or title block and clearly indicate extent of revision.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating "furnish as submitted" or "furnish as noted" taken by Engineer.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.

- c. Manufacturer's installation instructions.
  - d. Manufacturer's catalog cuts.
  - e. Wiring diagrams showing factory-installed wiring.
  - f. Printed performance curves.
  - g. Operational range diagrams.
  - h. Compliance with specified referenced standards.
  - i. Testing by recognized testing agency.
4. Number of Copies: Submit one (1) PDF copy of Product Data, unless otherwise indicated. Engineer will review and will return one (1) PDF to Contractor. Mark up and return one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Notation of coordination requirements.
    - j. Notation of dimensions established by field measurement.
    - k. Relationship to adjoining construction clearly indicated.
    - l. Seal and signature of professional engineer or licensed architect if required.
    - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 22 by 34 inches in PDF format.
  3. Number of Copies: Submit one (1) PDF copy of each submittal. Engineer will return one (1) PDF copy.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.

- d. Number and title of appropriate Specification Section.
- 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
  - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
- 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - a. Number of Samples: Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
- E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
  - 1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Engineer will return one copy.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  - 1. Number of Copies: Submit one (1) PDF copy of each submittal, unless otherwise indicated. Engineer will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- D. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- E. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.
- F. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- G. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- H. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- I. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Engineer.
  - 1. Engineer will not review submittals that include MSDSs and will return them for resubmittal.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Engineer will review each submittal and will not return it or will return it if it does not comply with requirements. Contractor must forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300



## SECTION 033000 - CAST-IN-PLACE CONCRETE

### 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.

#### 1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
  - 1. Footings.
  - 2. Foundation walls.
  - 3. Storm water drainage structures.
  - 4. Sanitary sewer structures.
  - 5. Potable water distribution structures.
  - 6. Electrical and other utility structures.
  - 7. Slabs-on-grade.
  - 8. Building walls.
- B. Related Sections include the following:
  - 1. Division 31 Section "Earth Moving" for drainage fill under slabs-on-grade.
  - 2. Division 32 Section "Concrete Paving" for concrete pavement and walks.
  - 3. Division 32 Section "Decorative Concrete Paving" for decorative concrete pavement and walks.

#### 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.

- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.
  - 1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and installing and removing reshoring.
- E. Samples: For waterstops and vapor retarder.
- F. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
  - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- G. Material Certificates: For each of the following, signed by manufacturers:
  - 1. Cementitious materials.
  - 2. Admixtures.
  - 3. Steel reinforcement and accessories.
  - 4. Waterstops.
  - 5. Curing compounds.
  - 6. Floor and slab treatments.
  - 7. Bonding agents.
  - 8. Adhesives.
  - 9. Vapor retarders.
  - 10. Semirigid joint filler.
  - 11. Joint-filler strips.
  - 12. Repair materials.
- H. Floor surface flatness and levelness measurements to determine compliance with specified tolerances.
- I. Field quality-control test and inspection reports.

#### 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, acceptable to the City of Longview, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
  - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency

laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  - 1. ACI 301, "Specification for Structural Concrete,"
  - 2. ACI 302, "Guide for Concrete Floor and Slab Construction",
  - 3. ACI 360R, "Design of Slabs on Ground",
  - 4. ACI 318, "Building Code Requirements for Structural Concrete", and
  - 5. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- D. Concrete Testing Service: Owner will engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
  - 1. Contractor must submit design mixtures to Engineer for review. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for evaluating and testing concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete subcontractor.
  - 2. Review concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
  2. Products: Subject to compliance with requirements, provide one of the products specified.
  3. 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.
  4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

### 2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
  2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. Structural 1, B-B or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.
- E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- F. Chamfer Strips: Wood, metal, PVC, or rubber strips, size as shown on plans.
- G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- H. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

- I. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  1. Furnish ties that, when removed, will leave holes no larger than 3/8 inch in diameter in concrete surface.

## 2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.
- C. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.
- D. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

## 2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.
- C. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.
- D. Zinc Repair Material: ASTM A 780, zinc-based solder, paint containing zinc dust, or sprayed zinc.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
  3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

## 2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I or I/II.
- B. Normal-Weight Aggregates: ASTM C 33, Class 1N coarse aggregate or better, graded. Provide aggregates from a single source.
  1. Maximum Coarse-Aggregate Size: 1-1/2 inch nominal.
  2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

## 2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
  1. Available Manufacturers:
    - a. Bayer Corporation.
    - b. ChemMasters.
    - c. Conspec Marketing & Manufacturing Co., Inc.; a Dayton Superior Company.
    - d. Davis Colors.
    - e. Elementis Pigments, Inc.
    - f. Hoover Color Corporation.
    - g. Lambert Corporation.
    - h. Scofield, L. M. Company.
    - i. Solomon Colors.
  2. Color: As selected by Engineer and Owner from manufacturer's full range.

## 2.7 WATERSTOPS

- A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Available Manufacturers:
  - a. Bometals, Inc.
  - b. Greenstreak.
  - c. Meadows, W. R., Inc.
  - d. Murphy, Paul Plastics Co.
  - e. Progress Unlimited, Inc.
  - f. Tamms Industries, Inc.
  - g. Vinylex Corp.
2. Profile: Ribbed with center bulb.
3. Dimensions: As shown on construction plans; nontapered.

## 2.8 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.
  1. Available Products:
    - a. Fortifiber Corporation; Moistop Plus.
    - b. Raven Industries Inc.; Dura Skrim.
    - c. Reef Industries, Inc.; Griffolyn.
    - d. Stego Industries, LLC; Stego Wrap, 10 mils.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

## 2.9 FLOOR AND SLAB TREATMENTS

- A. Slip-Resistive Aluminum Granule Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of not less than 95 percent fused aluminum-oxide granules.
  1. Available Products:
    - a. Anti-Hydro International, Inc.; A-H Alox.
    - b. L&M Construction Chemicals, Inc.; Grip It AO.
    - c. Sonneborn, Div. of ChemRex; Frictex NS.
- B. Emery Dry-Shake Floor Hardener: Pigmented, factory-packaged, dry combination of Portland cement, graded emery aggregate, and plasticizing admixture; with emery aggregate consisting of no less than 60 percent of total aggregate content.
  1. Color: As selected by Engineer from manufacturer's full range.
- C. Metallic Dry-Shake Floor Hardener: Pigmented, factory-packaged, dry combination of Portland cement, graded metallic aggregate, rust inhibitors, and plasticizing admixture; with metallic aggregate consisting of no less than 65 percent of total aggregate content.

1. Color: As selected by Engineer from manufacturer's full range.
- D. Unpigmented Mineral Dry-Shake Floor Hardener: Factory-packaged dry combination of Portland cement, graded quartz aggregate, and plasticizing admixture.
1. Available Products:
    - a. Burke by Edoco; NonMetallic Floor Hardener.
    - b. ChemMasters; Concolor.
    - c. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Conshake 500.
    - d. Dayton Superior Corporation; Quartz Tuff.
    - e. Euclid Chemical Company (The); Surfex.
    - f. Kaufman Products, Inc.; Tycron.
    - g. Lambert Corporation; Colorhard.
    - h. L&M Construction Chemicals, Inc.; Quartzplate FF.
    - i. MBT Protection and Repair, Div. of ChemRex; Maximent.
    - j. Metalcrete Industries; Floor Quartz.
    - k. Scofield, L. M. Company; Lithochrome Color Hardener.
    - l. Symons Corporation, a Dayton Superior Company; Hard Top.
    - m. Vexcon Chemicals, Inc.; Durag Premium.
  2. Color: As selected by Engineer from manufacturer's full range.
- E. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces.
1. Available Products:
    - a. Burke by Edoco; Titan Hard.
    - b. ChemMasters; Chemisil Plus.
    - c. ChemTec International; ChemTec One.
    - d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Intraseal.
    - e. Curecrete Distribution Inc.; Ashford Formula.
    - f. Dayton Superior Corporation; Day-Chem Sure Hard.
    - g. Euclid Chemical Company (The); Euco Diamond Hard.
    - h. Kaufman Products, Inc.; SureHard.
    - i. L&M Construction Chemicals, Inc.; Seal Hard.
    - j. Meadows, W. R., Inc.; Liqui-Hard.
    - k. Metalcrete Industries; Floorsaver.
    - l. Nox-Crete Products Group, Kinsman Corporation; Duranox.
    - m. Symons Corporation, a Dayton Superior Company; Buff Hard.
    - n. US Mix Products Company; US Spec Industraseal.
    - o. Vexcon Chemicals, Inc.; Vexcon StarSeal



## 2.10 CONCRETE STAMP

- A. Preparation: Plan pattern layout; coordinate slab dimensions and construction joint locations with stamping pattern dimensions where necessary. Concrete must be freshly placed and ready for application of imprint as indicated by manufacturer.
- B. Installation:
  - 1. Follow manufacturer's printed instructions.
  - 2. Broadcast color hardener evenly over freshly screeded and floated concrete surface; work color hardener into surface, integrating color with the concrete. Allow the hardener to be wet out with bleed water prior to floating.
  - 3. If necessary, broadcast additional material to intensify the final color appearance, working material into surface.
  - 4. Monitor concrete set time carefully. When concrete is set adequately to support worker's weight, broadcast the color release evenly over the slab surface at rate of 3 pounds per 100 square feet.
  - 5. Begin stamping operation using stamping tool kit. Work quickly and continuously across entire pour.
    - a. Place each tool on slab surface, aligned with each other and slab edges as pattern requires.
    - b. Step on back of stamping tool to create full depth impression in concrete.
    - c. Use special half tools and texture mats at slab edges, walls and corners.
    - d. Broom texture surface upon completion.
  - 6. Once the concrete has set, rinse residual release from the surface.
  - 7. Apply sealer to entire surface following the manufacturer's recommendations for exterior applications.
    - a.

## 2.11 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
  - 1. Available Products:
    - a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
    - b. Burke by Edoco; Aqua Resin Cure.
    - c. ChemMasters; Safe-Cure Clear.

- d. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; W.B. Resin Cure.
- e. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
- f. Euclid Chemical Company (The); Kurez DR VOX.
- g. Kaufman Products, Inc.; Thinfilm 420.
- h. Lambert Corporation; Aqua Kure-Clear.
- i. L&M Construction Chemicals, Inc.; L&M Cure R.
- j. Meadows, W. R., Inc.; 1100 Clear.
- k. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
- l. Symons Corporation, a Dayton Superior Company; Resi-Chem Clear Cure.
- m. Tamms Industries, Inc.; Horncure WB 30.
- n. Unitex; Hydro Cure 309.
- o. US Mix Products Company; US Spec Maxcure Resin Clear.
- p. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.

## 2.12 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
  - 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Reglets: Fabricate reglets of not less than 0.0217-inch- thick, galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- F. Dovetail Anchor Slots: Hot-dip galvanized steel sheet, not less than 0.0336 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

## 2.13 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
  4. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

#### 2.14 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: All cementitious materials must be Portland cement. Fly Ash is not permitted.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.10 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions and as specifically approved by Engineer.
- E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

#### 2.15 CONCRETE MIXTURES

- A. **CLASS "A" CONCRETE** (Footings, storm water drainage structures, manholes, vaults, piers, curb & gutter, sidewalks): Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 3000 psi at 28 days and 425 psi at 7 days.
  2. Minimum cement per cubic yard: 5.0 sacks.
  3. Maximum Water / Cement Ratio: 0.45 (air-entrained).
  4. Slump Limit: 3 inches, plus or minus 1 inch.

5. Air Content: 4-1/2 percent, plus or minus 0.5 percent.

B. **CLASS "C" CONCRETE** (Slabs-on-grade, post-tensioned slabs on grade, floors, non-commercial driveways, dam spillways): Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3600 psi at 28 days and 510 psi at 7 days.

2. Minimum cement per cubic yard: 6.0 sacks.

3. Maximum Water / Cement Ratio: 0.40 (air-entrained).

4. Slump Limit: 2 inches, plus or minus 1 inch.

5. Air Content: 4-1/2 percent, plus or minus 0.5 percent except as noted below.

6. Do not allow air content of troweled finished floors to exceed 3 percent.

C. **CLASS "P" CONCRETE** (Pavement, commercial driveways): Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 555 psi at 7 days and 4000 psi at 28 days.

2. Minimum Cement per cubic yard: 6.25 sacks.

3. Maximum Water / Cement Ratio: 0.55 (air-entrained).

4. Slump Limit: 3 inches, (minimum 1 inch).

5. Air Content: 5 percent, plus or minus 0.5 percent.

## 2.16 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.17 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
  - 1. Surface Class A, 1/8 inch for smooth-formed finished surfaces.
  - 2. Surface Class B, 1/4 inch; Surface Class C, 1/2 inch; Surface Class D, 1 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
  - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 3. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
  - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

### 3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
  - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.5 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 8 inches minimum and seal with manufacturer's recommended tape.
- B. Bituminous Vapor Retarders: Place, protect, and repair vapor retarders according to manufacturer's written instructions.
- C. Granular Course: Cover vapor retarder with granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.
  1. Place and compact a 1/2-inch- thick layer of fine-graded granular material over granular fill.

### 3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
  1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
  1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  3. Locate joints for beams, slabs, joists, and girders as shown on the construction plans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

5. Space vertical joints in walls as shown on plans. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints to the width specified in the construction plans into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
  2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
  3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.8 WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

### 3.9 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.



- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  2. Maintain reinforcement in position on chairs during concrete placement.
  3. Screenshot slab surfaces with a straightedge and strike off to correct elevations.
  4. Slope surfaces uniformly to drains where required.
  5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

### 3.10 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces not exposed to public view and at least six (6) inches below finish grade.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces exposed to public view and to a depth at least six (6) inches below grade.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete in all locations:
  - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
  - 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part Portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
  - 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part Portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.11 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in 1 direction.

- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
1. Apply float finish to surfaces where shown on the construction plans.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
1. Apply a trowel finish to surfaces indicated.
  2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
    - a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.
- G. Slip-Resistive Finish: Before final floating, apply slip-resistive aggregate finish where indicated and to concrete stair treads, platforms, and ramps. Apply according to manufacturer's written instructions and as follows:
1. Uniformly spread 25 lb/100 sq. ft. of dampened slip-resistive aggregate over surface in 1 or 2 applications. Tamp aggregate flush with surface, but do not force below surface.
  2. After broadcasting and tamping, apply float finish.
  3. After curing, lightly work surface with a steel wire brush or an abrasive stone and water to expose slip-resistive aggregate.
- H. Dry-Shake Floor Hardener Finish: After initial floating, apply dry-shake floor hardener to surfaces according to manufacturer's written instructions and as follows:
1. Uniformly apply dry-shake floor hardener at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer.
  2. Uniformly distribute approximately two-thirds of dry-shake floor hardener over surface by hand or with mechanical spreader, and embed by power floating. Follow power floating with a second dry-shake floor hardener application, uniformly distributing remainder of material, and embed by power floating.

3. After final floating, apply a trowel finish. Cure concrete with curing compound recommended by dry-shake floor hardener manufacturer and apply immediately after final finishing.

### 3.12 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

### 3.13 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.

- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
  - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
  - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### 3.14 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
  1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
  2. Do not apply to concrete that is less than seven days' old.
  3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

### 3.15 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

### 3.16 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's

written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

### 3.17 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
  2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  7. Compression Test Specimens: ASTM C 31/C 31M.
    - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
    - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
  8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
    - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
  11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
  12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
  13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
  14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- C. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.



END OF SECTION 033000

## SECTION 061000 - ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Framing with engineered wood products (including Glu-Lam products).
3. Rooftop equipment bases and support curbs.
4. Wood blocking, furring, grounds, sleepers and nailers.
5. Plywood backing panels.
6. Sheathing

#### 1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative and fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the American Lumber Standards Committee Board of Review.

C. Research/Evaluation Reports: Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence code compliance of engineered wood products, foam-plastic sheathing, air infiltration barriers, metal framing anchors, power-driven fasteners, and fire-retardant treated wood.

### PART 2 - PRODUCTS

#### 2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Provide dressed lumber, S4S, unless otherwise indicated.

- B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

- 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

## 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPAC2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat all rough carpentry, unless otherwise indicated.

## 2.3 DIMENSION LUMBER FRAMING

- A. Maximum Moisture Content: 19 percent for 2-inch nominal (38-mm actual) thickness or less.
- B. Non-Load-Bearing Interior Partitions: Standard, Stud, or No. 3 grade of any species.
- C. Framing Other Than Non-Load-Bearing Interior Partitions: No. 2 grade and any of the following species:
  - 1. Hem-fir; NLGA, WCLIB, or WWPA.
  - 2. Southern pine; SPIB.
  - 3. Douglas fir-larch; WCLIB, WWPA, or NLGA.
- D. Framing Other Than Non-Load-Bearing Interior Partitions: Any species and grade with a modulus of elasticity of at least 1,500,000 psi (10,300 MPa) and an extreme fiber stress in bending of at least 1,000 psi (6.9 MPa) for 2-inch nominal (38-mm actual) thickness and 12-inch nominal (286-mm actual) width for single-member use.
- E. Exposed Exterior Framing Indicated to Receive a Stained or Natural Finish: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
  - 1. Species and Grade: Redwood, Select Structural grade; RIS.

## 2.4 ENGINEERED WOOD PRODUCTS

- A. GLU-LAM: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
1. Extreme Fiber Stress in Bending, Edgewise: 2400 psi (16.4 MPa) for 12-inch nominal- (286-mm actual-) depth members.
  2. Horizontal Shear: 270 psi.
  3. Modulus of Elasticity, Edgewise: 1,800,000 psi.
  4. Wet use glue shall be used in the manufacturing of glu-lam beams.

## 2.5 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
  2. Nailers.
  3. Furring.
  4. Grounds.
- B. For items of dimension lumber size, provide Standard, Stud, or No. 3 grade lumber with 19 percent maximum moisture content of any species.
- C. For concealed boards, provide the following:
1. Maximum moisture content: 19 percent.
  2. Mixed southern pine, No. 2 Dense; SPIB.
  3. Extreme Fiber Stress in Bending: 925 psi.
  4. Horizontal Shear: 175 psi.

## 2.6 CONCEALED, PERFORMANCE RELATED STRUCTURAL-USE PANELS

- A. General: Where structural use panels are indicated for the following concealed types of applications, provide APA-performance-rated panels complying with requirements designated under each application for grade, span rating, exposure durability classification, and edge detail (where applicable):
1. Thickness: Provide panels meeting requirements specified but not less than thickness indicated.
  2. Span ratings: Provide panels with span ratings required to meet "Code Plus" provisions of APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial."
- B. Wall Sheathing: APA-rated sheathing
- C. Wall Sheathing: APA-rated Structural I sheathing.
1. Exposure Durability Classification: Exposure 1.

2. Span Rating: As required to suit stud spacing indicated.

D. Roof Sheathing: APA-rated Structural I sheathing..

1. Exposure Durability Classification: Exposure 1.
2. Span Rating: As required to suit rafter spacing indicated.

## 2.7 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch (13-mm) nominal thickness.

## 2.8 AIR INFILTRATION BARRIER

A. Asphalt-saturated organic felt complying with ASTM D226, Type 1 (no. 30 asphalt felt), unperforated.

## 2.9 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

## 2.10 METAL FRAMING ANCHORS

A. Research or Evaluation Reports: Provide products for which model code research or evaluation reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with building code in effect for project.

B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

C. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation; structural, commercial, or lock-forming quality, as standard with manufacturer for type of anchor indicated..

## 2.11 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturer's standard widths to suit width of sill members indicated.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- E. Do not splice structural members between supports, unless otherwise indicated.
- F. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- G. Air Infiltration barrier: Cover sheathing with air-infiltration barrier as follows: Apply asphalt saturated organic felt horizontally with 2-inch overlap and 6-inch end lap; fasten to sheathing with galvanized staples or roofing nails.
- H. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. NES NER-272 for power-driven fasteners.

### 3.2 PROTECTION

- A. General: Comply with applicable recommendations contained in APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated..
  - 1. Comply with "Code Plus" provisions of above-referenced guide.
- B. Fastening Methods: Fasten panels as indicated below:
  - 1. Sheathing: Nail to framing. Space panels 1/8" at edges and ends.

2. Plywood backing Panels: Nail or screw to supports.

### 3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

## SECTION 062013 - EXTERIOR FINISH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Exterior standing and running trim.
  - 2. Fiber cement siding.
  - 3. Plywood soffits.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
- B. Samples: For each type of siding indicated.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
- B. Softwood Plywood: DOC PS 1.
- C. Hardboard: AHA A135.4.

#### 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process:
  - 1. Lumber: AWPA C2. Kiln dry after treatment to a maximum moisture content of 19 percent.
  - 2. Plywood: AWPA C9. Kiln dry after treatment to a maximum moisture content of 18 percent.
  - 3. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 4. Application: Where indicated.

#### 2.3 STANDING AND RUNNING TRIM

- A. Lumber Trim:



1. Species and Grade: Redwood, Hart B, RIS.
2. Maximum Moisture Content: 19 percent.
3. Face Surface: Saw textured.
4. Finish: Opaque solid color acrylic latex stain.

B. Fiber Cement Trim:

1. James Hardie, "Harditrim" Planks. HLD trim – rustic grain (or equal).
2. As indicated on drawings.
3. Product to be primed, back primed and painted (two coats).

2.4 FIBER CEMENT SIDING

A. James Hardie, Hardie Plank – Lap Siding: Rustic cedar (or equal).

1. Product to primed, back primed, and painted (two coats).
2. Texture: Wood grain.

2.5 PLYWOOD SOFFITS

A. Georgia Pacific "Plytanium" structural panel (or equal).

1. 19/32" Plywood exterior siding with 8" grooves.
2. Surface: Rough sawn.
3. Finish: Provide opaque solid color acrylic latex stain.

2.6 MISCELLANEOUS MATERIALS

A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.

1. For prefinished items, provide matching prefinished aluminum fasteners where face fastening is required.
2. For applications not otherwise indicated, provide stainless-steel fasteners.

B. Insect Screening for Soffit Vents: Aluminum, 18-by-16 (1.4-by-1.6-mm) mesh.

C. Round Soffit Vents: Stamped aluminum louvered vents, 3 inches (76 mm)] [4 inches (102 mm) in diameter.

D. Sealants: Latex, complying with ASTM C 834, Type P, Grade NF and with applicable requirements in Division 07 Section "Joint Sealants," recommended by sealant manufacturer and manufacturer of substrates for intended application.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare lumber to be painted or stained, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 09 Section "Exterior Painting."

### 3.2 INSTALLATION, GENERAL

- A. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
  - 1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.

### 3.3 STANDING AND RUNNING TRIM INSTALLATION

- A. Install cellular PVC trim to comply with manufacturer's written instructions.
- B. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long except where necessary.
  - 1. Use scarf joints for end-to-end joints.
  - 2. Stagger end joints in adjacent and related members.
- C. Fit exterior joints to exclude water. Cope at returns and miter at corners.

### 3.4 SIDING INSTALLATION

- A. Install siding to comply with manufacturer's written instructions.
- B. Fiber Cement Siding: Install fiber cement siding in accordance with manufacturers recommendations.
  - 1. Seal butt joints at inside and outside corners and at trim locations.
  - 2. Conceal fasteners to greatest practical extent by placing in grooves of siding pattern or by concealing with applied trim or battens as detailed.

END OF SECTION 062013

## SECTION 072100 - THERMAL INSULATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Cavity-wall insulation.
  - 2. Concealed building insulation.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.

#### 1.3 QUALITY ASSURANCE

- A. Retain ASTM test method below based on product and kind of fire-resistance characteristic specified for each product in Part 2. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics and other methods indicated with product, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.

#### 2.2 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers:
  - 1. CertainTeed Corporation.
  - 2. Guardian Fiberglass, Inc.
  - 3. Johns Manville.
  - 4. Knauf Fiber Glass.
  - 5. Owens Corning.

- B. Un-faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing), consisting of fibers, with maximum flame-spread and smoke developed indexes of 25 passing ASTM E 136 for combustion characteristics.
- C. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
  - 1. 6-1/2 inches (165 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).

## 2.3 LOOSE-FILL INSULATION

- A. Glass-Fiber Loose-Fill Insulation: ASTM C 764, Type I for pneumatic application or Type II for poured application; with maximum flame-spread and smoke-developed indexes of 5.
- B. Perlite Loose-Fill Insulation: ASTM C549, Type II (surface treated for water repellency and limited moisture absorption) or Type IV (surface treated for water repellency and limited dust generation during application).

## 2.4 VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- B. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and with demonstrated capability to bond vapor retarders securely to substrates indicated.

## 2.5 AUXILIARY INSULATING MATERIALS

- A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.
- B. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

# PART 3 - EXECUTION

## 3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

### 3.2 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive to provide permanent placement and support of units.
- B. Set vapor-retarder-faced units with vapor retarder to warm side in location indicated of construction, unless otherwise indicated.
  - 1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.
  - 2. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
- C. Place loose-fill insulation into spaces indicated, either by pouring or by machine blowing, to comply with ASTM C 1015. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.
  - 1. For cellulosic-fiber loose-fill insulation, comply with the Cellulose Insulation Manufacturers Association's Special Report #3, "Standard Practice for Installing Cellulose Insulation."
- D. Stuff glass-fiber loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).

END OF SECTION 072100

**SECTION 07 2119  
FOAMED-IN-PLACE INSULATION**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2017.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2019b.
- C. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen 2004 (Reapproved 2012).
- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials 2013.

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, overcoat properties, and preparation requirements.
- C. Certificates: Certify that products of this section meet or exceed specified requirements.

**1.03 FIELD CONDITIONS**

- A. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Foamed-In-Place Insulation: Low-density, flexible, open-cell, water vapor permeable polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
  - 1. Regulatory Requirements: Comply with applicable code for flame and smoke, concealment and overcoat limitations.
  - 2. Thermal Resistance: R-value (RSI-value) of 3.0 (0.53), minimum, per 1 inch (25.4 mm) thickness at 75 degrees F (24 degrees C) mean temperature when tested in accordance with ASTM C518.
  - 3. Air Permeance: 0.04 cfm/sq ft (0.2 L/second sq meter), maximum, when tested at intended thickness in accordance with ASTM E2178 or ASTM E283 at 1.57 psf (75 Pa).
  - 4. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify work within construction spaces or crevices is complete prior to insulation application.
- B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

**3.02 PREPARATION**

- A. Mask and protect adjacent surfaces from over spray or dusting.
- B. Apply primer in accordance with manufacturer's instructions.

**3.03 APPLICATION**

- A. Apply insulation in accordance with manufacturer's instructions.
- B. Apply insulation by spray method, to a uniform monolithic density without voids.
- C. Patch damaged areas.
- D. Trim excess away for applied trim or remove as required for continuous sealant bead.

**END OF SECTION**

## SECTION 074600 - SIDING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Fiber-cement siding.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: Full-size units of each type of siding in each color, texture, and pattern required.

### PART 2 - PRODUCTS

#### 2.1 SIDING

- A. Fiber-Cement Siding: Siding made from fiber-cement board that complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible when tested according to ASTM E 136; and has a flame-spread index of 25 or less when tested according to ASTM E 84.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. CertainTeed Corp.
    - b. GAF Materials Corporation.
    - c. James Hardie Inc.; (Hardiplank – lap siding; product is basis for comparison).
  - 2. Horizontal Pattern: Boards 5-1/4 inches (133 mm) wide in plain style and smooth texture.
  - 3. Factory Priming: Manufacturer's standard acrylic primer.

#### 2.2 ACCESSORIES

- A. Siding Accessories: Provide starter strips, edge trim, corner cap, and other items as recommended by siding manufacturer for building configuration.
  - 1. Provide accessories made from same material as siding, unless otherwise indicated.
  - 2. Provide accessories matching color and texture of siding, unless otherwise indicated.
- B. Fasteners: hot-dip galvanized fasteners.
  - 1. Where fasteners will be exposed to view, use prefinished aluminum fasteners in color to match item being fastened.



PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.
- B. Comply with siding manufacturer's written installation instructions unless more stringent requirements apply.

END OF SECTION 074600

**SECTION 07 6200  
SHEET METAL FLASHING AND TRIM**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2019a.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
- E. CDA A4050 - Copper in Architecture - Handbook current edition.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

**1.03 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

**PART 2 PRODUCTS**

**2.01 SHEET MATERIALS**

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch (0.61 mm) thick base metal, shop pre-coated with PVDF coating.
  - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
  - 2. Color: As selected by Architect from manufacturer's standard colors.

**2.02 ACCESSORIES**

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Plastic Cement: ASTM D4586/D4586M, Type I.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

- B. Verify roofing termination and base flashings are in place, sealed, and secure.

### 3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.
- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil (0.4 mm).

### 3.03 INSTALLATION

- A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

**END OF SECTION**

## SECTION 079200 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
  - 1. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 2. Exterior joints in horizontal traffic surfaces.
  - 3. Interior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 4. Interior joints in horizontal traffic surfaces.
- B. See Division 08 Section "Glazing" for glazing sealants.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

#### 1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each type and color of joint sealant required.
- C. Product test reports for joint sealants evidencing compliance with requirements.

#### 1.4 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

## 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Engineer from manufacturer's full range.

## 2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Single-Component Neutral-Curing Silicone Sealant:
  - 1. Products:
    - a. GE Silicones; SilPruf SCS2000.
    - b. Pecora Corporation; 864.
    - c. Pecora Corporation; 890.
    - d. Polymeric Systems Inc.; PSI-641.
    - e. Sonneborn, Division of ChemRex Inc.; Omniseal.
    - f. Tremco; Spectrem 3.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 50.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
  - 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
- C. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant:
  - 1. Products:
    - a. Pecora Corporation; 898.
    - b. Tremco; Tremsil 600 White.
  - 2. Type and Grade: S (single component) and NS (nonsag).
  - 3. Class: 25.
  - 4. Use Related to Exposure: NT (nontraffic).
  - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

## 2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C 834, Type O P, Grade NF.

B. Products:

1. Bostik Findley; Chem-Calk 600.
2. Pecora Corporation; AC-20+.
3. Schnee-Morehead, Inc.; SM 8200.
4. Sonneborn, Division of ChemRex Inc.; Sonolac.
5. Tremco; Tremflex 834.

C. Applications: Exposed surfaces to be painted.

2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

2.6 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C closed-cell material with a surface skin), O (open-cell material), B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

## 2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.
    - a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
  - 2. Remove laitance and form-release agents from concrete.
    - a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- B. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
  
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
  
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
  
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
  
- F. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.
  
- G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.
  
- H. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 079200



**SECTION 09 2116  
GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members 2012.
- B. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units 2018.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2019a.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017.
- E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members 2018.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products 2018.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2019b.
- H. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness 2018.
- I. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs 2018.
- J. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing 2018.
- K. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.
- L. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber 2016.
- M. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- N. ASTM E413 - Classification for Rating Sound Insulation 2016.
- O. GA-216 - Application and Finishing of Gypsum Panel Products 2016.
- P. UL (FRD) - Fire Resistance Directory Current Edition.

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Product Data: Provide data on metal framing, gypsum board, accessories and joint finishing system.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

**PART 2 PRODUCTS**

**2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.

- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
  - 1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:
  - 1. Fire Rated Partitions: UL listed assembly No. [ \_\_\_\_\_ ]; 2 hour rating.
  - 2. Head of Fire Rated Partitions: UL listed assembly No. [ \_\_\_\_\_ ]; 2 hour rating.
  - 3. Fire Rated Ceilings and Soffits: One (1) hour fire rating.
  - 4. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

## 2.02 METAL FRAMING MATERIALS

- A. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
  - 1. Studs: "C" shaped with knurled or embossed faces.
  - 2. Runners: U shaped, sized to match studs.
  - 3. Ceiling Channels: C-shaped.
  - 4. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).
- B. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
- C. Area Separation Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with specified performance requirements.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
  - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.
  - 2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.

## 2.03 BOARD MATERIALS

- A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
  - 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
  - 3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  - 4. Thickness:
    - a. Vertical Surfaces: 5/8 inch (16 mm).
    - b. Ceilings: 5/8 inch (16 mm).
    - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.

## 2.04 GYPSUM WALLBOARD ACCESSORIES

- A. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
  - 1. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
  - 2. Joint Compound: Drying type, vinyl-based, ready-mixed.
  - 3. Joint Compound: Setting type, field-mixed.
- B. Finishing Compound: Surface coat and primer, takes the place of skim coating.
- C. High Build Drywall Surfer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
- D. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.
- E. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion resistant.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

#### **3.02 SHAFT WALL INSTALLATION**

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
- B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

#### **3.03 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
- C. Studs: Space studs at 16 inches on center (at 406 mm on center).
  - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
  - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
  - 3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

#### **3.04 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

#### **3.05 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

- C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.
- E. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- F. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

### 3.06 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  - 1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long.
- B. Corner Beads: Install at external corners, using longest practical lengths.

### 3.07 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  - 1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
  - 2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).
- D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

**END OF SECTION**

## SECTION 099100 - PAINTING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
  - 1. Steel.
  - 2. Galvanized metal.
  - 3. Wood (paint and stain)
  - 4. Fiber Cement Siding and Trim
  - 5. Gypsum Board
  - 6. Concrete Masonry Units
  - 7. Concrete Surfaces

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each finish and for each color and texture required.
- C. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

#### 1.3 QUALITY ASSURANCE

- A. MPI Standards:
  - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
  - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Engineer will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
  - 2. Final approval of color selections will be based on benchmark samples.
    - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Engineer at no added cost to Owner.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.5 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

#### 1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

### PART 2 - PRODUCTS

#### 2.1 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As selected by Engineer from manufacturer's full range and as presented in a color schedule prior to painting work commencing.
- C. Material Quality: Provide manufacturer's best quality paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
- D. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers.

E. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:
  - a. Acrolein.
  - b. Acrylonitrile.
  - c. Antimony.
  - d. Benzene.
  - e. Butyl benzyl phthalate.
  - f. Cadmium.
  - g. Di (2-ethylhexyl) phthalate.
  - h. Di-n-butyl phthalate.
  - i. Di-n-octyl phthalate.
  - j. 1,2-dichlorobenzene.
  - k. Diethyl phthalate.
  - l. Dimethyl phthalate.
  - m. Ethylbenzene.
  - n. Formaldehyde.
  - o. Hexavalent chromium.
  - p. Isophorone.
  - q. Lead.
  - r. Mercury.
  - s. Methyl ethyl ketone.
  - t. Methyl isobutyl ketone.
  - u. Methylene chloride.
  - v. Naphthalene.
  - w. Toluene (methylbenzene).
  - x. 1,1,1-trichloroethane.
  - y. Vinyl chloride.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
  2. Masonry (Clay and CMU): 12 percent.
  3. Wood: 15 percent.
  4. Plaster: 12 percent.
  5. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION AND APPLICATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.
- F. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- G. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove surface oxidation.



- J. Wood Substrates:
  - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  - 2. Sand surfaces that will be exposed to view, and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.
- L. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.
- M. Exterior Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- N. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- O. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Engineer, and leave in an undamaged condition.
- P. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.
- Q. Painting Mechanical Work: Paint items exposed in occupied spaces including, but not limited to, the following:
  - 1. Mechanical Work:
    - a. Exposed ductwork.

### 3.3 EXTERIOR PAINTING SCHEDULE

- A. Steel: Provide the following finish systems over exterior ferrous metal.
  - 1. Semi-gloss, Acrylic-Enamel Finish: 2 finish coats over a rust inhibitive primer.
    - a. Primer: Rust-inhibitive metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.5 mils.  
  
TNEMEC: Series 90-97 Organic rich TNEME-ZINC urethane
    - b. First and Second Coats: Semi-gloss, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 4.0 mils each (8.0 mils total in two coats).  
  
TNEMEC: Series 75 Endura-Shield Hi build aliphatic acrylic polyurethane

- B. Galvanized Steel: Provide the following finish systems over exterior galvanized steel.
1. Semi-gloss, Epoxy / aliphatic polyurethane Finish: 2 finish coats over a rust inhibitive primer.
    - a. Primer: Rust-inhibitive metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils.  
  
TNEMEC: Series 27 F.C. Typoxy or Series 66 or 69 Hi-Build epoxyline
    - b. First and Second Coats: Semi-gloss, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils each (6.0 mils total in two coats).  
  
TNEMEC: Series 75 Endura-Shield Hi build aliphatic acrylic polyurethane
- C. Stained Wood: Provide the following stain finish systems over exterior woodwork.
1. Solid Color Latex Stain System: .
    - a. Prime Coat: Exterior alkyd/oil wood primer – one coat.  
Moore: Moorcraft Super Spec Latex Wood Primer.  
PPG: Seal Grip. Int/Ext Acrylic Stain Blocking Primer  
S-W: A-100. Exterior Latex Wood Primer.
    - b. Stain Coat: Exterior Latex Based Solid Hide Stain – two coats.  
Moore: Moorwood. Latex Solid Siding Stain.  
PPG: REZ. Exterior Solid-Color Latex Stain.  
S-W: ProMar. Exterior Solid Color Acrylic Stain.

### 3.4 INTERIOR PAINTING SCHEDULE

- A. Gypsum Board: Provide the following finish system over interior gypsum board surfaces.
1. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Latex Based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils (0.031 mm).  
Glidden: 5111 Spred Ultra Latex Primer-Sealer  
Moore: Regal First Coat Interior Latex Primer & Underbody #216  
PPG: 17-10 Quick-Drying Interior Latex Primer-Sealer.
    - b. First and Second Coats: Low-Luster (egg-shell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils (0.071 mm).  
Glidden: 4100 Series Spred Ultra Eggshell Latex Wall & Trim Enamel.  
Moore: Moore's Regal Aqua Velvet #319.  
PPG: 89 Line Manor Hall Eggshell Latex Wall and Trim Enamel.

B. Concrete Masonry Units: Provide the following finish system over concrete masonry block units.

1. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a primer.

a. Block Filler: High performance latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 5.0 mils (0.13mm).

Glidden: 5317 Ultra-Hide Block Filler, Latex Interior-Exterior

Moore: Moorcraft Interior & Exterior Block Filler #173

PPG: 6-7 Speedhide Interior/Exterior Masonry Latex Block Filler.

b. First and Second Coats: Low-Luster (egg-shell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils (0.071 mm).

Glidden: 4100 Series Spred Ultra Eggshell Latex Eggshell Enamel.

Moore: Moore's Regal Aqua Velvet #319.

PPG: 89 Line Manor Hall Eggshell Latex Wall and Trim Enamel.

C. Concrete Substrates, Traffic Surfaces:

1. (CONCESSION – ROOM A100 – BUILDINGS A, B, and C) Latex Floor Enamel System: MPI INT 3.2A.

a. Primer: Acrylic, Water-Based Floor Coating - 2.0 mils  
Sherwin Williams, Tread Plex Primer

b. Topcoat: Acrylic, Water-Based Floor Coating – 1.5 mils  
Sherwin Williams, Tread Plex Finish

2. (ALL NEW INTERIOR EXPOSED CONCRETE FLOORS) Clear Epoxy Based Sealer System: MPI INT 3.2F.

a. 2 Coats of Sealer: Sonneborn, Sonothane. Color as selected from full range of manufacturers colors.

b. Areas to receive sealer must be damp cured in lieu of curing compounds. If curing compound has been used, remove by sanding, chemical means or sandblasting.

c. Maintain minimum slab temperature of 60 degrees Fahrenheit in spaces to receive sealer for at least 48 hours prior to installation, during installation, and for at least 48 hours after installation. Subsequently, maintain temperature of 55 degrees Fahrenheit in areas where work is completed.

D. Steel Substrates: Provide the following finish systems over ferrous metals.

1. Semi-gloss, Acrylic-Enamel Finish: One finish coat over an enamel undercoater and a primer.

a. Primer: Quick-drying rust-inhibitive, alkyd-based or epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils (0.038 mm).

Glidden: 5207 Glid-Guard Tank & Structural Primer, White.

Moore: IronClad Retardo Rust-Inhibitive Paint #163.  
PPG: 6-208 Speedhide Interior/Exterior Rust Inhibitive Steel Primer.

- b. Undercoat: Alkyd, interior enamel undercoat or semi-gloss, acrylic-latex, interior enamel, as recommended by the manufacturer for this substrate, applied at a spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils (0.033 mm).
  - Glidden: 8200 Series Spred Ultra Latex Semi-Gloss Enamel
  - Moore: Moore's Alkyd Enamel Underbody #217.
  - PPG: 6-6 Speedhide Interior Quick-Drying Enamel Undercoater.
- c. Finish Coat: Semi-gloss, acrylic-latex, interior enamel applied at a spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils (0.033 mm).
  - Glidden: 8200 Series Spred Ultra Latex Semi-Gloss Enamel.
  - Moore: Moore's Regal AquaGlo Vinyl-Acrylic Latex Enamel #333.
  - PPG: 88-110 Stainhide Interior Enamel Wall and Trim Lo-Lustre Semi-Gloss Latex.

E. Galvanized-Metal Substrates: Provide the following finish systems over zinc-coated metal.

- 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
  - a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils (0.031 mm).
    - Glidden: 5207 Glid-Guard Tank & Structural Primer, White.
    - Moore: IronClad Galvanized Metal Latex Primer #155.
    - PPG: 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel
  - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils (0.066 mm).
    - Glidden: 8200 Series Spred Ultra Latex Semi-Gloss Enamel.
    - Moore: Moore's Regal AquaGlo Vinyl-Acrylic Latex Enamel #333.
    - PPG: 88-110 Satinhide Interior Enamel Wall & Trim Lo-Lustre Semi-Gloss Latex

F. Woodwork and Hardboard: Provide the following paint finish systems over new, interior wood surfaces.

- 1. Low-Luster, Acrylic-Enamel Finish: 2 finish coats over a primer.
  - a. Primer: Alkyd- or acrylic-latex-based, interior wood primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils (0.036 mm)..
    - Glidden: 5111 Spred Ultra Latex Primer-Sealer
    - Moore: Moore's Alkyd Enamel Underbody #217.
    - PPG: 17-225 Quick-Drying Enamel Undercoater.

- b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils (0.071 mm).

Glidden: 4100 Series Spred Ultra Eggshell Latex Wall & Trim Paint.

Moore: Moore's Regal AquaVelvet #319.

PPG: 89 Line Manor Hall Interior Eggshell Latex Wall and Trim Enamel

END OF SECTION 099000

**SECTION 09 9113  
EXTERIOR PAINTING**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2016.
- B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- C. SSPC-SP 13 - Surface Preparation of Concrete 1997 (Reaffirmed 2003).

**1.02 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

**1.03 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 paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

**PART 2 PRODUCTS**

**2.01 PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
  - 1. Provide paints and finishes 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. Supply each paint material in quantity required to complete entire project's work from a single production run.
  - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Flammability: Comply with applicable code for surface burning characteristics.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Colors: To be selected from manufacturer's full range of available colors.
  - 1. Selection to be made by Architect after award of contract.

**2.02 PAINT SYSTEMS - EXTERIOR**

- A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, brick, fiber cement siding, primed wood and primed metal.
  - 1. Two top coats and one coat primer.
  - 2. Primer: As recommended by top coat manufacturer for specific substrate.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Do not begin application of paints and finishes 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 effect 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. Fiber Cement Siding: 12 percent.
  - 2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
  - 3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
  - 4. Concrete Floors and Traffic Surfaces: 8 percent.

#### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to 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 paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for 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. Concrete:
  - 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
  - 2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.
- H. Masonry:
  - 1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
  - 2. Prepare surface as recommended by top coat manufacturer.

- I. Fiber Cement Siding: Remove dirt, dust and other foreign matter with a stiff fiber brush. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- J. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- K. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- L. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- M. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

### 3.03 APPLICATION

- A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- 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. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**END OF SECTION**



## SECTION 221116 - DOMESTIC WATER PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes domestic water piping from locations indicated to fixtures and equipment inside the building. All piping underground between buildings is specified in Division 2.
- B. See Division 23 Section "Meters and Gages" for thermometers, pressure gages, and fittings.

#### 1.2 SUBMITTALS

- A. Field quality-control test reports.

#### 1.3 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic, potable domestic water piping and components.
- C. Comply with NSF 61, "Drinking Water System Components-Health Effects; Sections 1 through 9," for potable domestic water piping and components.

### PART 2 - PRODUCTS

#### 2.1 PIPING MATERIALS

- A. Transition Couplings: Coupling or other manufactured fitting the same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- B. Steel Pipe: ASTM A 53, Type E or S, Grade A or B, Schedule 40, galvanized. Include ends matching joining method.
  - 1. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53 or ASTM A 106, Schedule 40, galvanized, seamless steel pipe. Include ends matching joining method.
  - 2. Malleable-Iron Unions: ASME B16.39, Class 150, hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface, and female threaded ends.
  - 3. Gray-Iron, Threaded Fittings: ASME B16.4, Class 125, galvanized, standard pattern.
  - 4. Cast-Iron Flanges: ASME B16.1, Class 125.
  - 5. Cast-Iron, Flanged Fittings: ASME B16.1, Class 125, galvanized.

- C. Hard Copper Tube: ASTM B 88, Types L and M (ASTM B 88M, Types B and C), water tube, drawn temper.
  - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
  - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
  - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

## 2.2 VALVES

- A. Refer to Division 15 Section "Valves" for bronze and cast-iron, general-duty valves.
- B. Refer to Division 15 Section "Plumbing Specialties" for balancing and drain valves.

## PART 3 - EXECUTION

### 3.1 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
- B. Flanges may be used on aboveground piping, unless otherwise indicated.
- C. Domestic Water Piping: Use any of the following piping materials for each size range:
  - 1. NPS 1-1/2 (DN 40) and Smaller: Hard copper tube, Type L (Type B); copper pressure fittings; and soldered joints.
  - 2. NPS 2 (DN 50): Hard copper tube, Type L (Type B); copper pressure fittings; and soldered joints.
  - 3. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Hard copper tube, Type L (Type B); copper pressure fittings; and soldered joints.
  - 4. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Steel pipe; gray-iron, threaded fittings; and threaded joints.

### 3.2 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
  - 1. Shutoff Duty: Use bronze ball for piping NPS 2 (DN 50) and smaller. Use cast-iron butterfly with flanged ends for piping NPS 2-1/2 (DN 65) and larger.
  - 2. Throttling Duty: Use bronze ball or globe valves for piping NPS 2 (DN 50) and smaller. Use cast-iron butterfly valves with flanged ends for piping NPS 2-1/2 (DN 65) and larger.
  - 3. Drain Duty: Hose-end drain valves.

### 3.3 PIPING INSTALLATION

- A. Refer to Division 22 Section "Water Distribution" for site water distribution and service piping.
- B. Refer to Division 22 Section "Basic Mechanical Materials and Methods" for basic piping installation.
- C. Extend domestic water service piping to exterior water distribution piping in sizes and locations indicated.
- D. Install cast-iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for sleeves and mechanical sleeve seals.
- E. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for wall penetration systems.
- F. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve, inside building at each domestic water service. Refer to Division 15 Section "Meters and Gages" for pressure gages, and to Division 15 Section "Plumbing Specialties" for drain valves and strainers.
- G. Install water-pressure regulators downstream from shutoff valves. Refer to Division 15 Section "Plumbing Specialties" for water-pressure regulators.
- H. Install domestic water piping level without pitch and plumb.
- I. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.
- J. Perform the following steps before operation:
  - 1. Close drain valves, hydrants, and hose bibbs.
  - 2. Open shutoff valves to fully open position.
  - 3. Open throttling valves to proper setting.
  - 4. Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.
  - 5. Remove and clean strainer screens. Close drain valves and replace drain plugs.
- K. Check plumbing equipment and verify proper settings, adjustments, and operation. Do not operate water heaters before filling with water.
- L. Check plumbing specialties and verify proper settings, adjustments, and operation.
  - 1. Water-Pressure Regulators: Set outlet pressure at 80 psig (550 kPa) maximum, unless otherwise indicated.

### 3.4 JOINT CONSTRUCTION

- A. Refer to Division 22 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.
- B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

### 3.5 VALVE INSTALLATION

- A. Install shutoff valve on each water supply to equipment and on each water supply to plumbing fixtures without supply stops. Use ball valves for piping NPS 2 (DN 50) and smaller. Use butterfly valves for piping NPS 2-1/2 (DN 65) and larger.
- B. Install drain valves for equipment, at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
  - 1. Install hose-end drain valves at low points in water mains, risers, and branches.

### 3.6 HANGER AND SUPPORT INSTALLATION

- A. Refer to Division 23 Section "Hangers and Supports" for pipe hanger and support devices. Install the following:
  - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
  - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
    - a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.
    - b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.
    - c. Longer Than 100 Feet (30 m), if Indicated: MSS Type 49, spring cushion rolls.
  - 3. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
  - 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 15 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8 inch (10 mm).
- E. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:
  - 1. NPS 2-1/2 (DN 65): 11 feet (3.4 m) with 1/2-inch (13-mm) rod.
  - 2. NPS 3 and NPS 3-1/2 (DN 80 and DN 90): 12 feet (3.7 m) with 1/2-inch (13-mm) rod.
  - 3. NPS 4 and NPS 5 (DN 100 and DN 125): 12 feet (3.7 m) with 5/8-inch (16-mm) rod.
- F. Install supports for vertical steel piping every 15 feet (4.5 m).

- G. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
  - 1. NPS 3/4 (DN 20) and Smaller: 60 inches (1500 mm) with 3/8-inch (10-mm) rod.
  - 2. NPS 1 and NPS 1-1/4 (DN 25 and DN 32): 72 inches (1800 mm) with 3/8-inch (10-mm) rod.
  - 3. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 96 inches (2400 mm) with 3/8-inch (10-mm) rod.
  - 4. NPS 2-1/2 (DN 65): 108 inches (2700 mm) with 1/2-inch (13-mm) rod.
  - 5. NPS 3 to NPS 5 (DN 80 to DN 125): 10 feet (3 m) with 1/2-inch (13-mm) rod.
- H. Install supports for vertical copper tubing every 10 feet (3 m).
- I. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

### 3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment and machines to allow service and maintenance.
- C. Connect domestic water piping to exterior water service piping. Use transition fitting to join dissimilar piping materials.
- D. Connect domestic water piping to service piping with shutoff valve, and extend and connect to the following:
  - 1. Water Heaters: Cold-water supply and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
  - 2. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section "Plumbing Fixtures"
  - 3. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 (DN 65) and larger.

### 3.8 FIELD QUALITY CONTROL

- A. Inspect domestic water piping as follows:
  - 1. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
  - 2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
    - a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

- b. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
  3. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
  4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- B. Test domestic water piping as follows:
1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
  2. Leave uncovered and unconcealed new, altered, extended, or replaced domestic water piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
  3. Cap and subject piping to static water pressure of 50 psig (345 kPa) above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
  4. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
  5. Prepare reports for tests and required corrective action.

### 3.9 CLEANING

- A. Clean and disinfect potable and nonpotable domestic water piping as follows:
1. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.
  2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:
    - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
    - b. Fill and isolate system according to either of the following:
      - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm (50 mg/L) of chlorine. Isolate with valves and allow to stand for 24 hours.
      - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm (200 mg/L) of chlorine. Isolate and allow to stand for three hours.
    - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
    - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
- B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION 221116

## SECTION 221316 - SANITARY WASTE AND VENT PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes soil and waste, sanitary drainage and vent piping inside the building.

#### 1.2 SUBMITTALS

- A. Field quality-control test reports.

#### 1.3 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping; "NSF-drain" for plastic drain piping; "NSF-tubular" for plastic continuous waste piping; and "NSF-sewer" for plastic sewer piping.

### PART 2 - PRODUCTS

#### 2.1 PIPING MATERIALS

- A. Flexible Transition Couplings for Underground Nonpressure Piping: ASTM C 1173 with elastomeric sleeve. Include ends of same sizes as piping to be joined and include corrosion-resistant metal band on each end.
- B. Transition Couplings for Underground Pressure Piping: AWWA C219 metal, sleeve-type coupling or other manufactured fitting same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- C. Hub-and-Spigot Cast-Iron Pipe and Fittings: ASTM A 74, Service class.
  - 1. Gaskets: ASTM C 564, rubber.
- D. Hubless Cast-Iron Pipe and Fittings: ASTM A 888 or CISPI 301.
  - 1. Couplings: ASTM C 1277 assembly of metal housing, corrosion-resistant fasteners, and ASTM C 564 rubber sleeve with integral, center pipe stop.
    - a. Heavy-Duty, Type 304, Stainless-Steel Couplings: ASTM A 666, Type 304, stainless-steel shield; stainless-steel bands; and sleeve.



- 1) NPS 1-1/2 to NPS 4 (DN 40 to DN 100): 3-inch- (76-mm-) wide shield with 4 bands.
  - 2) NPS 5 to NPS 10 (DN 125 to DN 250): 4-inch- (102-mm-) wide shield with 6 bands.
- b. Heavy-Duty, FMG-Approved Couplings: ASTM A 666, Type 304, stainless-steel housing; stainless-steel bands; and sleeve.
- 1) NPS 1-1/2 to NPS 4 (DN 40 to DN 100): 3-inch- (76-mm-) wide housing with 2 bands.
  - 2) NPS 5 to NPS 10 (DN 125 to DN 250): 4-inch- (102-mm-) wide housing with 2 bands.
- E. Steel Pipe: ASTM A 53, Type E or S, Grade A or B, Schedule 40, galvanized. Include ends matching joining method.
1. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53 or ASTM A 106, Schedule 40, galvanized, seamless steel pipe. Include ends matching joining method.
  2. Malleable-Iron Unions: ASME B16.39; Class 150; hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface; and female threaded ends.
  3. Cast-Iron, Threaded, Drainage Fittings: ASME B16.12 galvanized.
  4. Gray-Iron, Threaded Fittings: ASME B16.4, Class 125, galvanized, standard pattern.
  5. Cast-Iron Flanges: ASME B16.1, Class 125.
  6. Cast-Iron, Flanged Fittings: ASME B16.1, Class 125 galvanized.
- F. Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.
1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.
- G. ABS Pipe: ASTM D 2661, Schedule 40, solid wall.
1. ABS Socket Fittings: ASTM D 2661, made to ASTM D 3311, drain, waste, and vent patterns.
- H. ABS Special Fittings: ASTM F 409, drainage-pattern tube and tubular fittings with ends as required for application.
- I. PVC Pipe: ASTM D 2665, solid-wall drain, waste, and vent.
1. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.
- J. PVC Special Fittings: ASTM F 409, drainage-pattern tube and tubular fittings with ends as required for application.

## PART 3 - EXECUTION

### 3.1 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.
- B. Flanges may be used on aboveground pressure piping, unless otherwise indicated.
- C. Aboveground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:
  - 1. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): Use NPS 1-1/2 (DN 40) hubless, cast-iron soil piping and one of the following:
    - a. Couplings: Heavy-duty, Type 304, stainless steel.
    - b. Couplings: Heavy-duty, FMG approved.
  - 2. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): Steel pipe; cast-iron, threaded drainage fittings; and threaded joints.
  - 3. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): Copper DWV tube, copper drainage fittings, and soldered joints.
  - 4. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): ABS pipe, ABS socket fittings, and solvent-cemented joints.
  - 5. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): PVC pipe, PVC socket fittings, and solvent-cemented joints.
  - 6. NPS 2 to NPS 4 (DN 50 to DN 100): Service class, cast-iron soil piping; gaskets; and gasketed joints.
  - 7. NPS 2 to NPS 4 (DN 50 to DN 100): Hubless, cast-iron soil piping and one of the following:
    - a. Couplings: Heavy-duty, Type 304, stainless steel.
    - b. Couplings: Heavy-duty, FMG approved.
  - 8. NPS 2 to NPS 4 (DN 50 to DN 100): Steel pipe; cast-iron, threaded drainage fittings; and threaded joints.
  - 9. NPS 2 to NPS 4 (DN 50 to DN 100): Copper DWV tube, copper drainage fittings, and soldered joints.
    - a. Option for Vent Piping, NPS 2-1/2 and NPS 3-1/2 (DN 65 and DN 90): Hard copper tube, Type M (Type C); copper pressure fittings; and soldered joints.
  - 10. NPS 2 to NPS 4 (DN 50 to DN 100): ABS pipe, ABS socket fittings, and solvent-cemented joints.
  - 11. NPS 2 to NPS 4 (DN 50 to DN 100): PVC pipe, PVC socket fittings, and solvent-cemented joints.

- D. Underground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:
1. NPS 2 to NPS 4 (DN 50 to DN 100): Service class, cast-iron soil piping; gaskets; and gasketed joints.
  2. NPS 2 to NPS 4 (DN 50 to DN 100): Hubless, cast-iron soil piping and one of the following:
    - a. Couplings: Heavy-duty, Type 304, stainless steel.
    - b. Couplings: Heavy-duty, FMG approved.
  3. NPS 2 to NPS 4 (DN 50 to DN 100): ABS pipe, ABS socket fittings, and solvent-cemented joints.
  4. NPS 2 to NPS 4 (DN 50 to DN 100): PVC pipe, PVC socket fittings, and solvent-cemented joints.

### 3.2 PIPING INSTALLATION

- A. Refer to Division 22 Section "Sanitary Sewerage" for Project-site sanitary sewer piping.
- B. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for basic piping installation.
- C. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.
- D. Install cast-iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for sleeves and mechanical sleeve seals.
- E. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for wall penetration systems.
- F. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
  1. Encase underground piping with PE film according to ASTM A 674 or AWWA C105.
- G. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

- H. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- I. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
  - 1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 (DN 80) and smaller; 1 percent downward in direction of flow for piping NPS 4 (DN 100) and larger.
  - 2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
  - 3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
- J. Sleeves are not required for cast-iron soil piping passing through concrete slabs-on-grade if slab is without membrane waterproofing.
- K. Install ABS soil and waste drainage and vent piping according to ASTM D 2661.
- L. Install PVC soil and waste drainage and vent piping according to ASTM D 2665.
- M. Install underground ABS and PVC soil and waste drainage piping according to ASTM D 2321.
- N. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

### 3.3 JOINT CONSTRUCTION

- A. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.
- B. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
  - 1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.
  - 2. Hubless Joints: Make with rubber gasket and sleeve or clamp.
- C. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
- D. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

### 3.4 VALVE INSTALLATION

- A. Backwater Valves: Install backwater valves in piping subject to sewage backflow.
  - 1. Horizontal Piping: Horizontal backwater valves. Use normally closed type, unless otherwise indicated.
  - 2. Floor Drains: Drain outlet backwater valves, unless drain has integral backwater valve.

3. Install backwater valves in accessible locations.
4. Refer to Division 15 Section "Plumbing Specialties" for backwater valves.

### 3.5 HANGER AND SUPPORT INSTALLATION

- A. Refer to Division 23 Section "Hangers and Supports" for pipe hanger and support devices. Install the following:
  1. Vertical Piping: MSS Type 8 or Type 42, clamps.
  2. Individual, Straight, Horizontal Piping Runs: According to the following:
    - a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.
    - b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.
    - c. Longer Than 100 Feet (30 m), if Indicated: MSS Type 49, spring cushion rolls.
  3. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
  4. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 15 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch (10-mm) minimum rods.
- E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:
  1. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 60 inches (1500 mm) with 3/8-inch (10-mm) rod.
  2. NPS 3 (DN 80): 60 inches (1500 mm) with 1/2-inch (13-mm) rod.
  3. NPS 4 and NPS 5 (DN 100 and DN 125): 60 inches (1500 mm) with 5/8-inch (16-mm) rod.
  4. NPS 6 (DN 150): 60 inches (1500 mm) with 3/4-inch (19-mm) rod.
  5. Spacing for 10-foot (3-m) lengths may be increased to 10 feet (3 m). Spacing for fittings is limited to 60 inches (1500 mm).
- F. Install supports for vertical cast-iron soil piping every 15 feet (4.5 m).
- G. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:
  1. NPS 1-1/4 (DN 32): 84 inches (2100 mm) with 3/8-inch (10-mm) rod.
  2. NPS 1-1/2 (DN 40): 108 inches (2700 mm) with 3/8-inch (10-mm) rod.
  3. NPS 2 (DN 50): 10 feet (3 m) with 3/8-inch (10-mm) rod.
  4. NPS 2-1/2 (DN 65): 11 feet (3.4 m) with 1/2-inch (13-mm) rod.
  5. NPS 3 (DN 80): 12 feet (3.7 m) with 1/2-inch (13-mm) rod.
  6. NPS 4 and NPS 5 (DN 100 and DN 125): 12 feet (3.7 m) with 5/8-inch (16-mm) rod.
  7. NPS 6 (DN 150): 12 feet (3.7 m) with 3/4-inch (19-mm) rod.

- H. Install supports for vertical steel piping every 15 feet (4.5 m).
- I. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
  - 1. NPS 1-1/4 (DN 32): 72 inches (1800 mm) with 3/8-inch (10-mm) rod.
  - 2. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 96 inches (2400 mm) with 3/8-inch (10-mm) rod.
  - 3. NPS 2-1/2 (DN 65): 108 inches (2700 mm) with 1/2-inch (13-mm) rod.
  - 4. NPS 3 to NPS 5 (DN 80 to DN 125): 10 feet (3 m) with 1/2-inch (13-mm) rod.
  - 5. NPS 6 (DN 150): 10 feet (3 m) with 5/8-inch (16-mm) rod.
- J. Install supports for vertical copper tubing every 10 feet (3 m).
- K. Install hangers for ABS and PVC piping with the following maximum horizontal spacing and minimum rod diameters:
  - 1. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 48 inches (1200 mm) with 3/8-inch (10-mm) rod.
  - 2. NPS 3 (DN 80): 48 inches (1200 mm) with 1/2-inch (13-mm) rod.
  - 3. NPS 4 and NPS 5 (DN 100 and DN 125): 48 inches (1200 mm) with 5/8-inch (16-mm) rod.
  - 4. NPS 6 (DN 150): 48 inches (1200 mm) with 3/4-inch (19-mm) rod.
- L. Install supports for vertical ABS and PVC piping every 48 inches (1200 mm).
- M. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

### 3.6 CONNECTIONS

- A. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- B. Connect drainage and vent piping to the following:
  - 1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section "Plumbing Fixtures."
  - 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
  - 3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code. Refer to Division 15 Section "Plumbing Specialties"
  - 4. Equipment: Connect drainage piping as indicated. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 (DN 65) and larger.

### 3.7 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
  - 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
  - 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction.
  - 1. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
  - 2. Prepare reports for tests and required corrective action.

### 3.8 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.

### 3.9 PROTECTION

- A. Exposed ABS and PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.

END OF SECTION 221316

## ATTACHMENTS

1. Existing Floor Plan
2. Kitchen Layout
3. Asbestos Test Results



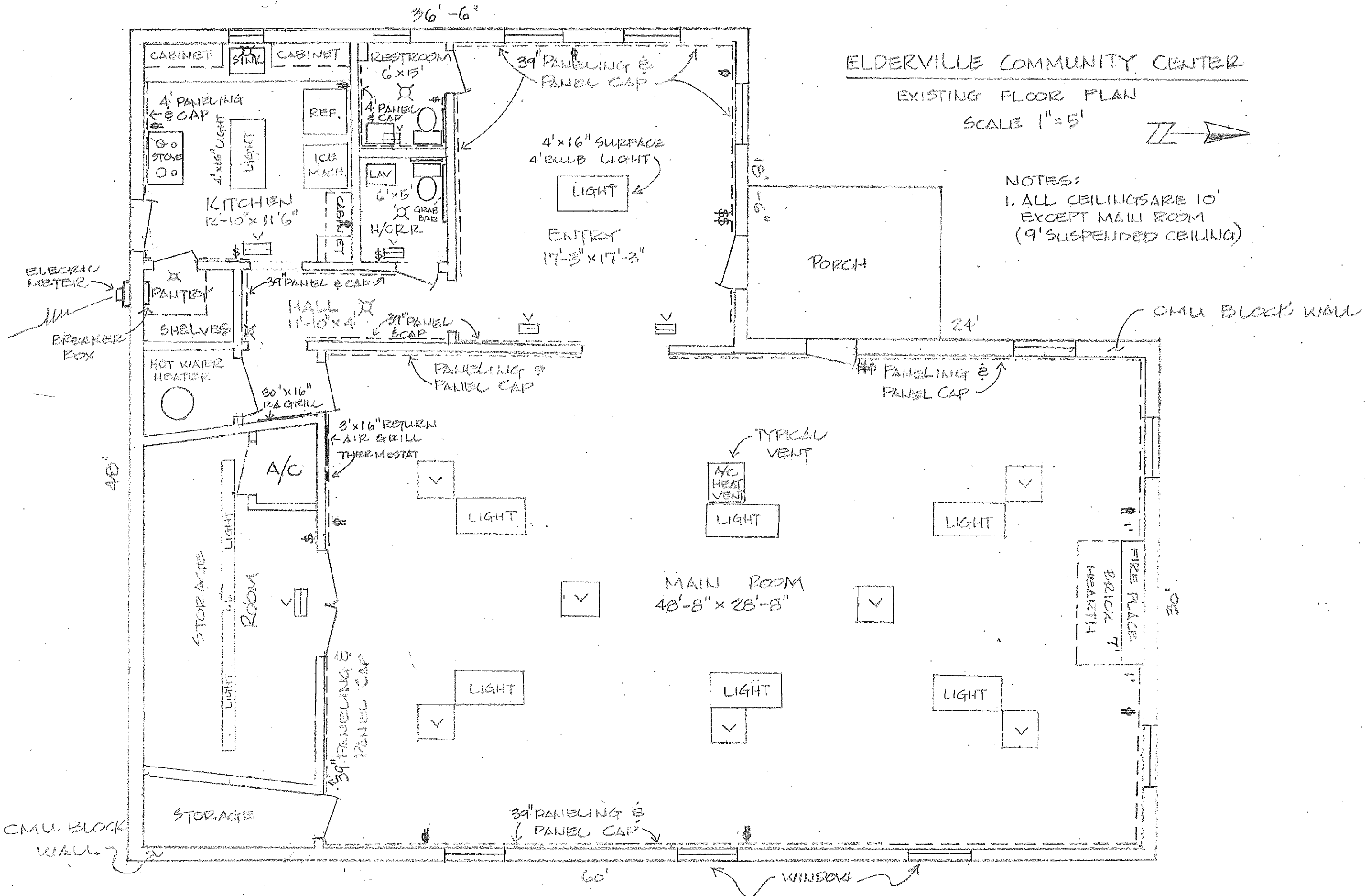
ELDERVILLE COMMUNITY CENTER

EXISTING FLOOR PLAN

SCALE 1"=5'



NOTES:  
1. ALL CEILINGS ARE 10'  
EXCEPT MAIN ROOM  
(9' SUSPENDED CEILING)



36'-6"

CABINET

SINK

CABINET

RESTROOM  
6' x 5'

39" PANELING & PANEL CAP

4' PANELING & CAP

STOVE

4' x 16" LIGHT

LIGHT

REF.

ICE MACH.

4' PANEL & CAP

LAV

6' x 5'

H/GR

GRAB BAR

4' x 16" SURFACE 4' BULB LIGHT

LIGHT

ENTRY  
17'-3" x 17'-3"

18'-6"

PORCH

24'

CMU BLOCK WALL

ELECTRIC METER

BREAKER BOX

PANTRY

SHELVES

HOT WATER HEATER

30" x 16" RA GRILL

PANELING & PANEL CAP

3' x 16" RETURN AIR GRILL THERMOSTAT

TYPICAL VENT

NO HEAT VENT

LIGHT

LIGHT

40'

A/C

LIGHT

STORAGE ROOM

LIGHT

LIGHT

MAIN ROOM  
48'-8" x 28'-8"

LIGHT

FIRE PLACE  
BRICK HEARTH  
7'

30'

STORAGE

39" PANELING & PANEL CAP

LIGHT

LIGHT

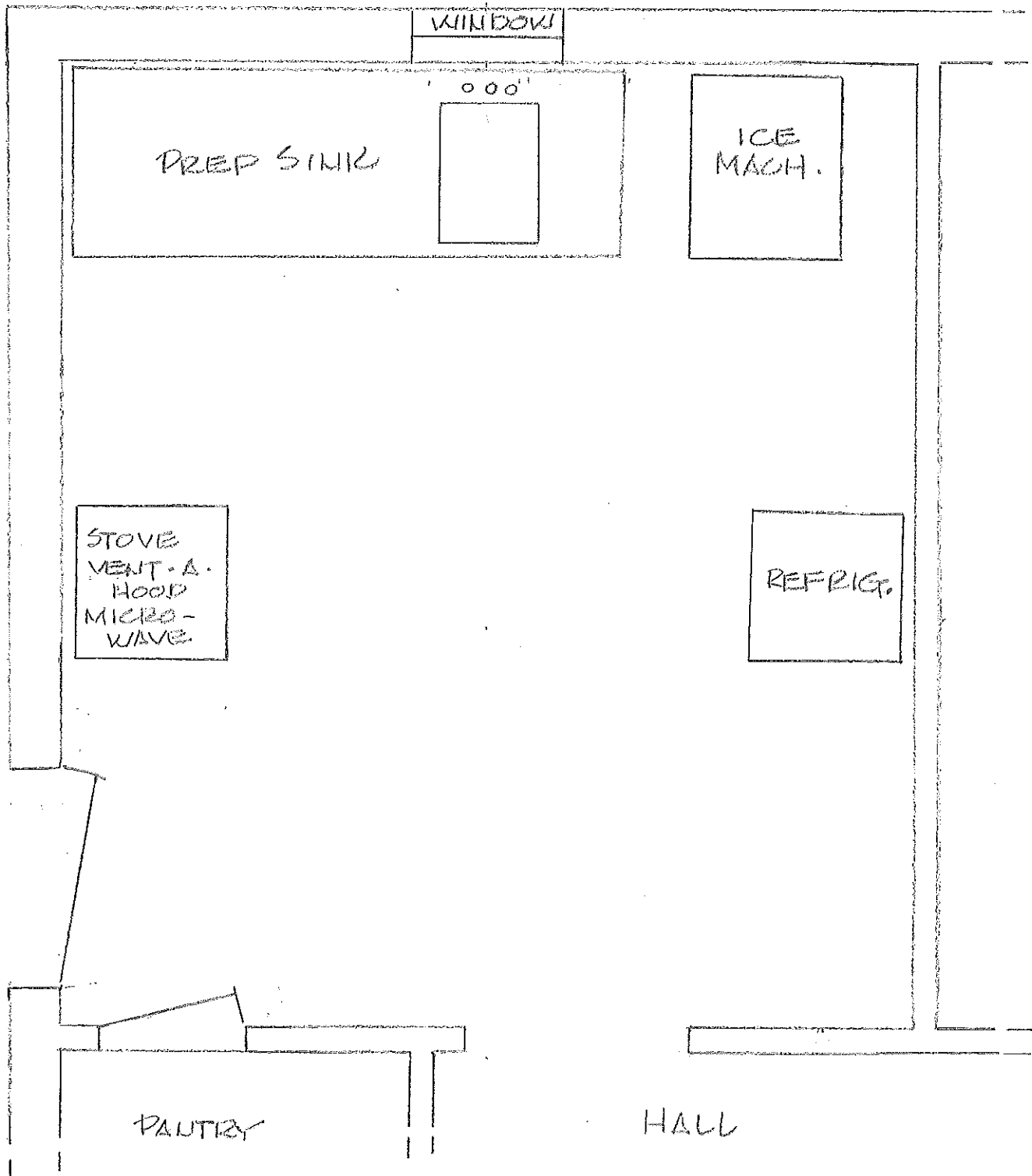
LIGHT

CMU BLOCK WALL

39" PANELING & PANEL CAP

60'

WINDOW



PROPOSED KITCHEN LAYOUT

1" = 5'



# ERI CONSULTING, INC.

P. O. Box 2024, Tyler, Texas 75710  
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Ph: (903) 534-5001 Fax: (903) 534-8701  
TBPE Firm # F-1787  
www.ericonsulting.com

January 31, 2020

Gregg County  
Ms. Kelli L. Davis, CPPB  
Purchasing Agent  
101 East Methvin, St. 205  
Gregg County, Texas 75601  
Phone: 903-237-2684 / Fax: 903-237-2682  
[Kelli.Davis@co.gregg.tx.us](mailto:Kelli.Davis@co.gregg.tx.us)

**RE: ES#20-071 - Asbestos Inspection, Elderville Community Center, 10450 FM 349, Longview, Texas**

Dear Ms. Davis:

On January 27, 2020, Mr. Trace C. Reed and Mr. Curtis G. Modisette, of ERI Consulting, Inc., licensed through the Texas Department of State Health Services for inspections, TDSHS License No. 60-3825 and 60-3806, performed an asbestos inspection at the above referenced building. The inspection involved the sampling of the suspect asbestos-containing materials that could potentially be disturbed during future renovation/demolition work.

The initial phase of the inspection involved the identification of the homogeneous areas which (1) could be disturbed during future renovation/demolition activities and (2) are suspected of containing asbestos fibers. Each homogeneous area was quantified to determine the approximate amount of suspect material present. These areas were then divided into sectors and samples collected in a statistically random manner. A sufficient number of samples were collected in each homogeneous area based on the amount of suspect material present. The inspection was performed in accordance with applicable TDSHS, OSHA and EPA Standards.

A total of 63 samples were collected. All samples were delivered to the TDSHS licensed laboratory of ERI Analytical (TDSHS License No. 30-0007) immediately following the field inspection, and analyzed by Polarized Light Microscopy (PLM) in accordance with 40 CFR 763 Subpart E, Appendix E. This asbestos inspection report documents the field inspection and laboratory findings for the following homogeneous areas:

- Homogeneous Area A - 12" x 12" blue floor tile with yellow glue**
- Homogeneous Area B - Floor filler with black mastic**
- Homogeneous Area C - Textured wall surfacing material**
- Homogeneous Area D - Sheetrock wall material**
- Homogeneous Area E - Tape & bedding joint compound (wall)**
- Homogeneous Area F - Textured ceiling surfacing material**
- Homogeneous Area G - Sheetrock ceiling material**
- Homogeneous Area H - Tape & bedding joint compound (ceiling)**
- Homogeneous Area I - Plaster wall texture**
- Homogeneous Area J - Plaster skim coat**
- Homogeneous Area K - Plaster wall material**
- Homogeneous Area L - 2' x 4' lay-in ceiling tile**
- Homogeneous Area M - 4' x 8' plastic wall board**
- Homogeneous Area N - Duct insulation (white)**
- Homogeneous Area O - Attic insulation (pink)**
- Homogeneous Area P - Window caulking**
- Homogeneous Area Q - Roofing felt**
- Homogeneous Area R - Composite shingle**
- Homogeneous Area S - 12" x 12" tan floor tile with black mastic**
- Homogeneous Area T - Cinder block**
- Homogeneous Area U - Cinder block mortar**

## ERI Consulting, Inc.

Page 2 of 2  
Ms. Davis  
January 31, 2020

By definition, an asbestos-containing building material is a material that contains greater than one percent (>1%) asbestos fibers. **Of the samples collected, the following Homogeneous Areas were confirmed to be asbestos-containing.**

- **Homogeneous Area B - Floor filler with black mastic**
- **Homogeneous Area S - 12" x 12" tan floor tile with black mastic**

Prior to renovation/demolition activities which would disturb these materials, they must be removed and disposed of in the regulated manner by a TDSHS licensed asbestos abatement contractor, under the supervision of a TDSHS licensed consultant.

Current EPA and TDSHS regulations require that an asbestos survey be performed prior to disturbing building materials (demolition or renovation) in a public building. TDSHS regulations require that a notification be filed only if structural members are removed (demolition), and/or regulated asbestos-containing materials are disturbed. TDSHS does not require nor desire copies of the survey report to be filed with them. **TDSHS regulations also require that a copy of the asbestos survey be kept on the job site at all times during renovation/demolition activities.** Local building inspectors may also require an asbestos inspection to be performed prior to issuing permits. This report should meet those requirements.

**Limitations:** Limited destructive sampling was performed as part of this inspection; therefore, there may be other materials located throughout the building, which contain asbestos but were not sampled. Such materials, if present, could be located within wall cavities, under floor coverings, behind mirrors, under cabinetry, within pipe chases, or other inaccessible areas (including locked rooms). Such materials would only be encountered during extensive renovation/demolition activities. **If additional materials, not identified within this report, are uncovered, renovation/demolition activities should cease, until sampling can be conducted to confirm or deny the presence of asbestos, or the materials must be assumed to be asbestos-containing and handled accordingly.**

We have enjoyed serving you on this matter. Please find enclosed the following documentation which should be kept as part of your permanent records: (1) General Photographs, (2) Bulk Sample Log/Chain of Custody, (3) Sample Location Diagram, (4) Laboratory Analysis Report, (5) Asbestos-Containing Materials Diagram, and (6) ERI Licensing and Accreditation. An invoice for our services is also enclosed. If you have any questions concerning the inspection, or if we can assist you in handling the removal of the confirmed asbestos-containing materials, please contact our office at 903-534-5001.

Sincerely,



Christopher L. Power  
Executive Vice President  
TDSHS License No. 10-5566  
Expires 2/15/2021



## **(1) General Photographs**

**ERI Consulting, Inc.**

***General Photographs of the  
Elderville Community Center  
10450 FM 349, Longview, Texas***



**ERI Consulting, Inc.**

***General Photographs of the  
Elderville Community Center  
10450 FM 349, Longview, Texas***





ERI Consulting, Inc.

*General Photographs of the  
Elderville Community Center  
10450 FM 349, Longview, Texas*





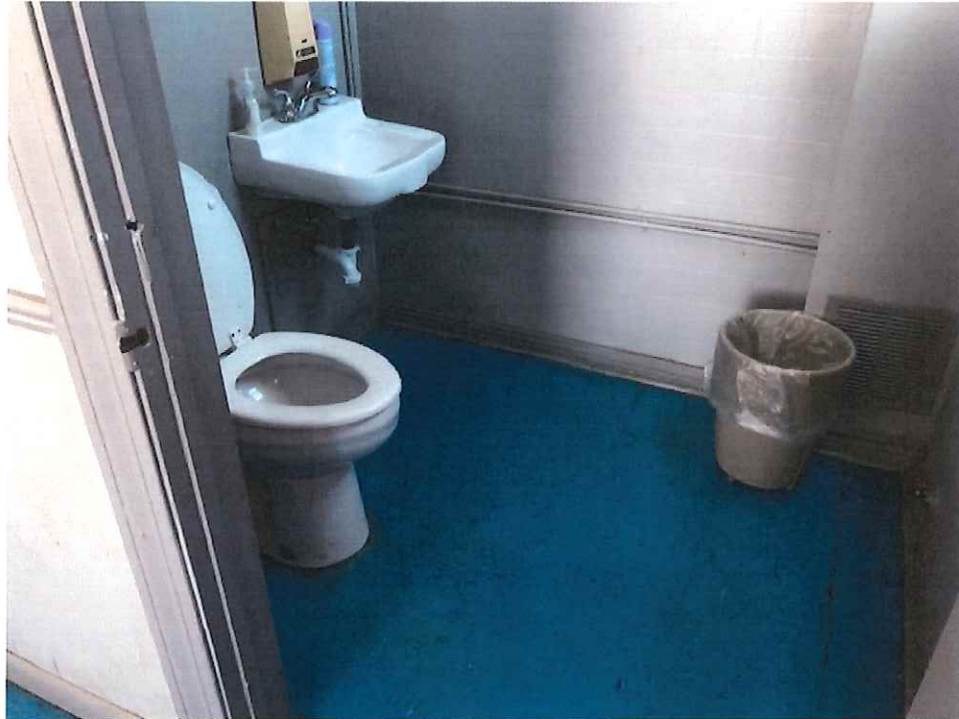
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10450 FM 349, Longview, Texas***



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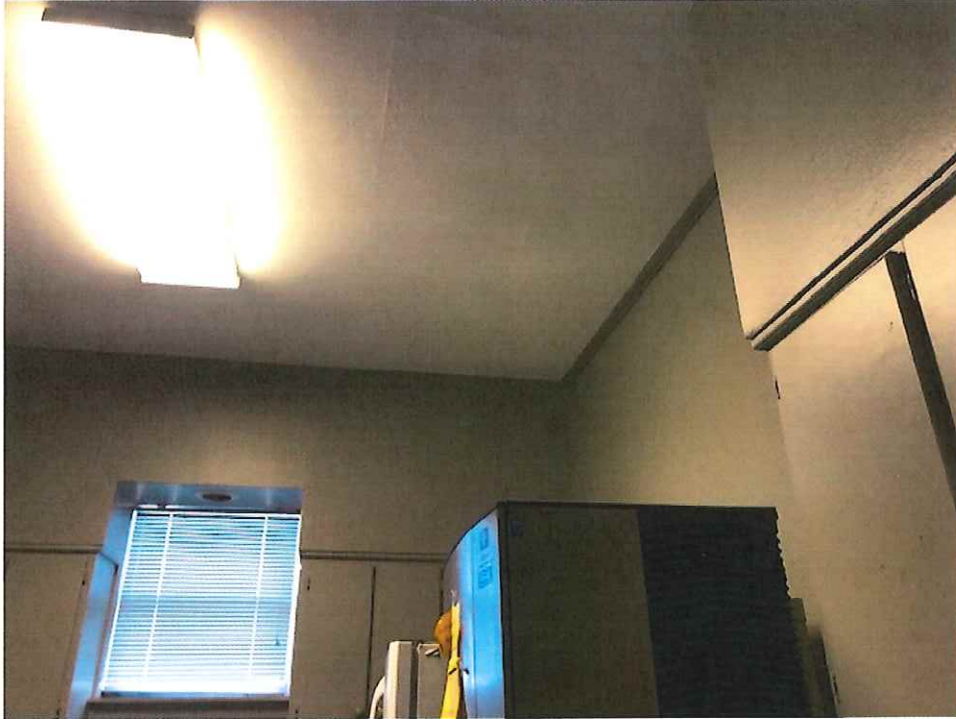
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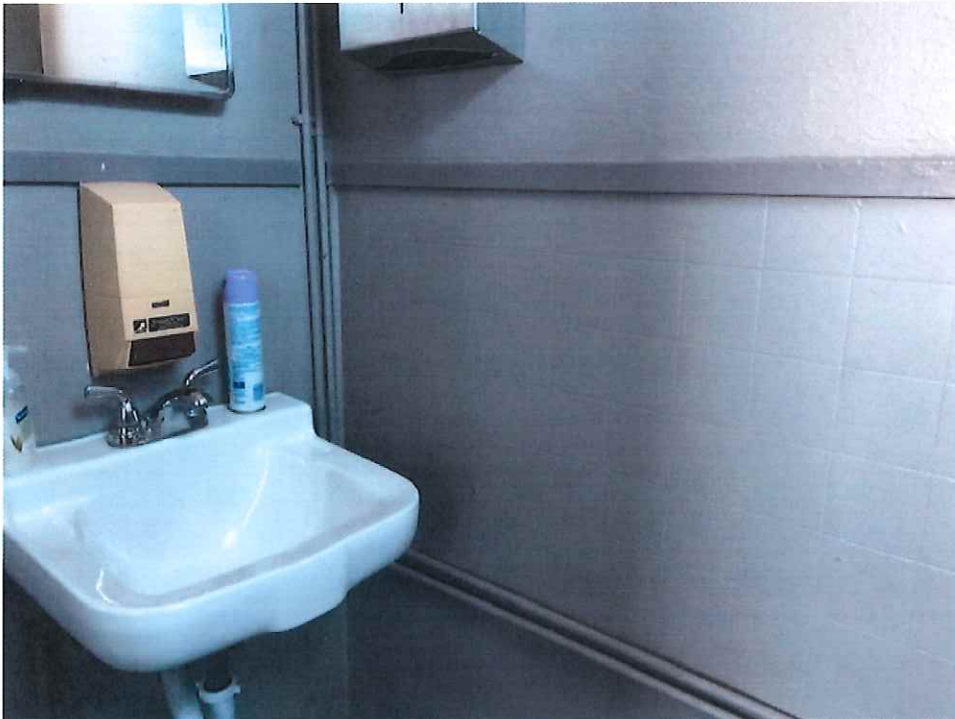
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*General Photographs of the  
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**ERI Consulting, Inc.**

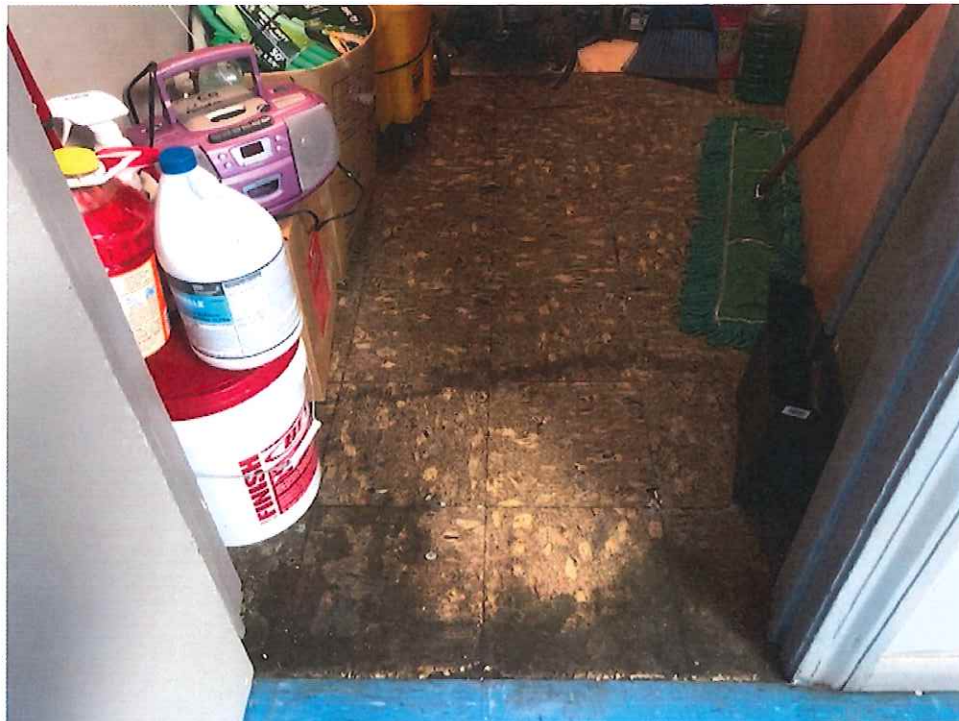
*General Photographs of the  
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**ERI Consulting, Inc.**

***General Photographs of the  
Elderville Community Center  
10450 FM 349, Longview, Texas***



## **(2) Bulk Sample Log/Chain of Custody**

ERI CONSULTING, INC. - BULK SAMPLE LOG / CHAIN OF CUSTODY ES#: 20-071 AS# 2001181 Customer: Gregg County Building: Elderville Community Center, 10450 FM 349, Longview, Texas Inspector Name: Trace Reed / Curtis Modisette Inspector Signature: <i>Trace Reed / Curtis Modisette</i> Inspection Date: 1/27/2020											
HA	Material	Location	#	% Asbestos	Location	#	% Asbestos	Location	#	% Asbestos	Location
A	12" x 12" blue floor tile with yellow glue	Foyer	1	ND	Main room	2	ND	Kitchen	3	ND	
B	Floor filler with black mastic	Foyer	4	2-4%	Main room	5	2-4%	Kitchen	6	2-4%	
C	Textured wall surfacing material	Storage	7	ND	Kitchen	8	ND	Foyer	9	ND	
D	Sheetrock wall material	Storage	10	ND	Kitchen	11	ND	Foyer	12	ND	
E	Tape & bedding joint compound (wall)	Storage	13	ND	Kitchen	14	ND	Foyer	15	ND	
F	Textured ceiling surfacing material	Hallway	16	ND	Foyer	17	ND	Restroom 1	18	ND	
G	Sheetrock ceiling material	Hallway	19	ND	Foyer	20	ND	Restroom 1	21	ND	
H	Tape & bedding joint compound (ceiling)	Hallway	22	ND	Foyer	23	ND	Restroom 1	24	ND	
I	Plaster wall texture	Foyer	25	ND	Main room	26	ND	Kitchen	27	ND	
J	Plaster skim coat	Foyer	28	ND	Main room	29	ND	Kitchen	30	ND	
K	Plaster wall material	Foyer	31	ND	Main room	32	ND	Kitchen	33	ND	
L	2' x 4' lay-in ceiling tile	Main room	34	ND	Main room	35	ND	Main room	36	ND	
M	4' x 8' plastic wall board	Restroom 1	37	ND	Restroom 1	38	ND	Restroom 2	39	ND	
N	Duct insulation (white)	Attic	40	ND	Attic	41	ND	Attic	42	ND	



ERI CONSULTING, INC. - BULK SAMPLE LOG / CHAIN OF CUSTODY ES#: 20-071 AS# 2001181  
 Customer: Gregg County Building: Elderville Community Center, 10450 FM 349, Longview, Texas

*Trace Reed / Curtis Modisette* Inspection Date: 1/27/2020

HA	Material	Location	#	% Asbestos	Location	#	% Asbestos	Location	#	% Asbestos
O	Attic insulation (pink)	Attic	43	ND	Attic	44	ND	Attic	45	ND
P	Window caulking	West exterior	46	ND	North exterior	47	ND	East exterior	48	ND
Q	Roofing felt	North	49	ND	West	50	ND	South	51	ND
R	Composite shingle	North	52	ND	West	53	ND	South	54	ND
S	12" x 12" tan floor tile with black mastic	Closet	55	ND 3-5%	Closet	56	ND 3-5%	Closet	57	ND 3-5%
T	Cinder block	North	58	ND	West	59	ND	East	60	ND
U	Cinder block mortar	North	61	ND	West	62	ND	East	63	ND

 Confirmed Asbestos-Containing Materials

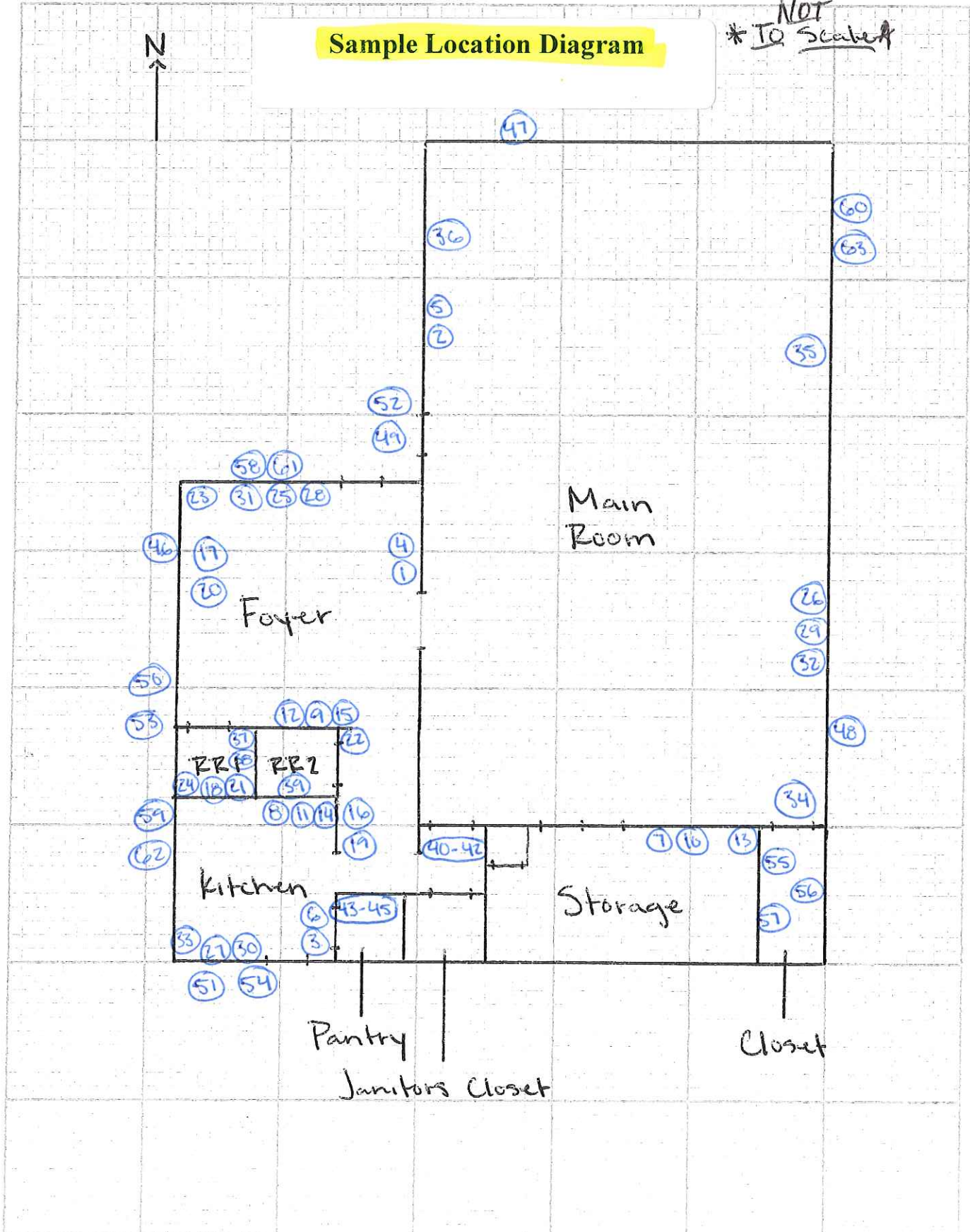


### **(3) Sample Location Diagram**



**Sample Location Diagram**

*\* NOT TO SCALE*



## **(4) Laboratory Analysis Report**



# ERI ANALYTICAL

P. O. Box 2024, Tyler, Texas 75710  
 2026 Republic Drive, Suite A, Tyler, Texas 75701  
 Ph: (903) 534-5001 Fax: (903) 534-8701  
 www.ericonsulting.com



## LABORATORY ANALYSIS REPORT

NIST/NVLAP Bulk Asbestos Analysis Lab Accreditation Code No.101232-0  
 TEXAS ASBESTOS LABORATORY LICENSE NO. 30-0007

TESTING NVLAP LAB CODE 101232-0

TO: Engineering Services Division  
 ERI Consulting, Inc.  
 Attn: Mr. Christopher L. Power

Report Date: 1/30/2020  
 Sample Rec'd: 1/28/2020  
 Page 1 of 5  
 ERI E.S. No.: 20-071

LOCATION: Elderville Community Center, 10450 FM 349, Longview, Texas for Gregg County.

COLLECTED BY: Trace Reed / Curtis Modisette DATE: 1/27/2020

**METHOD:** Polarized Light Microscopy (PLM) analysis for asbestos in building materials by Interim Method for the Determination of Asbestos in Bulk Insulation samples, 40 CFR Part 763, Subpart E, Appendix E, and in accordance with ISO/IEC 17025:2017 standards. Quantification is by visual estimation. In accordance with the EPA revisions pertaining to friable materials, if the asbestos content is estimated to be less than 10 percent by visual estimation, the determination may be repeated upon request, using the point counting technique. Asbestos fibers may occur in particle size below the resolution limit of this analysis technique; TEM analysis is recommended on samples of floor tile determined to be <1% or none detected by this method. The percentage of asbestos reported refers to the overall percentage for the material provided, unless otherwise indicated. Samples determined to be <1% by visual estimation are automatically repeated using the point count technique. Samples are analyzed by layer but results may be combined if no regulated fibers were observed.

**RESTRICTIONS:** This report relates only to the items actually tested, and must not be used to claim product endorsement by NVLAP, or any agency of the United States government. Reproductions must include the entire report. Results apply to sample and information as received from the customer.

**RESULTS:** The percentage of asbestos reported is by visual estimation. Point Counting results, when appropriate, are reported in parenthesis after these results in the Sample Description.

### POLARIZED LIGHT MICROSCOPY

Customer I.D.	ERI AS#	Results (ND=None Detected) (PC=Point Counting)	
		% Asbestos	Sample description
1	1a	ND	Blue floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	1b	ND	Amber mastic containing <1% cellulose fibers in a binder.
2	2a	ND	Blue floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	2b	ND	Amber mastic containing <1% cellulose fibers in a binder.
3	3a	ND	Blue floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	3b	ND	Amber mastic containing <1% cellulose fibers in a binder.
4	4	2-4%	Homogeneous, black, yellow, off white floor material containing 2-4% chrysotile asbestos, <1% cellulose fibers in a tar binder.

*Tracy Foster*

# ERI Analytical

## POLARIZED LIGHT MICROSCOPY

Customer I.D.	ERI AS# 2001181	Results (ND=None Detected) (PC=Point Counting)	
		% Asbestos	Sample description
5	5	2-4%	Homogeneous, black, yellow, off white floor material containing 2-4% chrysotile asbestos, <1% cellulose fibers in a tar binder.
6	6	2-4%	Homogeneous, black, yellow, off white floor material containing 2-4% chrysotile asbestos, <1% cellulose fibers in a tar binder.
7	7	ND	Homogeneous, gray friable texture containing 45-50% cellulose fibers, paint, calcite, particulate and binder.
8	8	ND	Homogeneous, gray friable texture containing 45-50% cellulose fibers, paint, calcite, particulate and binder.
9	9	ND	Homogeneous, gray friable texture containing 45-50% cellulose fibers, paint, calcite, particulate and binder.
10	10	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 15-20% cellulose fibers, gypsum, particulate and binder.
11	11	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 15-20% cellulose fibers, gypsum, particulate and binder.
12	12	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 15-20% cellulose fibers, gypsum, particulate and binder.
13	13	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
14	14	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
15	15	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
16	16	ND	Homogeneous, white friable texture containing 45-50% cellulose fibers, paint, particulate and binder.
17	17	ND	Homogeneous, white friable texture containing 45-50% cellulose fibers, paint, particulate and binder.
18	18	ND	Homogeneous, white friable texture containing 45-50% cellulose fibers, paint, particulate and binder.
19	19	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 20-25% cellulose fibers, gypsum, particulate and binder.
20	20	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 20-25% cellulose fibers, gypsum, particulate and binder.
21	21	ND	Nonhomogeneous, white sheetrock with brown paper. Overall composition 20-25% cellulose fibers, gypsum, particulate and binder.

  
\_\_\_\_\_  
Tracy Foster



# ERI Analytical

## POLARIZED LIGHT MICROSCOPY

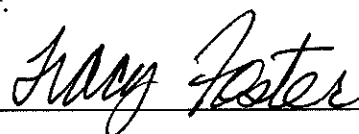
Customer I.D.	ERI AS# 2001181	Results (ND=None Detected) (PC=Point Counting)	
		% Asbestos	Sample description
22	22	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
23	23	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
24	24	ND	Homogeneous, gray friable joint compound containing 40-45% cellulose fibers, paint, calcite, particulate and binder.
25	25	ND	Homogeneous, gray texture material containing paint, particulate and binder. No fibers were detected.
26	26	ND	Homogeneous, gray texture material containing paint, particulate and binder. No fibers were detected.
27	27	ND	Homogeneous, gray texture material containing paint, particulate and binder. No fibers were detected.
28	28	ND	Homogeneous, off white material containing paint and cement matrix. No fibers were detected.
29	29	ND	Homogeneous, off white material containing paint and cement matrix. No fibers were detected.
30	30	ND	Homogeneous, off white material containing paint and cement matrix. No fibers were detected.
31	31	ND	Homogeneous, off white plaster containing a cement matrix. No fibers were detected.
32	32	ND	Homogeneous, off white plaster containing a cement matrix. No fibers were detected.
33	33	ND	Homogeneous, off white plaster containing a cement matrix. No fibers were detected.
34	34	ND	Homogeneous, off white friable ceiling tile with white paint containing 55-60% mineral wool, 35-40% cellulose fibers, particulate and binder.
35	35	ND	Homogeneous, off white friable ceiling tile with white paint containing 55-60% mineral wool, 35-40% cellulose fibers, particulate and binder.
36	36	ND	Homogeneous, off white friable ceiling tile with white paint containing 55-60% mineral wool, 35-40% cellulose fibers, particulate and binder.
37	37	ND	Homogeneous, white, gray panel material containing 25-30% fiberglass, paint and an acrylic matrix.
38	38	ND	Homogeneous, white, gray panel material containing 25-30% fiberglass, paint and an acrylic matrix.

  
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# ERI Analytical

## POLARIZED LIGHT MICROSCOPY

Customer I.D.	ERI AS# 2001181	Results (ND=None Detected) (PC=Point Counting)	
		% Asbestos	Sample description
39	39	ND	Homogeneous, white, gray panel material containing 25-30% fiberglass, paint and an acrylic matrix.
40	40	ND	Homogeneous, white fibrous insulation containing 98-100% fiberglass.
41	41	ND	Homogeneous, white fibrous insulation containing 98-100% fiberglass.
42	42	ND	Homogeneous, white fibrous insulation containing 98-100% fiberglass.
43	43	ND	Homogeneous, pink fibrous insulation containing 98-100% fiberglass.
44	44	ND	Homogeneous, pink fibrous insulation containing 98-100% fiberglass.
45	45	ND	Homogeneous, pink fibrous insulation containing 98-100% fiberglass.
46	46	ND	Homogeneous, white, gray window caulk containing paint, calcite in a binder. No fibers were detected.
47	47	ND	Homogeneous, white, gray window caulk containing paint, calcite in a binder. No fibers were detected.
48	48	ND	Homogeneous, white, gray window caulk containing paint, calcite in a binder. No fibers were detected.
49	49	ND	Homogeneous, black felt containing 75-80% cellulose fibers in a tar binder.
50	50	ND	Homogeneous, black felt containing 75-80% cellulose fibers in a tar binder.
51	51	ND	Homogeneous, black felt containing 75-80% cellulose fibers in a tar binder.
52	52	ND	Homogeneous, black shingle containing 25-30% fiberglass, particulate in a tar binder.
53	53	ND	Homogeneous, black shingle containing 25-30% fiberglass, particulate in a tar binder.
54	54	ND	Homogeneous, black shingle containing 25-30% fiberglass, particulate in a tar binder.
55	55a	ND	Tan floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	55b	3-5%	Black mastic containing 3-5% chrysotile asbestos, <1% cellulose fibers in a tar binder.
56	56a	ND	Tan floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	56b	3-5%	Black mastic containing 3-5% chrysotile asbestos, <1% cellulose fibers in a tar binder.

  
\_\_\_\_\_  
Tracy Foster

# ERI Analytical

## POLARIZED LIGHT MICROSCOPY

Customer I.D.	ERI AS# 2001181	Results (ND=None Detected) (PC=Point Counting)	
		% Asbestos	Sample description
57	57a	ND	Tan floor tile containing <1% cellulose fibers, vinyl, calcite, particulate and binder.
	57b	3-5%	Black mastic containing 3-5% chrysotile asbestos, <1% cellulose fibers in a tar binder.
58	58	ND	Homogeneous, gray material containing paint and cement matrix. No fibers were detected.
59	59	ND	Homogeneous, gray material containing paint and cement matrix. No fibers were detected.
60	60	ND	Homogeneous, gray material containing paint and cement matrix. No fibers were detected.
61	61	ND	Homogeneous, light gray mortar containing particulate in a cement matrix. No fibers were detected.
62	62	ND	Homogeneous, light gray mortar containing particulate in a cement matrix. No fibers were detected.
63	63	ND	Homogeneous, light gray mortar containing particulate in a cement matrix. No fibers were detected.

Analyst

Respectfully submitted,

Tracy E. Foster  
Laboratory Technical Director



## **(5) Asbestos-Containing Materials Diagram**

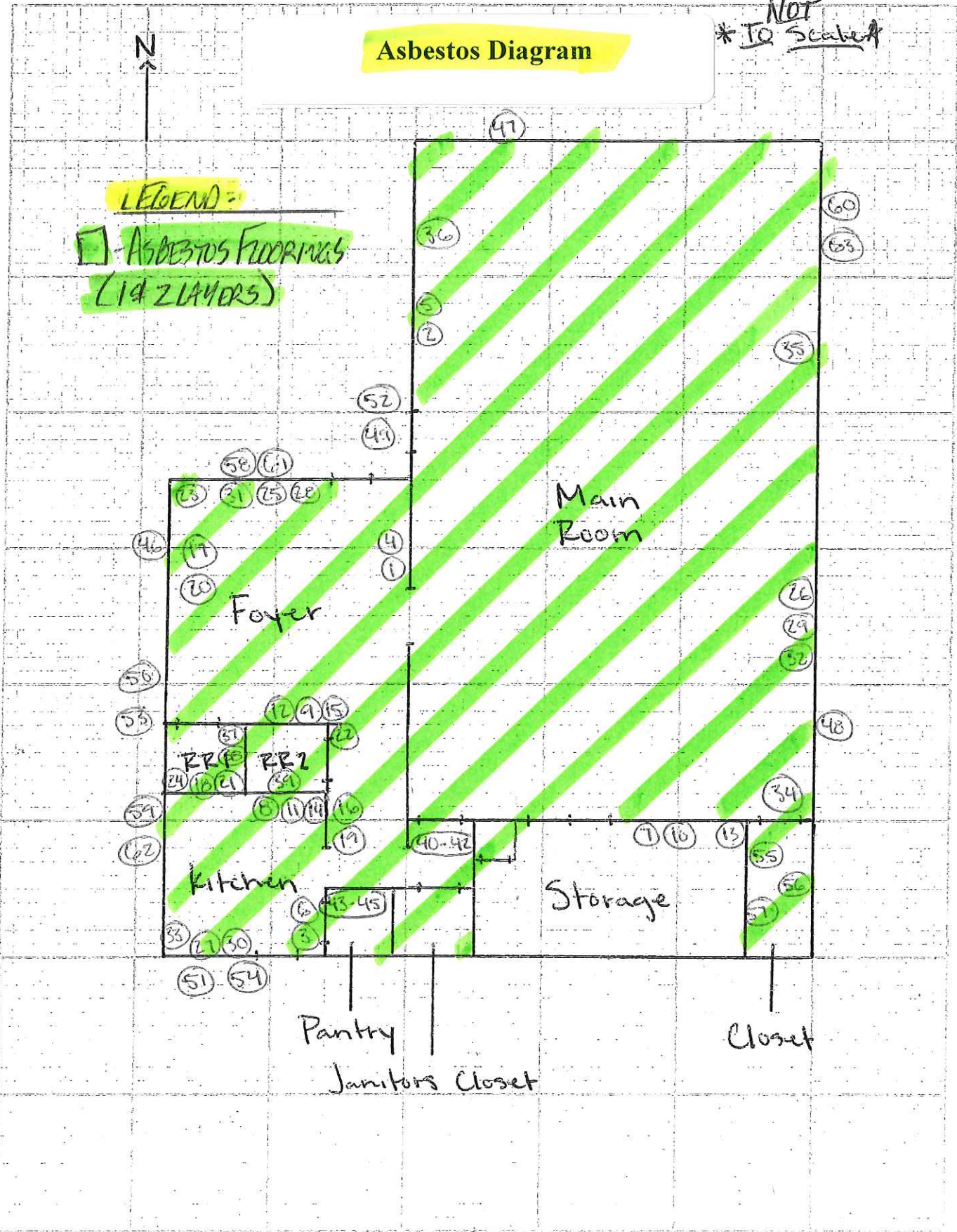


**Asbestos Diagram**

*\* NOT TO SCALE*

**LEGEND:**

- ASBESTOS FLOORINGS (14 LAYERS)



## **(6) ERI Licensing and Accreditation**





Texas Department of State Health Services

ERI CONSULTING INC

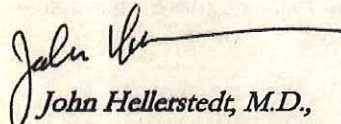
*is certified to perform as a*

Asbestos Consultant Agency

*in the State of Texas within the purview of Texas Occupations Codes, chapter 1954, as long as this license is not  
suspended or revoked  
is renewed according to the rules adopted by the Texas Board of Health.*

*License Number: 100020*

*Control Number: 97112*

  
*John Hellerstedt, M.D.,  
Commissioner of Health*

*Expiration Date: 03/12/2020*

*(Void After Expiration Date)*

VOID IF ALTERED NON-TRANSFERABLE





Texas Department of State Health Services

ERI CONSULTING INC

*is certified to perform as an*

Asbestos Laboratory

PCM, PLM

*in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.*



**License Number: 300007**

**Expiration Date: 12/12/2021**

**Control Number: 96409**

  
**John Hellerstedt, M.D.,  
Commissioner of Health**

**(Void After Expiration Date)**

VOID IF ALTERED NON-TRANSFERABLE

SEE BACK





**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**ERI Consulting, Inc.**  
2026A Republic Drive  
P.O. Box 2024  
Tyler, TX 75701-2024  
Mr. Tracy Foster  
Phone: 903-534-5001 Fax: 903-534-8701  
Email: [tracy@ericonsulting.com](mailto:tracy@ericonsulting.com)  
<http://www.ericonsulting.com>

**ASBESTOS FIBER ANALYSIS**

**NVLAP LAB CODE 101232-0**

**Bulk Asbestos Analysis**

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

  
For the National Voluntary Laboratory Accreditation Program

Effective 2019-07-01 through 2020-06-30

Page 1 of 1

**United States Department of Commerce  
National Institute of Standards and Technology**



**Certificate of Accreditation to ISO/IEC 17025:2017**

**NVLAP LAB CODE: 101232-0**

**ERI Consulting, Inc.**  
Tyler, TX

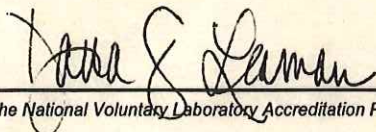
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

**Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2019-07-01 through 2020-06-30  
Effective Dates



  
For the National Voluntary Laboratory Accreditation Program



# Texas Department of State Health Services

**Asbestos Individual Consultant**

**CHRISTOPHER L POWER**

**License No. 105586**

**Control No. 97509**

**Expiration Date: 15-Feb-2021**



Texas Asbestos  
Inspector Refresher  
Training Course  
Expiration Date: 10/02/2020



Name: Christopher L. Power  
SS#: XXX-XX-0436



**M·E·T·A**  
*Mayhew Environmental Training Associates*  
**INCORPORATED**

Certificate # MED3F597AF6B48408

**Christopher L Power**

*has on 10/2/2019, in Tyler, TX  
completed the requirements for asbestos accreditation under Section 206 of TSCA Title II, 15 USC 2646*

**4-hr. Asbestos Building Inspector Refresher**

*as approved by TX and the US EPA under 40 CFR 763 (AHERA)  
from 10/2/2019 to 10/2/2019 and passed the associated exam on 10/2/2019  
with a score of at least 70%*



Robert Brooks  
Instructor

Thomas Mayhew  
President

SSN: XXX-XX-0436  
Expires: 10/2/2020

P.O. Box 786 - Lawrence, KS. 66044 - 800.444.6382

[www.metaenvironmental.net](http://www.metaenvironmental.net)





# Texas Department of State Health Services

## Asbestos Inspector

**TRACE C REED**  
**License No. 603825**  
**Control No. 99468**  
**Expiration Date: 24-Sep-2021**



GEBCO Associates certifies that  
**Trace C. Reed**  
has successfully completed the Texas Department of State Health Services approved course entitled:  
**ASBESTOS INSPECTOR INITIAL**

Date of Issue: 07/24/2019 Certificate No: 19051  
Certificate expires one year from date of Issue.  
Course schedule anytime @ [www.gebco.org](http://www.gebco.org)

GEBCO Associates, LP  
815 Trailwood Dr, Suite 200 Phone: 817-268-4006  
Hurst, TX 76053 Fax: Fax: 817-282-9886



## **GEBCO ASSOCIATES**

in cooperation with

### **THE UNIVERSITY OF NORTH TEXAS**

certifies that

## **Trace C. Reed**

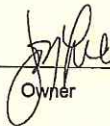
has successfully completed and passed the exam given on the final day for the Environmental Training Program entitled

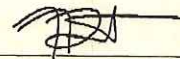
### **Asbestos Inspector Course**

Conducted at Hurst, Texas on July 22 - 24, 2019

This is an EPA fully approved course for purpose of accreditation under Section 206 of TSCA, Title II.



  
Owner



Instructor: Joseph Londt

Date of Issue 07/24/2019

Exam Date: 07/24/2019

Certificate Number: 19051 0906

Certificate Expires 07/24/2020

GEBCO's Training Programs are provided in cooperation with federal and state regulatory agencies, and fulfill all applicable requirements for accreditation. GEBCO is licensed for Asbestos Training under the Texas Asbestos Health Protection Rules.

GEBCO Associates, LP \* 815 Trailwood Dr, Suite 200 \* Hurst, TX 76053 \* (817)268-4006





# Texas Department of State Health Services

## Asbestos Inspector

**CURTIS G MODISETTE**

**License No. 603806**

**Control No. 99400**

**Expiration Date: 27-Jun-2021**



GEBCO Associates certifies that  
Curtis G. Modisette



has successfully completed the Texas Department of State Health Services approved course entitled:  
**ASBESTOS INSPECTOR INITIAL**

Date of Issue: 03/27/2019      Certificate No: 19024  
Certificate expires one year from date of issue.  
Course schedule anytime @ [www.gebco.org](http://www.gebco.org)

GEBCO Associates, LP  
815 Trailwood Dr, Suite 200      Phone: 817-268-4006  
Hurst, TX 76053      Fax: 817-282-9888



**GEBCO ASSOCIATES**  
in cooperation with  
**THE UNIVERSITY OF NORTH TEXAS**  
certifies that

**Curtis G. Modisette**  
has successfully completed and passed the exam given on the final day for the  
Environmental Training Program entitled  
**Asbestos Inspector Course**  
Conducted at Hurst, Texas on March 25 - 27, 2019

This is an EPA fully approved course for purpose of accreditation under Section 206 of TSCA, Title II.

   
Owner

  
Instructor: Joseph Londt

Date of Issue 03/27/2019      Exam Date: 03/27/2019  
Certificate Number: 19024 1222      Certificate Expires 03/27/2020

GEBCO's Training Programs are provided in cooperation with federal and state regulatory agencies, and fulfill all applicable requirements for accreditation. GEBCO is licensed for Asbestos Training under the Texas Asbestos Health Protection Rules.

GEBCO Associates, LP • 815 Trailwood Dr, Suite 200 • Hurst, TX 76053 • (817)268-4006