

HISTORIC DURANT DEPOT NORTH BUILDING RENOVATION

Durant, Mississippi
Holmes County



STP-0074-00(021) LPA/106866-701000
BSA# 1213

PROPOSAL & CONTRACT DOCUMENTS

STREET READY

Issue Date: December 22, 2017



Belinda Stewart Architects, P.A.
61 N. Dunn St / P.O. Box 867
Eupora, Mississippi 39744
662.258.6405 & 662.258.6452 fax
bsa@belindastewartarchitects.com

BIDDER CHECK LIST
(FOR INFORMATION ONLY)

- _____ All unit prices and item totals have been entered in accordance with Subsection 102.06 of the Mississippi Standard Specifications for Road and Bridge Construction.
- _____ First sheet of SECTION 905--PROPOSAL has been completed.
- _____ Second sheet of SECTION 905--PROPOSAL has been completed and signed.
- _____ Addenda, if any, have been acknowledged. Second sheet of Section 905 listing the addendum number has been substituted for the original second sheet of Section 905. Substituted second sheet of Section 905 has been properly completed, signed, and added to the proposal.
- _____ DBE/WBE percentage, when required by contract, has been entered on last sheet of the bid sheets of SECTION 905--PROPOSAL.
- _____ Form OCR-485-LPA has been completed and signed.
- _____ The last sheet of the bid sheets of SECTION 905--PROPOSAL has been signed.
- _____ Equal Opportunity Clause Certification, when included in contract, has been completed and signed.
- _____ The Certification regarding Non-Collusion, Debarment and Suspension, etc. has been executed in duplicate.
- _____ A certified check, cashier's check or bid bond payable to the Local Public Agency in the principle amount of 5% of the bid has been included with project number identified on same. Bid bond has been signed by the bidder and has also been signed or countersigned by a Mississippi Agent or Qualified Nonresident Agent for the Surety with Power of Attorney attached.
- _____ A completed Notice to Bidders regarding DUNS Requirements must be completed prior to award of the contract.

Return the proposal and contract documents in its entirety in a sealed envelope. DO NOT remove any part of the contract documents; exception – an addendum requires substitution of second sheet of Section 905. A stripped proposal is considered as an irregular bid and will be rejected.

Failure to complete any or all of the applicable requirements will be cause for the proposal to be considered irregular.

SECTION 00 0100

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END OF SECTION

**SECTION 901
ADVERTISEMENT**

Historic Durant Depot North Building Renovation
for
City of Durant, Holmes County, Mississippi

Federal Aid Project No. STP-0074-00(021) LPA/106866-701000

The City of Durant, Mississippi, will receive bids for the **Historic Durant Depot North Building Renovation**, Federal Aid Project No. STP-0074-00-(021) LPA/106866-701000, no later than 5:00 pm Local Time on the 3rd day of April, 2018 at the City Hall located at 253 W. Mulberry St., Durant, Mississippi 39063. All bids so received will be publicly opened and read aloud at the regularly scheduled meeting of the City Board at 6:30 pm Local Time on the 3rd day of April, 2018. There will be a non-mandatory Pre-Bid Conference scheduled for 2:00 pm Local Time on the 20th day of March, 2018 at Durant City Hall. Attendance is strongly recommended.

The contract time for this project is 300 calendar days.

The work shall consist essentially of the following items:

North Building: Exterior and Interior renovation/restoration including, but not limited to roof work, limited masonry and wood framing stabilization work, new mechanical and electrical systems, interior finishes, window and door restoration,

The above general outline of features of the work does not in any way limit the responsibility of the Contractor to perform all work and furnish all labor, equipment and materials required by the specification and the drawings referred to therein.

The attention of bidders is directed to the Contract Provisions governing selection and employment of labor. Minimum wage rates for Federal Aid projects have been predetermined by the Secretary of Labor and are subject to Public Law 87-581, Work Hours Act of 1962, as set forth in the Contract Provisions.

The City of Durant, Mississippi, hereby notifies all Bidders that it will affirmatively insure that in any Contract entered into pursuant to this Advertisement, disadvantaged and women's business enterprises will be afforded the full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

The award of this Contract will be contingent upon the Contractor satisfying the DBE/WBE requirements.

Bid documents are being made available via original paper copy. **Plan holders and plan rooms are required to register and order bid documents at www.bsaplanroom.com**

This project requires a refundable deposit of \$100.00. All orders must be placed through the website. All plan holders are required to have a valid email address for registration.

When placing the order, you must choose Pay by Check at check-out online.

**All checks must be made payable to Belinda Stewart Architects and Mailed to: Plan House Printing
607 W. Main Street
Tupelo, MS 38804**

Bid Documents will be shipped when the check is received at the printer's office.

For questions regarding website registration and online orders, please contact Plan House Printing at **(662) 407-0193**.

For specific questions related to the project, please contact:

Belinda Stewart Architects, PA
PO Box 867 - 61 North Dunn Street
Eupora, MS 39744
662-258-6405 – phone 662-258-6452 - fax

The Contract Documents are on file and may be examined at the following locations:

1. Durant City Hall, 253 W. Mulberry Street, Durant, Mississippi 39063.
2. Belinda Stewart Architects, PA, 61 North Dunn Street, Eupora, Mississippi 39744

Each bid shall be accompanied by a Certified Check on a solvent bank or a Bidder's Bond issued by a Surety Company licensed to operate in the State of Mississippi, in the amount of five percent (5%) of the total bid price, payable to the City of Durant as bid security. Bidders shall also submit a current financial statement, if requested by the City. The successful bidder will be required to furnish a Contract Bond in the amount of one hundred percent (100%) of the contract amount.

The proposal and contract documents in its entirety shall be submitted in a sealed envelope and deposited with the City Clerk, Ursula Perry, Durant, Mississippi prior to the hour and date above designated. No bidder may withdraw his bid within sixty (60) days after the date of actual bid opening, without Owner's consent.

Work to be performed shall be in accordance with the "Mississippi State Highway Standard Specifications for Road and Bridge Construction, 2004", together with all amendments and/or special provisions and/or addenda to the standards duly approved and adopted, unless otherwise noted in these specifications.

The attention of Bidders is directed to the provisions of Subsection 103.07 pertaining to irregular proposal and rejection of bids.

Electronic bids can be submitted at www.centralbidding.com. Official bid documents can be downloaded from Central Bidding. Electronic bids are due the same time and date as sealed bids. For any questions relating to the electronic bidding process, please call 225-810-4814.

MAYOR, CITY OF DURANT,
HOLMES COUNTY MISSISSIPPI

By: /s/ Dr. Henry Robinson, Jr.
Dr. Henry Robinson, Jr., Mayor
City of Durant, Mississippi

PUBLISH: March 1, 2018
 March 8, 2018

(Provide two sworn proofs of publication to the City of Durant, MS.)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1

CODE: (IS)

DATE: 05/03/2004

SUBJECT: Governing Specifications

The current (2004) Edition of the Standard Specifications for Road and Bridge Construction adopted by the Mississippi Transportation Commission is made a part hereof fully and completely as if it were attached hereto, except where superseded by special provisions, or amended by revisions of the Specifications contained herein. Copies of the specification book may be purchased from the MDOT Construction Division.

A reference in any contract document to controlling requirements in another portion of the contract documents shall be understood to apply equally to any revision or amendment thereof included in the contract.

In the event the plans or proposal contain references to the 1990 Edition of the Standard Specifications for Road and Bridge Construction, it is to be understood that such references shall mean the comparable provisions of the 2004 Edition of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904- NOTICE TO BIDDERS NO. 2 LPA

CODE: (SP)

DATE: December 22, 2017

SUBJECT: Designated Owner and Engineer

PROJECT: City of Durant – Historic Durant Depot – North Building Renovation
STP-0074-00(011) LPA/106866-701000
Holmes County

Any reference in the Contract Documents to the State of Mississippi, Mississippi Department of Transportation, Mississippi Transportation Commission, or any official thereof, it shall be interpreted to mean the (Durant, Mississippi), the "Owner".

Any reference in the Standard Specifications to the Project Engineer, District Engineer, Chief Engineer, Engineer or Architect it shall be interpreted to mean Belinda Stewart Architects, PA.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3

CODE: (SP)

DATE: 05/03/2004

SUBJECT: Final Clean-Up

Immediately prior to final inspection for release of maintenance, the Contractor shall pick up, load, transport and properly dispose of all litter from the entire highway right-of-way that is within the termini of the project.

Litter shall include, but not be limited to, solid wastes such as glass, paper products, tires, wood products, metal, synthetic materials and other miscellaneous debris.

Litter removal is considered incidental to other items of work and will not be measured for separate payment.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 1405

CODE: (IS)

| DATE: 03/15/2007

SUBJECT: ERRATA AND MODIFICATIONS TO THE 2004 STANDARD SPECIFICATIONS

<u>Page</u>	<u>Subsection</u>	<u>Change</u>
101	201.01	In the second sentence of the first paragraph, change “salvable” to “salvageable”.
107	202.04	In the fourth sentence of the fourth paragraph, change “yard” to “feet”.
107	202.05	In the list of units measurements for 202-B, add “square foot”.
132	211.03.4	In the second sentence of the second paragraph, change “planted” to “plated”.
| 192	306.02.4	In the first line of the first paragraph, delete the word “be”.
200	307.03.7	In the fourth sentence of the second paragraph, change “lime-fly ash” to “treated”.
236	401.01	Change the header from “Section 403” to “Section 401”.
242	401.02.3.2	In the first sentence of the third full paragraph, add “1/8” in the blank before the inch mark.
250	401.02.6.3	In the second sentence of the first paragraph on page 250, change “rutting over ”” to “rutting over 1/8" ”.
253	401.02.6.4.2	In the paragraph preceding the table, change “91.0” to “89.0”.
259	401.03.1.4	In the first paragraph, change “92.0 percent” to “the specified percentage (92.0 or 93.0)”.
269	403.03.2	In the table at the top of page 269, change the PI requirement from “ = ” to “ ≤ ”.

278	404.04	In the second sentence, change the subsection from "401.04" to "403.04".
283	409.02.2	Change "PG 64-22" to "PG 67-22".
294	413.02	In the first sentence of the second paragraph, change "707.02.1.3" to "Subsection 707.02.1.3".
340	511.04	In the second sentence of the second paragraph, change "412" to "512".
349	601.03.3	In the first sentence, change "804.03.2" to "804.03.5".
355	603.02	Change the subsection reference for Joint mortar from "707.03" to "714.11".
369	604.04	In the first sentence, change "601.04" to "Subsection 601.04".
427	619.04	Delete the second paragraph.
442	625.04	In the third paragraph, change "626.04" to "Subsection 626.04".
444	626.03.1.2	Delete the third sentence of the first paragraph.
464	631.02	Change the subsection reference for Water from "714.01.0" to "714.01.1".
570	682.03	Change the subsection number from "682-03" to "682.03".
575	683.10.4	Change the subsection number from "683.10.4" to "683.04".
575	683.10.5	Change the subsection number from "683.10.5" to "683.05".
596	701.02	In the table under the column titled "Cementations material required", change Class F, FA" to "Class F FA,".
603	702.11	In the first sentence, change "702.12" to "Subsection 702.12".
612	703.04.2	In the fifth paragraph, delete "Subsection 703.11 and".
616	703.07.2	In the Percentage By Weight Passing Square Mesh Sieves table, change the No. 10 requirement for Class 7 material from "30 - 10" to "30 - 100".

618	703.13.1	In the first sentence of the first paragraph, change “703.09” to “703.06”.
618	703.13.2	In the first sentence, change “703.09” to “703.06”.
671	712.06.2.2	In the first sentence, change “712.05.1” to “Subsection 712.05.1”.
689	714.11.2	In the first sentence, change “412” to “512”.
709	715.09.5	In the first sentence of the first paragraph, change “guage” to “gauge”.
717	717.02.3.4	In the top line of the tension table, change “1 1/2” to “1 1/8” and change “1 1/8” to “1 1/2”.
741	720.05.2.2	In the last sentence of this subsection, change “720.05.2.1” to “Subsection 720.05.2.1”.
827	803.03.2.3.7.5.2	In the first sentence of the second paragraph, change “803.03.5.4” to “803.03.2.3.4”.
833	803.03.2.6	In the first sentence, change “803.03.7” to “803.03.2.5”.
854	804.02.11	In the last sentence of the first paragraph, change “automatically” to “automatic”.
859	804.02.13.1.3	In the last sentence, change Subsection “804.02.12.1” to “804.02.12”.
879	804.03.19.3.2	In the first sentence of the third paragraph, change “listed on of Approved” to “listed on the Approved”.
879	804.03.19.3.2	In the last sentence of the last paragraph, change “804.03.19.3.1” to “Subsection 804.03.19.3.1”.
962	814.02.3	In the first sentence, change “710.03” to “Subsection 710.03”.
976	820.03.2.1	In the first sentence, change “803.02.6” to “803.03.1.7”.
976	820.03.2.2	In the first sentence, change “803.03.9.6” to “803.03.1.9.2”.
985	Index	Change the subsection reference for Petroleum Asphalt Cement from “702.5” to “702.05”.

985	Index	Change the subsection reference for the Definition of Asphaltic Cement or Petroleum Asphalt from “700.2” to “700.02”.
985	Index	Change the subsection reference for Automatic Batchers from “501.03.2.4” to “804.02.10.4”.
986	Index	Delete “501.03.2” as a subsection reference for Batching Plant & Equipment.
988	Index	Change the subsection reference for the Central Mixed Concrete from “501.03.3.2” to “804.02.11”.
988	Index	Change the subsection reference for the Concrete Batching Plant & Equipment from “501.03.2” to “804.02.11”.
999	Index	Delete “501.03.3.3” as a subsection reference for Truck Mixers.
1001	Index	Change the subsection reference for Edge Drain Pipes from “605.3.5” to “605.03.5”.
1002	Index	Change the subsection reference for Metal Posts from “713.05.2” to “712.05.2”.
1007	Index	Change the subsection reference for Coarse Aggregate of Cement Concrete Table from “703.3” to “703.03”.
1007	Index	Change the subsection reference for Composite Gradation for Mechanically Stabilized Courses Table from “703.8” to “703.08”.
1009	Index	Delete “501.03.3.3” as a subsection reference for Truck Mixers and Truck Agitators.
1010	Index	Delete reference to “Working Day, Definition of”.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1546

CODE: (SP)

DATE: 05/23/2007

SUBJECT: Advancement of Materials

Bidders are advised that **NO ADVANCEMENT OF MATERIALS**, as addressed in Subsection 109.06.2 of the Standard Specifications, will be allowed on this project.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1902 LPA

CODE: (SP)

DATE: 02/26/2010

SUBJECT: Disadvantaged Business Enterprise (DBE) Forms

Anywhere in the plans, proposal and specifications where reference is made to Office of Civil Rights (OCR) Forms, it should be understood to mean Disadvantaged Business Enterprise (DBE) Forms.

The following are equivalent forms:

OCR-481	.....	OCR-481 LPA	.....	DBE-1
OCR-482	.....	OCR-482 LPA	.....	DBE-2
OCR-483	.....	OCR-483 LPA	.....	DBE-3
OCR-484	.....	OCR-484 LPA	.....	DBE-4
OCR-485	.....	OCR-485 LPA	.....	DBE-5
OCR-487	.....	OCR-487 LPA	.....	DBE-7

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 1928

CODE: (IS)

| DATE: 04/14/2008

SUBJECT: Federal Bridge Formula

Bidders are hereby advised that Federal Highway Administration Publication No. FHWA-MC-94-007, **BRIDGE FORMULA WEIGHTS**, dated January 1994, is made a part of this contract when applicable.

Prior to the preconstruction conference, the Contractor shall advise the Engineer, in writing, what materials, if any, will be delivered to the jobsite via Interstate route(s).

Copies of the **BRIDGE FORMULA WEIGHTS** publication may be obtained by contacting:

Federal Highway Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-2212

or

| http://ops.fhwa.dot.gov/freight/sw/brdgcalt/calc_page.htm

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2168

CODE: (SP)

DATE: 11/03/2008

SUBJECT: Fuel and Material Adjustments

Bidders are advised that **NO FUEL OR MATERIAL ADJUSTMENT**, as addressed in Subsection 109.07 of the Standard Specifications, will be allowed on this project.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 2382

CODE: (IS)

| DATE: 02/12/2009

| SUBJECT: Status of Right-of-Way

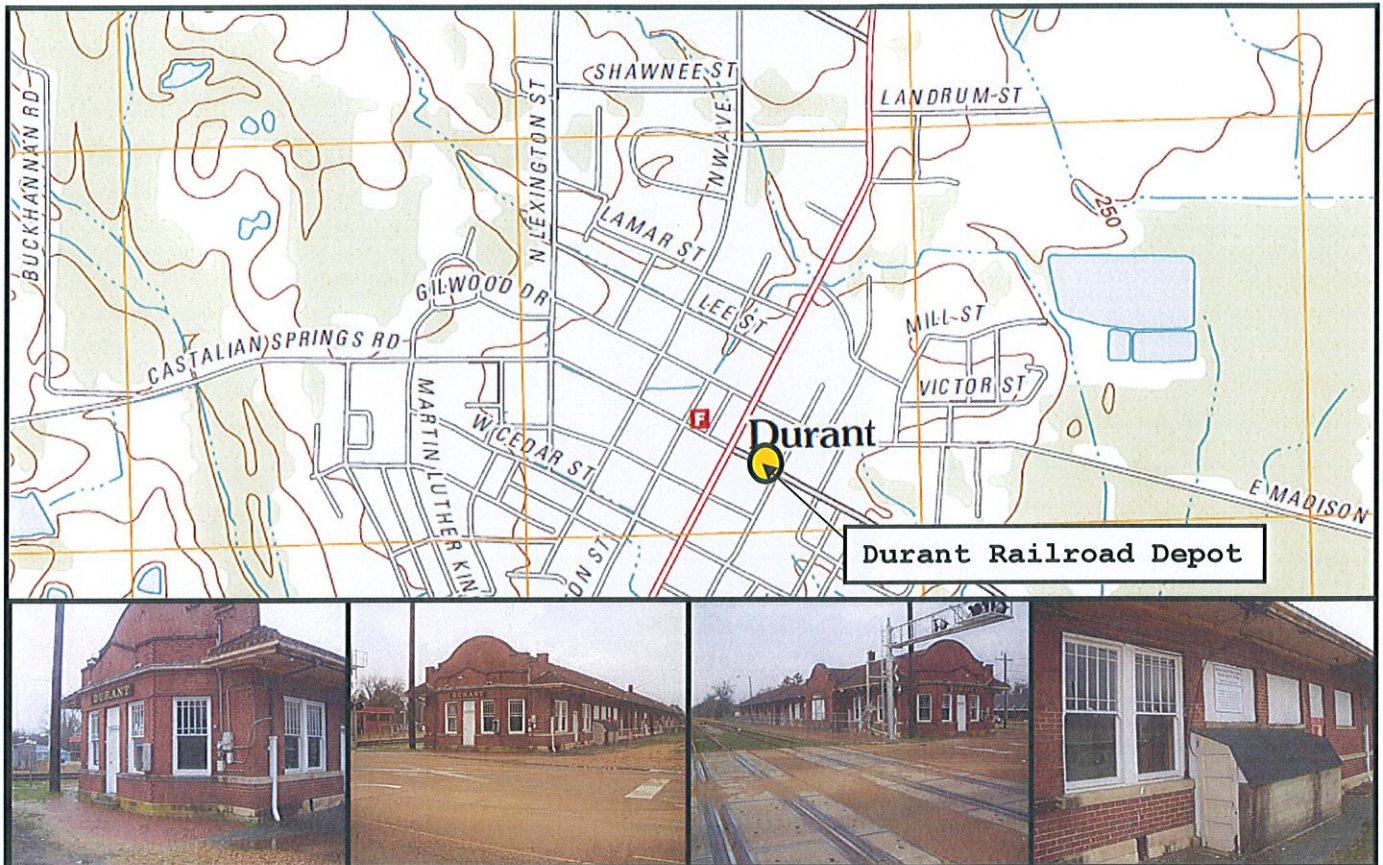
Although it is desirable to have acquired all rights-of-way and completed all utility adjustments and work to be performed by others prior to receiving bids, sometimes it is not considered to be in the public interest to wait until each and every such clearance has been obtained. The bidder is hereby advised of possible unacquired rights-of-way, relocatees and utilities which have not been completed.

| The status of right-of-way acquisition, utility adjustments, encroachments, potentially contaminated sites and asbestos containment are set forth in the following attachments.

In the event right of entry is not available to ALL parcels of right-of-way and/or all work that is to be accomplished by others on the date set forth in the contract for the Notice to Proceed is not complete, the Department will issue a restricted Notice to Proceed.

Asbestos Survey of Old Durant Railroad Depot

Mulberry & West Depot Streets
Durant, MS



Submitted to:

City of Durant

Attn: Mayor Tasha Davis

Box 272

Durant, MS 39063

March 26, 2015

Belinda Stewart Architect

Attn: Craig Bjorgum

craig@belindastewartarchitects.com

Asbestos Inspection Performed by:

Vance Nimrod, P.E.

323 Central Street

Greenville, MS 38701

(662) 820-9612

Mississippi Certified Asbestos Inspector

Certificate No.: ABI-00001505

ASBESTOS SURVEY REPORT
OF
OLD DURANT RAILROAD DEPOT
Mulberry and West Depot Streets
DURANT, MS

SUBMITTED TO:

City of Durant
Box 272
Durant, MS 39062
Attn: Mayor Tasha Davis

cc: Belinda Stewart Architects
Attn: Craig Bjorgum
Eupora, MS

Email: craig@belindastewartarchitects.com
Phone: 662-258-6405

March 26, 2015

Asbestos Inspection Performed by:

Vance Nimrod, P.E.
323 Central Street
Greenville, MS 38701
(662)820-9612
Mississippi Certified Asbestos Inspector
Certificate No.: ABI-00001505

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APPENDICES:

Appendix A: Asbestos Sampling Locations

Appendix B: Laboratory Asbestos Report

Appendix C: Survey Contract

Appendix D: Professional Credentials

Appendix E: State of Mississippi Demolition/Renovation Notification Form

1.0 PURPOSE AND SCOPE OF SERVICES

Vance Nimrod, P.E., (VN) was retained by Mayor Tasha Davis, City of Durant, on 2/25/15 to conduct a survey to identify any asbestos in or on the Old Durant Railroad Depot at Mulberry and West Depot Streets in Durant, MS. See survey contract in Appendix C.

VN conducted the asbestos survey in accordance with the approved scope of work listed below:

1. Interview with Knowledgeable Person (s) - VN will attempt to meet with person or persons who are familiar with past construction and renovation activities of the facility planned for renovation.
2. Preliminary Walk-Through - VN will conduct a preliminary walk-through of the facility to locate any suspect asbestos containing materials.
3. Sampling Program - VN will develop a sampling program for the facility. The asbestos sampling will be performed by VN, a Mississippi Certified Asbestos Inspector.
4. Report - VN will prepare a report which documents the work performed, references the test results, and tabulates any asbestos containing materials encountered on-site.

2.0 REGULATORY BACKGROUND

Asbestos is a naturally occurring mineral that has seen wide spread use in building construction materials because of its many desirable properties for building construction. Some of these properties include, but are not limited to, fire resistance, insulation, poor conductivity, and high tensile strength. Due to these desirable properties asbestos can be found in such products as: siding and roofing shingles, concrete, wall board, insulation, gaskets, acoustical plaster, asphalt, vinyl floor tile, joint compounds, adhesives, and many other products. The problem with asbestos, however, is the adverse health effects associated with exposure to asbestos fibers. Asbestos has been linked with health conditions such as Asbestosis, lung cancer, Mesothelioma, and several other types of cancers.

As a result of these adverse health risks Congress passed the Asbestos Hazard Emergency Response Act (AHERA) which is administered by the U.S. Environmental Protection Agency (EPA). AHERA required that schools (K-12th grade), identify asbestos containing materials (ACMs), develop a plan to manage the asbestos, and to implement that plan in a timely manner. Another regulation that was passed that requires asbestos inspection is the National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP requires that buildings, with the exception of private residences, that are scheduled for demolition or renovation be inspected for ACMs to prevent the emission of asbestos into the environment. The Occupation Safety and Health Administration (OSHA) has also mandated asbestos inspection activities to enhance worker safety. Most states, including the State of Mississippi, require that all asbestos inspection work be done by a certified inspector.

3.0 SITE DESCRIPTION

The project site is a one-story wood frame building with a brick facade and a pitched tile roof. The building is in two parts of approximately 5000 square feet each, the north part is connected to the south part by a roofed breezeway.

4.0 SITE SURVEY PROTOCOL

Homogenous sampling areas are defined as areas in which the materials are uniform in appearance, such as color and texture, and were installed during the same time period.

VN has established a standard asbestos materials survey report form which allows the collection of assessment data in the field. The suspect ACM is classified by site location, material type, accessibility, physical condition, friability, and activity level. By definition, friable material may be crumbled, pulverized, or reduced to a powder by hand pressure. Hazard assessment concerns itself more with friable ACM because the material can release asbestos fibers which may become airborne, thus creating an air quality exposure problem. The survey and sampling program was limited to visible and accessible materials and did not include inaccessible areas. The sampling locations are referenced in Appendix A.

The following suspect ACMs were identified and sampled:

Surfacing Materials

NONE

Thermal System Insulation Materials

1. Ceiling insulation
2. Pipe insulation

Miscellaneous Materials

1. 9" vinyl floor tile and mastic
2. 12" vinyl floor tile and mastic
3. Linoleum floor covering
4. Plaster
5. 5' x 5' Fiber board ceiling
6. 2 x 4 ceiling tile

A total of 19 samples of suspect ACM's were collected on March 12, 2015.
The samples were submitted to EMSL Analytical, Inc. for analysis.
A total of 28 tests were run of these samples.

5.0 ANALYTICAL PROTOCOL

The contract laboratory for the project is EMSL Analytical, Inc. of Baton Rouge, LA. EMSL conducted all asbestos material analyses in accordance with standard protocol utilizing PLM with dispersion staining techniques. All samples were pre-screened to establish visual characterization and to determine relative percentages of material content. All materials determined to contain more than one percent (> 1%) of any type of asbestos were classified as ACM and must be handled in accordance with Environmental Protection Agency (EPA) and OSHA regulations pertaining to renovation and/or removal.

6.0 DISCUSSION OF SAMPLING RESULTS

A review of the laboratory results reveals the following:

6.1 Asbestos suspect material samples that were found to contain greater than 1% of asbestos are identified below:

- 1. All four (4) samples of non friable 9" vinyl floor tile tested 4% to 5% chrysotile asbestos**
- 2. Two (2) samples of non friable 9" vinyl floor tile mastic tested 10% chrysotile asbestos**
- 3. Two samples of the five collected samples of non friable 12" vinyl floor tested 2% chrysotile asbestos**
- 4. Two samples of the five collected samples of non friable 12" vinyl floor tile mastic tested 10% chrysotile asbestos**
- 5. Two (2) samples of friable pipe insulation tested 70% to 75% chrysotile asbestos.**

Appendix B shows the laboratory results for each sample that was found to contain more than 1.0% asbestos.

6.2 Asbestos suspect material samples that tested non- detectable, or less than 1%, for asbestos are as follows:

- 1. Three (3) samples of white and beige 12" vinyl floor tile and mastic**
- 2. One (1) sample of floor linoleum**
- 3. One (1) sample of plaster**
- 4. One (1) sample of 5' x 5' ceiling fiber board**
- 5. One (1) sample of 2 x 4 ceiling tile**
- 6. Three (3) samples of fiber glass insulation**

Appendix B shows the laboratory results for each sample that was found to contain less than 1% of asbestos.

7.0 RECOMMENDATIONS

The following recommendations are made concerning the Asbestos Survey:

- 1. Prior to any renovation work being performed, all asbestos containing materials that contain 1.0% or more of asbestos should be removed from the building.**
 - a. All vinyl floor tile and mastic**
 - b. All pipe insulation**
- 2. A licensed asbestos contractor should perform all asbestos abatement work as required by MDEQ.**
- 3. At least ten (10) days prior to any renovation work being performed, a State of Mississippi Demolition/Renovation Notification Form should be sent to MDEQ. A sample form is referenced in Appendix E.**

8.0 QUALIFYING STATEMENT

VN presents the findings, conclusions, and recommendations herein which are based solely on the conditions observed during the inspection conducted on March 12, 2015. Additionally, VN does not make any representation or projection as to past conditions or future exposures and does not extend its findings to areas outside of the statistical representation of the completed investigation.

The findings and conclusions of this report are not scientific certainties, but rather, probabilities based on professional judgment concerning the significance of the data gathered during the course of the site investigation. This report has been prepared for the exclusive use by Belinda Stewart Architects and City of Durant. This report and its analytical results, findings, conclusions, and recommendations either in part or in its entirety are not to be used by any other party without prior consent by VN, Belinda Stewart Architects, or City of Durant.

9.0 SIGNATURE OF ASBESTOS INSPECTOR

A handwritten signature in black ink, appearing to read "Vance Nimrod", written over a horizontal line.

**Vance Nimrod, P.E.
Mississippi Certified Asbestos Inspector
Certificate No.: ABI-00001505
March 26, 2015**

10.0 QUALIFICATION OF ASBESTOS INSPECTOR

Qualification(s) of the asbestos inspector that prepared this report are referenced in Appendix D.

END OF REPORT

APPENDIX A

Asbestos Sampling Locations

Durant, MS, Old Durant Railroad Depot, Asbestos Inspection
 Mulberry and West Depot Streets
 3/12/15, Vance Nimrod, Inspector, DURRRA
 Asbestos Sampling Locations, Schematic Building Layout Attached

Sample	No.	Material	Location	Comments
--------	-----	----------	----------	----------

North Bldg

Interior

DA	101	12" Floor Tile and Mastic, Blue	Waiting Room, North End, Room 1	
DA	102	12" Floor Tile and Mastic, Blue	Waiting Room, South End, Room 1	
DA	103	9" Floor Tile and Mastic, Green	Agents Office, East Side, Room 2	
DA	104	9" Floor Tile and Mastic, Green	Agents Office, West Side, Room 2	
DA	105	12" Floor Tile and Mastic, Tan	Clerical Office, West Side, Room 3	
DA	106	12" Floor Tile and Mastic, Tan	Clerical Office, West Side, Room 3	
DA	107	12" Floor Tile and Mastic, Beige	Railroad Office, Room 3	
DA	108	Pipe Insulation on Line Pipe	Attic, Near Large Ceiling Opening	
DA	109	Pipe Insulation on Feed Pipe	Attic, Near Large Ceiling Opening	
DA	110	Floor Linoleum, Yellow	Room 4	
DA	111	Plaster, Original	Ceiling, Waiting Room, Room 1	
DA	112	5' x 5' Fiber Board	Ceiling, Agents Office, Room 2	
DA	113	Fiber Glass Insulation, White	Ceiling, Agents Office, Room 2	
DA	114	2 x 4 Ceiling Tile	Clerical Office, Room 3	
DA	115	Fiber Glass Insulation, Yellow	Clerical Office, Room 3	

South Bldg

Interior

DA	116	9" Floor Tile and Mastic, Black	REA Office	
DA	117	9" Floor Tile and Mastic, Brown	Crew Dorm	
DA	118	Fiber Glass Insulation, Pink	Crew Dorm, N. W. Room	
DA	119	Fiber Glass Insulation, Pink	Crew Dorm, Bath Room	

OLD DURANT RAILROAD DEPOT
SCHEMATIC BUILDING LAYOUT
NOT DETAILED AND NOT TO SCALE

V. NIMROD
3/26/15

A
N.

BREEZE WAY

REA
OFFICE

FREIGHT

CREW
DORM

SOUTH
BUILDING

WAITING
ROOM

ROOM 1

AGENTS
OFFICE

ROOM 2

CLERICAL
OFFICE
ROOM 3

UNIDENTIFIED
ROOM 4

BAGGAGE
ROOM 5

BREEZE WAY

NORTH
BUILDING

APPENDIX B

Laboratory Asbestos Report

**EMSL Analytical, Inc.**

11931 Industriplex, Suite 100, Baton Rouge, LA 70809

Phone/Fax: (225) 755-1920 / (225) 755-1989

<http://www.EMSL.com>batonrougelab@emsl.com

EMSL Order: 251501474

CustomerID: VNMS42

CustomerPO:

ProjectID:

Attn: **Vance Nimrod**
Vance Nimrod
323 Central Street
Greenville, MS 38701

Phone: (662) 820-9612
Fax:
Received: 03/16/15 10:00 AM
Analysis Date: 3/23/2015
Collected: 3/12/2015

Project: **Asbestos Survey**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DA101-Floor Tile 251501474-0001	Room 1	Blue Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
DA101-Mastic 251501474-0001A	Room 1	Black Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile
DA102-Floor Tile 251501474-0002	Room 1	Blue Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
DA102-Mastic 251501474-0002A	Room 1	Black Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile
DA103-Floor Tile 251501474-0003	Room 2	Green Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
DA103-Mastic 251501474-0003A	Room 2	Black Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile
DA104-Floor Tile 251501474-0004	Room 2	Green Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
DA104-Mastic 251501474-0004A	Room 2	Black Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile

Analyst(s)

Leah Delahoussaye (28)

Brett Heitzmann, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%.

Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA NVLAP Lab Code 200375-0, LELAP 01950, TX 300238

**EMSL Analytical, Inc.**

11931 Industriplex, Suite 100, Baton Rouge, LA 70809

Phone/Fax: (225) 755-1920 / (225) 755-1989

<http://www.EMSL.com>batonrougelab@emsl.com

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Analysis Date: 3/23/2015
Collected: 3/12/2015

Project: **Asbestos Survey**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DA105-Floor Tile 251501474-0005	Room 3	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DA105-Mastic 251501474-0005A	Room 3				Insufficient Material
DA106-Floor Tile 251501474-0006	Room 3	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DA106-Mastic 251501474-0006A	Room 3	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DA107-Floor Tile 251501474-0007	Room 3	Beige Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DA107-Mastic 251501474-0007A	Room 3	Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DA108 251501474-0008	Attic	Beige Fibrous Homogeneous		25% Non-fibrous (other)	75% Chrysotile
DA109 251501474-0009	Attic	White Fibrous Heterogeneous	8% Cellulose	22% Non-fibrous (other)	70% Chrysotile

Analyst(s)

Leah Delahoussaye (28)

Brett Heitzmann, Laboratory Manager
or other approved signatory

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Project: **Asbestos Survey**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos			Asbestos
			%	Fibrous	% Non-Fibrous	% Type
DA110 251501474-0010	Room 4	Tan Fibrous Heterogeneous	30% 10% 5%	Cellulose Glass Synthetic	55% Non-fibrous (other)	None Detected
DA111 251501474-0011	Room 1	White Non-Fibrous Homogeneous			15% Quartz 85% Non-fibrous (other)	None Detected
DA112 251501474-0012	Room 2	Brown/Beige Fibrous Homogeneous	85%	Cellulose	15% Non-fibrous (other)	None Detected
DA113 251501474-0013	Room 2	Tan/Beige Fibrous Homogeneous	98%	Glass	2% Non-fibrous (other)	None Detected
DA114 251501474-0014	Room 3	Tan/White Fibrous Homogeneous	40% 15%	Cellulose Glass	45% Non-fibrous (other)	None Detected
DA115-Wrap 251501474-0015	Room 3	Tan/Black Fibrous Homogeneous	40%	Cellulose	60% Non-fibrous (other)	None Detected
DA115-Insulation 251501474-0015A	Room 3	Yellow Fibrous Homogeneous	98%	Glass	2% Non-fibrous (other)	None Detected
DA116-Floor Tile 251501474-0016	REA	Black Non-Fibrous Homogeneous			96% Non-fibrous (other)	4% Chrysotile

Analyst(s)

Leah Delahoussaye (28)

Brett Heitzmann, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA NVLAP Lab Code 200375-0, LELAP 01950, TX 300238

**EMSL Analytical, Inc.**

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Collected: 3/12/2015

Project: **Asbestos Survey**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos	
			% Fibrous	% Non-Fibrous	% Type	
DA116-Mastic 251501474-0016A	REA	Black Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (other)	None Detected	
DA117-Floor Tile 251501474-0017	Crew Dorm	Brown Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile	
DA117-Mastic 251501474-0017A	Crew Dorm	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected	
DA118 251501474-0018	NW Room	Tan/Beige Fibrous Homogeneous	98% Glass	2% Non-fibrous (other)	None Detected	
DA119 251501474-0019	Bathroom	Tan/Beige Fibrous Homogeneous	98% Glass	2% Non-fibrous (other)	None Detected	

Analyst(s)

Leah Delahoussaye (28)

Brett Heitzmann, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA NVLAP Lab Code 200375-0, LELAP 01950, TX 300238

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PROJECT ASBESTOS SURVEY JOB NO. _____ SHEET 1 OF 1
 SUBJECT DUPONT R.P. STATION CALC. _____ DATE 2/12/15
 SAMPLE NO. MATONAH CHKD. _____ DATE V. NIMROD
LOCATION COMMENTS

NORTH BLDG
INTERIOR

D.A. 101	12" FL TILE + MASTIC, BLUE	WAITING ROOM, (NORTH END), ROOM 1	
102	" " " " " "	" " " " " " SOUTH END	" 1
103	9" FL TILE + MASTIC, GREEN	AGENTS OFFICE, EAST SIDE	" 2
104	" " " " " "	" " " " " " WEST SIDE	" 2
105	12" " " " " "	TAN OFFICE SOUTH OF AGENT, WEST SIDE	" 3
106	" " " " " "	" " " " " " EAST SIDE	" 3
107	" " " " " "	" " " " " " R.P.	" 3
108	PIPE INSULATION, LINE PIPE, ATTIC		
109	" " " " " "	" " " " " " FEED TO LINE	
110	LINOLEUM, YELLOW	NEAT OFFICE SOUTH	ROOM 4
111	PLASTER, ORIGINAL	CEILING, WAITING ROOM	" 1
112	5' X 5' FIBER BOARD	CEILING, AGENTS OFFICE	" 2
113	" " " " " "	" " " " " "	" 2
114	2' X 4' CEILING TILE	OFFICE SOUTH OF AGENT	" 3
115	YELLOW FIBER GLASS INSUL	" " " " " "	" 3

SOUTH BLDG
INTERIOR

DA 116	9" FL TILE + MASTIC, BLACK	REA
117	9" " " " " "	BROWN CREW DORM
118	FIBER GLASS INSUL, PINK	" " " " " " NW ROOM
119	" " " " " "	" " " " " " BATH ROOM

APPENDIX C

Survey Contract



Vance Nimrod <vance.nimrod@gmail.com>

Fwd: Haz Mat Authorization -- Asbestos Forms

2 messages

ceemrs@aol.com <ceemrs@aol.com>

Wed, Feb 25, 2015 at 12:45 PM

To: craig@belindastewartarchitects.com, vance.nimrod@gmail.com, belinda@belindastewartarchitects.com, gail@belindastewartarchitects.com, mayordavis@gmail.com, cityclerk@cityofdurant.org

Feb. 25, 2015

Craig Bjorgum
Belinda Stewart Architects

3/12
1:00 PM
CITY HALL

The file above is the scan of the haz mat letter with the authorization to proceed, page 3, signed by Mayor Davis. This email will send a copy to Mr. Nimrod so that he will have this authorization. Since the weather is so bad right now, I would prefer to postpone his visit to Durant until better weather in March.

March 12 is the date of our next Historic Preservation Commission meeting, and that would be a good date for the inspection. We will contact Mr. Nimrod and ask about his schedule.

Thank you for your reminder. More later.

Sharron Cauthen, Chairman, Durant Historic Preservation Commission

601-853-9169

601 826 5429 CELL

-----Original Message-----

From: cityclerk <cityclerk@cityofdurant.org>

To: Sharron Cauthen <ceemrs@aol.com>

Sent: Wed, Feb 25, 2015 12:11 pm

Subject: Absetos Forms

----- Original Message -----

Subject:Send data from Toshiba2830c 02/25/2015 11:47

Date:2015-02-25 11:47

From:"City of Durant" <copier@cityofdurant.org>

To:"City Clerk" <cityclerk@cityofdurant.org>

EDRSLA CITY 662 653 3314
MICHELE, ALISTAR

Scanned from Toshiba2830c.

Date: 02/25/2015 11:47

Pages:3

Resolution:200x200 DPI

Vance Nimrod
323 Central Street
Greenville, MS 38701

Cell Phone 662-820-9612
Email: vance.nimrod@gmail.com

January 7, 2015

City of Durant
Box 272

Durant, MS 39063

ATTN: Mayor Tasha Davis

Phone: 662-653-3314

Cc: Craig Bjorgom

Belinda Stewart Architects

Box 867

Eupora, MS 39744

662-258-6405

662-418-7660

craig@belindastewartarchitects.com

Re: Asbestos and Lead Paint Inspection Survey
Old Railroad Depot
Mulberry and West Depot
Durant, MS

Dear Mayor Davis:

INTRODUCTION:

I am pleased to submit this proposal for the referenced project. The proposal is in response to Craig Bjorgom's request January 7, 2015, for an asbestos and lead paint inspection survey.

SCOPE OF WORK

As a Mississippi Certified Asbestos Inspector and a Certified Lead Paint Inspector, I will conduct an asbestos and lead paint assessment of the construction materials in the one-story Old Railroad Depot building. The assessment will be performed in accordance with the following scope of work:

1. Interview with Knowledgeable Person(s) - I will attempt to meet with person Or persons who are familiar with past construction and renovation activities on the structure scheduled for renovation.

2. Preliminary Walk-Through - I will conduct a preliminary inspection of the Structure to locate any suspect asbestos containing materials (ACM's) and and suspect lead paint.
3. Sampling Program - I will develop asbestos and lead paint sampling programs for the structure, and will take the samples.
4. Report - An asbestos report and a lead paint report will be prepared which documents the work performed, references the test results, and tabulates any ACM or lead paint encountered on the site.

SCHEDULE

I will complete the outlined scope of work in approximately two (2) weeks from the date the Authorization to proceed is received.

COST ESTIMATE

The price, excluding the south building, of the asbestos and lead paint surveys including the written reports will be \$2600. The alternative price, including the north and south buildings, of the asbestos and lead paint surveys including the written reports will be \$2900. The work will be invoiced upon completion. Payment will be due in 30 days from the date of the invoice.

CONDITIONS

The following conditions qualify the proposal:

- Access to the structure including all offices, freight rooms, bathrooms, meeting rooms, utility rooms, storage rooms, roof and attic.

I appreciate the opportunity to provide you with this proposal. If you have any questions please feel free to call.

Sincerely,



VANCE NIMROD, P.E.

VN/jan

EXHIBIT B

AUTHORIZATION TO PROCEED

**ASBESTOS AND LEAD PAINT INSPECTION SURVEY
FOR**

**OLD RAILROAD DEPOT BUILDING
MULBERRY AND OLD DEPOT
DURANT, MISSISSIPPI**

I have reviewed the Vance Nimrod, P.E., proposal for the referenced project dated January 7, 2015, and agree to the terms and conditions, and hereby authorize Vance Nimrod, P.E., to proceed with the outlined services.

Please check scope of work required:

1. Asbestos and Lead Paint Surveys excluding south building @ \$2,600 -----
2. Asbestos and Lead Paint Surveys including both north and south buildings @\$2,900 _____

Date



Signature of Representative

Mayor Tasha Davis
Name (print or type)

Mayor
Title (print or type)

City of Durant
Company (print or type)

253 W Mulberry
Address (print or type)

Durant, MS 39063
City/State/Zip Code

662 653 3314
Phone

662 653 1847
Fax

APPENDIX D

Professional Credentials

State of Mississippi

*Department of Environmental Quality
Office of Pollution Control*

Certificate of Licensure

In accordance with the Asbestos Abatement Accreditation and Certification Act,
Enacted as 1989 Mississippi Law, Chapter 505

Be it known that

Vance Nimrod

Having submitted acceptable evidence of qualifications and
training and other appropriate information, is hereby granted this

***Asbestos Inspector
Certification***



*Certificate No.: ABI-00001505
Expiration Date: Apr 11th, 2015
Training Expires on Apr 11th, 2015*

Chief, Asbestos & Lead Certification Branch

40892 LIC20140001

APPENDIX E

**State of Mississippi Demolition/Renovation
Notification Form**

STATE OF MISSISSIPPI DEMOLITION/RENOVATION NOTIFICATION FORM*Please type or print legibly.***Incomplete notices will not meet notification requirements.**

- I. TYPE OF NOTICE:** ☐ Original ☐ Revision ☐ Canceled
 ☐ Annual ☐ Info. Only
- II. TYPE OF PROJECT:** ☐ Renovation ☐ Demolition
 ☐ Ordered Demolition ☐ Emergency Renovation
- III. SITE INFORMATION:** Name _____
 Description: _____
 Address: _____
 City: _____ County: _____ State: _____ ZIP: _____
 Contact Person: _____ Telephone: _____
- IV. OWNER INFORMATION:** Name: _____
 Full Mailing Address: _____
 Contact Person: _____ Telephone: _____
- V. ASBESTOS REMOVAL CONTRACTOR:** Name: _____
 Certification No.: _____ Expiration Date: _____
 Full Mailing Address: _____
 Contact Person: _____ Telephone: _____
- VI. CONTRACTOR (Other):** Name: _____
 Full Mailing Address: _____
 Contact Person: _____ Telephone: _____
- VII. ASBESTOS REMOVAL PROJECT DATES (MM/DD/YY):**
 Removal Project Start: ____/____/____ Removal Project Stop: ____/____/____
- VIII. DEMOLITION/RENOVATION PROJECT DATES (MM/DD/YY):**
 Project Start: ____/____/____ Project Stop: ____/____/____ Prep. Date: ____/____/____
- IX. BUILDING INFORMATION:** Bldg. Size (SQ FT): _____ Bldg. Size (LNFT): _____
 No. of Floors: _____ Age in Years: _____
 Present Use: _____ Prior Use: _____
- X. ASBESTOS INSPECTION:**
 Was site inspected to determine presence of asbestos: ☐ Yes ☐ No
 Inspection Date: ____/____/____ Asbestos Present? ☐ Yes ☐ No
 Inspector: _____ Cert. No.: _____ Expiration Date: _____
 Identify suspect materials sampled: _____
 Laboratory Analysis: TEM _____ PLM _____ Other _____
 Name of Laboratory: _____
- XI. QUANTITY OF RACM TO BE REMOVED:**
 Pipes (LN FT) _____ Surface Area (SQ FT) _____
 Volume of Facility Components(CU FT) _____
- XII. QUANTITY OF NONFRIABLE ASBESTOS** **NOT REMOVED** **TO BE REMOVED:**
 Category I: _____ Category II: _____
- XIII. WASTE TRANSPORTER:** Name: _____
 Full Mailing Address: _____
 Contact Person: _____ Telephone: _____

STATE OF MISSISSIPPI DEMOLITION/RENOVATION FORM - CONTINUED

XIV. WASTE ASBESTOS DISPOSAL SITE: Name: _____
Physical Location: _____
Full Mailing Address: _____
Contact Person: _____ Telephone: _____
*All asbestos waste should go to a permitted sanitary landfill.

XV. DISPOSAL SITE FOR DEMOLITION DEBRIS (Other than asbestos):
Name: _____
Physical Location: _____
Full Mailing Address: _____
Contact Person: _____ Telephone: _____
*All demolition debris (other than asbestos) should go to an authorized Rubbish Site, or to a permitted sanitary landfill.

XVI. REMOVAL/RENOVATION PROCEDURES TO BE USED (Check all that apply):

<input type="checkbox"/> Strip & Removal	<input type="checkbox"/> Double Bagging	<input type="checkbox"/> Mechanical Chipping	<input type="checkbox"/> Component Removal
<input type="checkbox"/> Wrecking Ball	<input type="checkbox"/> Gross Demolition	<input type="checkbox"/> Remove Intact	<input type="checkbox"/> Bulldozer
<input type="checkbox"/> Containment	<input type="checkbox"/> Glove Bag	<input type="checkbox"/> Explode	<input type="checkbox"/> Negative Air
<input type="checkbox"/> Wet Method	<input type="checkbox"/> Roofing Saw	<input type="checkbox"/> Other - Explain Below:	

XVII. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK:

XVIII. PROCEDURES TO BE FOLLOWED IF UNEXPECTED ACM IS FOUND OR NONFRIABLE ACM BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO A POWDER OR SMALL PIECES:

*Will MDEQ be notified of any significant changes? () Yes () No

XIX. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, IDENTIFY THE AGENCY BELOW:

Name: _____ Title: _____

Authority: _____

Date of Order: _____ Date Demolition to Begin: ____/____/____

XX. EMERGENCY DEMOLITION/RENOVATIONS: Date of Emergency: ____/____/____, Time: _____

Description of the sudden, unexpected event:

Explanation of how the event caused unsafe conditions or would cause equipment damage or unreasonable financial burden:

XXI. When asbestos-containing material is present, an individual trained in the provisions of the regulation (40 CFR 61 Subpart M) will be on site during the demolition or renovation and evidence that the required training has been accomplished by this person will be available for inspection during normal business hours.

I certify that all of the above information is correct.

_____	_____	_____
Type or Print Name & Title	Signature	Date

MAIL TO:	Office of Pollution Control	Physical Address	515 Amite Street
	P.O. Box 2261		Jackson, MS 39201
	Jackson, MS 39225		
	(601) 961-5171		

Vance Nimrod
323 Central Street
Greenville, MS 38701
Phone: 662-820-9612
Email: vance.nimrod@gmail.com

Craig Bjorgum
Belinda Stewart Architects, PA
61 North Dunn Street
P.O. Box 897
Eupora, MS 39744
Phone: 662-258-6405
Email: craig@belindastewartarchitects.com

RE: Addendum to Old Durant Railroad Depot
Asbestos Survey of Basement Boiler Room
Original survey dated March 16, 2015

Dear Mr. Bjorgum:

I did an asbestos survey of the Basement Boiler room on November 27, 2015. Three samples of suspect asbestos building materials were taken and sent to the EMSL Lab for analysis.

No asbestos was detected in each of these samples. The sample locations and the EMSL Analysis Report are attached to this letter.

Based on this survey, it appears that there are no asbestos containing materials in the basement boiler room of the Old Durant Railroad Depot.

Sincerely,



Vance Nimrod, P.E.
Mississippi Certified Asbestos Inspector
Certificate No: ABI - 00001505
December 14, 2015



Vance Nimrod <vance.nimrod@gmail.com>

EMSL report, COC for order(s) 251508139 (251508139 - DURANT R.R. DEPOT)

1 message

EMSL (Baton Rouge) <batonrougelab@emsl.com>

Wed, Dec 9, 2015 at 8:42 AM

Reply-To: "jlaginess@EMSL.com" <jlaginess@emsl.com>, "EMSL (Baton Rouge)" <batonrougelab@emsl.com>

To: Vance Nimrod <vance.nimrod@gmail.com>

Report, COC for order(s):
251508139 - DURANT R.R. DEPOT

Please tell us how we are doing.

[Click here to fill out our Customer Survey](#)



Jamie Laginess | *Laboratory Analyst*

EMSL Analytical, Inc. | 11931 Industriplex Boulevard, Suite 100 | Baton Rouge, LA 70809

Phone: [225-755-1920](tel:225-755-1920) | Fax: [225-755-1989](tel:225-755-1989) | Toll Free: [866-318-3920](tel:866-318-3920)

Lab Hours: Monday - Friday 8AM - 5PM, Saturday-Sunday On-Call

Some of the resources EMSL Analytical, Inc. offers to our clients:

[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

"This email may contain privileged and confidential information and is solely for the use of the sender's intended recipient(s). **If you are not the intended recipient of this communication, you are hereby notified that any unauthorized review, use, dissemination, distribution, downloading, or copying of this communication is strictly prohibited.** If you received this email in error, please notify the sender by reply email and delete all copies and attachments. Thank you."

2 attachments



251508139_coc.pdf

48K



251508139_001.pdf

115K



EMSL Analytical, Inc.

11931 Industriplex, Suite 100 Baton Rouge, LA 70809

Tel/Fax: (225) 755-1920 / (225) 755-1989

<http://www.EMSL.com / batonrougelab@emsl.com>

EMSL Order: 251508139

Customer ID: VNMS42

Customer PO: AC: 931897

Project ID:

Attention: Vance Nimrod
Vance Nimrod
323 Central Street
Greenville, MS 38701

Phone: (662) 820-9612

Fax:

Received Date: 12/ 2/2015 9:55 AM

Analysis Date: 12/ 8/2015

Collected Date: 11/27/2015

Project: DURANT R.R. DEPOT

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DA120 251508139-0001	Vertical Pipe from Ceiling Center - Pipe Insulation	Gray Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
DA121 251508139-0002	Horizontal Pipe South Wall - Pipe Insulation	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
DA122 251508139-0003	White Granular at Ceiling - Chimney Insulation	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Jamie Laginess (3)

Brett Heitzmann, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA NVLAP Lab Code 200375-0, LELAP 01950, TX 300238

BATH ROCK

EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

8139

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Company: <u>VANCE NIMROD</u>		EMSL-Bill to: <input type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <u>323 CENTRAL ST.</u>		Third Party Billing requires written authorization from third party	
City: <u>GREENVILLE</u>	State/Province: <u>MS</u>	Zip/Postal Code: <u>38701</u>	Country: <u>USA</u>
Report To (Name): <u>VANCE NIMROD</u>		Telephone #: <u>662 820 9612</u>	
Email Address: <u>VANCE.NIMROD@GMAIL.COM</u>		Fax #:	Purchase Order:
Project Name/Number: <u>DURANT R.A. DEPOT</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: <u>3</u>		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input checked="" type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 4 Week <input type="checkbox"/> 2 Week			
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA		TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312	
PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)		TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	
TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)		Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> TEM Qual. via Filtration Technique <input type="checkbox"/> TEM Qual. via Drop-Mount Technique	
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Filter Pore Size (Air Samples): <input type="checkbox"/> 0.8µm <input type="checkbox"/> 0.45µm	
Samplers Name: <u>VANCE NIMROD</u>		Samplers Signature: <u>V. Nimrod</u>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
<u>LEE</u>	<u>ATTACHED LIST</u>		
<u>OF</u>	<u>3 SAMPLES</u>		
<u>DA 120</u>	<u>TO DA 122</u>		
Client Sample # (s): <u>-</u>		Total # of Samples: <u>3</u>	
Relinquished (Client): <u>V. Nimrod</u>		Date: <u>12/1/15</u>	Time: <u>1600</u>
Received (Lab): <u>L. Brown</u>		Date: <u>12/02/15</u>	Time: <u>9:55 AM</u>
Comments/Special Instructions:			

 7950 9234 0002
 243

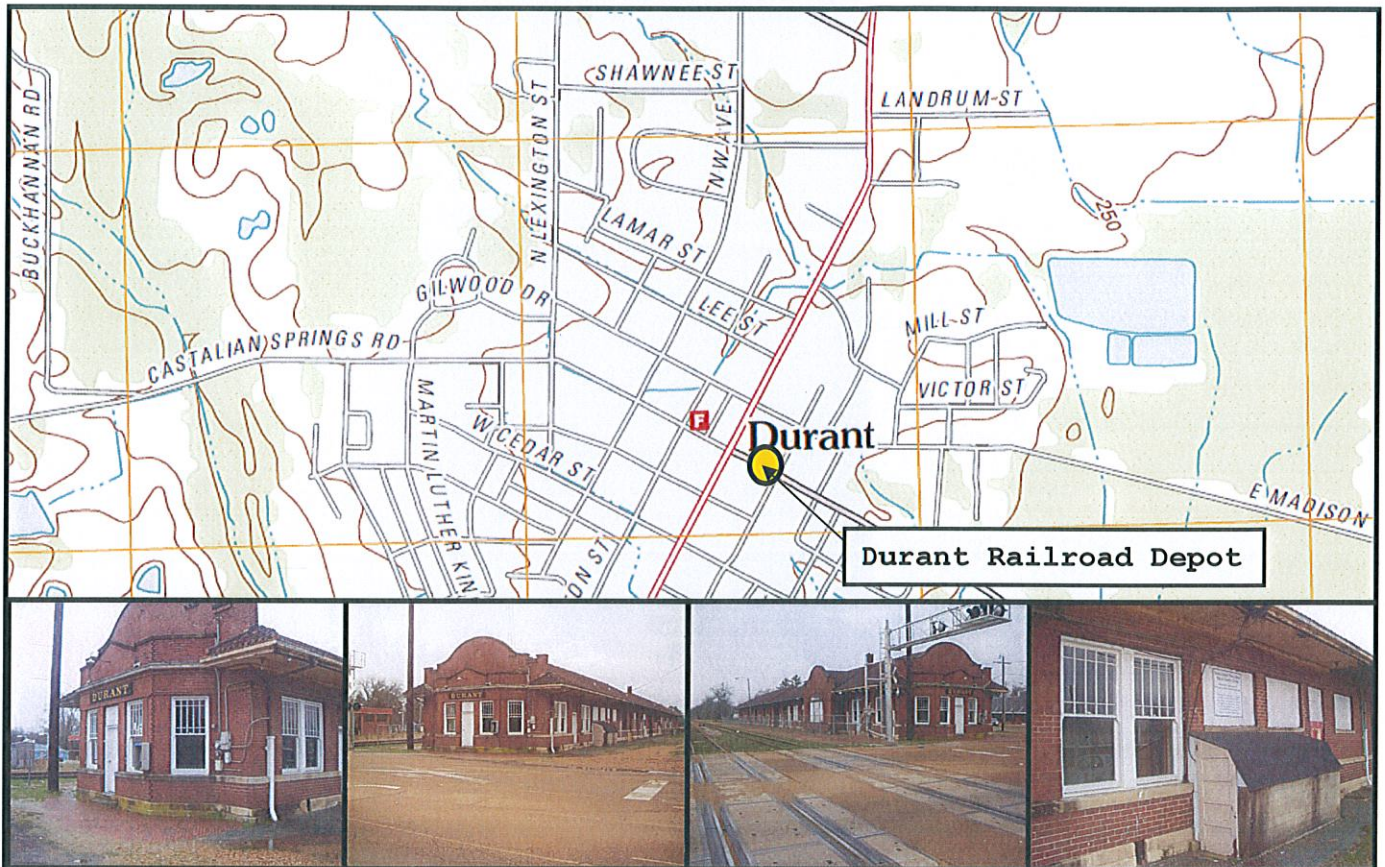
8139

Addendum, Durant, MS, Old Durant Railroad Depot, Asbestos Inspection
Mulberry and West Depot Streets, Old Boiler Room in Basement Only
11/27/15, Vance Nimrod, Inspector
Asbestos Sampling Locations

Sample	No.	Material	Location	Comments
DA	120	Pipe Insulation	Vertical Pipe From Ceiling, Center	Poor Cond.
DA	121	Pipe Insulation	Horizontal Pipe, South Wall	Poor Cond.
DA	122	Chimney Insulation	White Granular, At Ceiling	

Lead Paint Survey of Old Durant Railroad Depot

Mulberry & West Depot Streets
Durant, MS



Submitted to:

City of Durant

Attn: Mayor Tasha Davis

Box 272

Durant, MS 39063

March 26, 2015

Belinda Stewart Architect

Attn: Craig Bjorgum

craig@belindastewartarchitects.com

Lead Paint Inspection Performed by:

Vance Nimrod, P.E.

323 Central Street

Greenville, MS 38701

(662)820-9612

Email: vance.nimrod@gmail.com

Mississippi Certified Lead Paint Inspector

Certificate No.: PBI-00001068

LEAD PAINT SURVEY REPORT
OF
OLD DURANT RAILROAD DEPOT
Mulberry and West Depot Streets
DURANT, MS

SUBMITTED TO:

City of Durant
Box 272
Durant, MS 39062
Attn: Mayor Tasha Davis

cc: Belinda Stewart Architects
Attn: Craig Bjorgum
Eupora, MS

Email: craig@belindastewartarchitects.com
Phone: 662-258-6405

March 26, 2015

Lead Paint Inspection Performed by:

Vance Nimrod, P.E.
323 Central Street
Greenville, MS 38701
(662)820-9612
Mississippi Certificate Lead Paint Inspector
Certificate No.: PBI-00001068

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APPENDICES:

Appendix A: Lead Paint Sampling Locations
Appendix B: Laboratory Lead Paint Report
Appendix C: Survey Contract
Appendix D: Professional Credentials

1.0 PURPOSE AND SCOPE OF SERVICES

Vance Nimrod, P.E., (VN) was retained by Mayor Tasha Davis, City of Durant, on 2/25/15 to conduct a survey to identify any lead paint in or on the Old Durant Railroad Depot at Mulberry and West Depot Streets in Durant, MS. See survey contract in Appendix C.

VN conducted the lead paint survey in accordance with the approved scope of work listed below:

1. **Interview with Knowledgeable Person (s) - VN will attempt to meet with person or persons who are familiar with past construction and renovation activities of the facility planned for renovation.**
2. **Preliminary Walk-Through - VN will conduct a preliminary walk-through of the facility to locate any suspect lead paint.**
3. **Sampling Program - VN will develop a sampling program for the facility. The lead paint sampling will be performed by VN, a Mississippi Certified Lead Paint Inspector.**
4. **Report - VN will prepare a report which documents the work performed, references the test results, and tabulates any lead paint containing materials encountered on-site.**

2.0 REGULATORY BACKGROUND

Lead based paint was used widely in structures until 1978, when its use was prohibited by Federal law. The lead can cause adverse health effects if it is ingested into the body. It can be ingested by mouth and by breathing lead contaminated air. The Federal Lead Standard defines lead based paint as greater than 0.5% lead by weight from paint chip sampling. Paint with a lead concentration of less than 0.5% lead is not considered to be lead based paint.

3.0 SITE DESCRIPTION

The project site is a one-story wood frame building with a brick facade and a pitched tile roof. The building is in two parts of approximately 5000 square feet each, the north part is connected to the south part by a roofed breezeway.

4.0 SITE SURVEY PROTOCOL

Mr. Vance Nimrod, P.E. (Inspection ID No. PBI-00001068) performed on-site lead paint survey activities on March 12, 2015. The sampling protocol utilized followed industry standards and consisted of 1) identifying suspect lead based paint, 2) evaluating homogenous areas, and 3) sampling suspect lead based paint. Homogenous sampling areas are defined as areas in which the materials are uniform in appearance, such as color and texture, and were installed during the same period.

VN has established a standard lead paint survey report form which allows the collection of assessment data in the field. The suspect lead based paint is classified by site location, material type, accessibility, and physical condition. The survey and sampling program was limited to visible and accessible materials and did not include inaccessible areas. The sampling locations are referenced in Appendix A.

The following suspect lead based paint coatings were identified and sampled:

- 1. Paint on exterior building, soffits, windows and doors**
- 2. Paint on plaster and sheet rock walls and ceilings**
- 3. Paint on interior doors and windows**

A total of twenty three (23) samples of suspect lead based paint were collected. The samples were submitted to EMSL Analytical, Inc. of Baton Rouge, LA.

5.0 ANALYTICAL PROTOCOL

Analysis following lead in paint by EMSL SOP/Determination of Environmental lead by FLAA. All coatings determined to have 0.5% or greater lead by weight were classified as lead based paint samples analyzed by EMSL Analytical, Inc. of Baton Rouge, LA, LELAP 01950, A2LA, accredited Environmental Testing Cert #2845.03.

6.0 SAMPLING RESULTS

A review of the laboratory results revealed the following:

6.1. Lead paint suspect samples that were found to contain greater than 0.5% lead are identified below:

6.11 Interior samples

- 1. Eight (8) sample of nine (9) samples collected of wall paint tested from 3.9% to 19.0% lead**
- 2. One (1) sample of three (3) samples collected of door and window paint tested 1.7% lead**

6.12 Exterior samples

- 1. All five (5) samples of badly peeling soffitt paint tested from 21% to 29% lead**
- 2. One (1) sample of badly peeling sliding door paint tested 11% lead**
- 3. One (1) sample of two samples collected of window paint tested 12% lead**

Appendix B shows the laboratory results for each sample that was found to contain more than 0.5% lead.

6.2 Lead paint samples that tested less than 0.5% lead are as follows:

- 1. All three (3) samples of interior ceiling paint tested from .10% to .15% lead**

Appendix B shows the laboratory results for each sample that was found to contain less than 0.5% lead.

7.0 RECOMMENDATIONS AND CONCLUSIONS

The following recommendations and conclusions are made concerning the lead based paint samples located on and in the building:

7.1 Conclusions

- 1. All exterior and interior paint, excluding interior ceiling paint, should be assumed to be lead based paint since 80% of these samples tested higher than .5% lead.**

7.2 Recommendations

- 1. It is recommended that this lead based paint inspection report be discussed with and provided to the building renovation contractor.**
- 2. All peeling painted exterior components should be cleaned properly or removed and disposed of properly before renovation begins.**

8.0 QUALIFYING STATEMENT

VN presents the findings, conclusions, and recommendations herein, which are based solely on the conditions observed during the inspection of the facility conducted on March 12, 2015. Additionally, VN does not make any representation or projection as to past conditions or future exposures and does not extend its findings to areas outside of the statistical representation of the completed investigation

The findings and conclusions of this report are not scientific certainties, but rather, probabilities based on professional judgment concerning the significance of the data gathered during the course of the site investigation. This report has been prepared for the exclusive use by Belinda Stewart Architects and the City of Durant. This report and its analytical results, findings, conclusions, and recommendations either in part or in its entirety are not to be used by any other party without prior consent by VN, Belinda Stewart Architects or the City of Durant.

9.0 SIGNATURE OF LEAD BASED PAINT INSPECTOR

A handwritten signature in black ink, appearing to read "Vance Nimrod", written over a horizontal line.

Vance Nimrod, P.E.

March 26, 2015

10.0 QUALIFICATION OF LEAD BASED PAINT INSPECTOR

Qualification of the lead based paint inspector that prepared this report are referenced in Appendix D.

END OF REPORT

APPENDIX A

Lead Paint Sampling Locations

Durant, MS, Old Durant Railroad Depot, Lead Paint Inspection
 Mulberry and West Depot Streets
 3/12/15, Vance Nimrod, Inspector, DURRRL
 Lead Paint Sampling Locations, Schematic Building Layout Attached

Sample	No.	Paint Color	Location	Comments
--------	-----	-------------	----------	----------

North Bldg

Interior

DL	201	Creame	Wall, Waiting Room, Room 1	
DL	202	White	Window Sill, Waiting Room, Room 1	
DL	203	White	Door, Waiting Room, Room 1	
DL	204	Light Green	Wall, Agents Office, West, Room 2	
DL	205	Light Green	Wall, Agents Office, North, Room 2	
DL	206	Creame	Ceiling, Agents Office, Room 2	
DL	207	Creame	Wall, Clerical Office, Room 3	
DL	208	Brown	Window Sill, Clerical Office, Room 3	
DL	209	Gray	Wall, Room 4	
DL	210	Brown	Wall, Room 4	
DL	211	Gray	Luggage Room, Room 5	

Exterior

DL	212	Yellow	Soffitt, West Side	Peeling Badly
DL	213	Gray	Soffitt, West Side	Peeling Badly
DL	214	Yellow	Soffitt, East Side	Peeling Badly
DL	215	White	Window, West Side	
DL	216	Tan	Window, West Side	

South Bldg

Interior

DL	217	Light Green	Wall, REA Office	
DL	218	Gray	Wall, REA Office	
DL	219	Creame	Ceiling, Crew Drom, Bath Room	
DL	220	Creame	Ceiling, Crew Drom, S. W. Room	

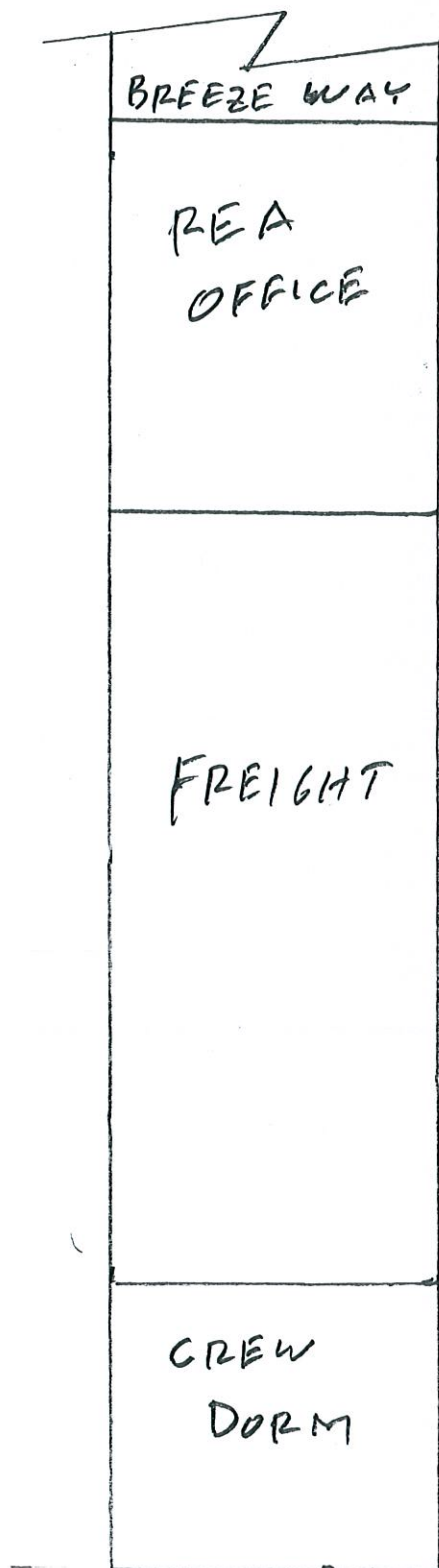
Exterior

DL	221	Gray	Soffitt, West Side	Peeling Badly
DL	222	Gray	Soffitt, East Side	Peeling Badly
DL	223	Gray	Sliding Door, Freight Room, East Side	Peeling Badly

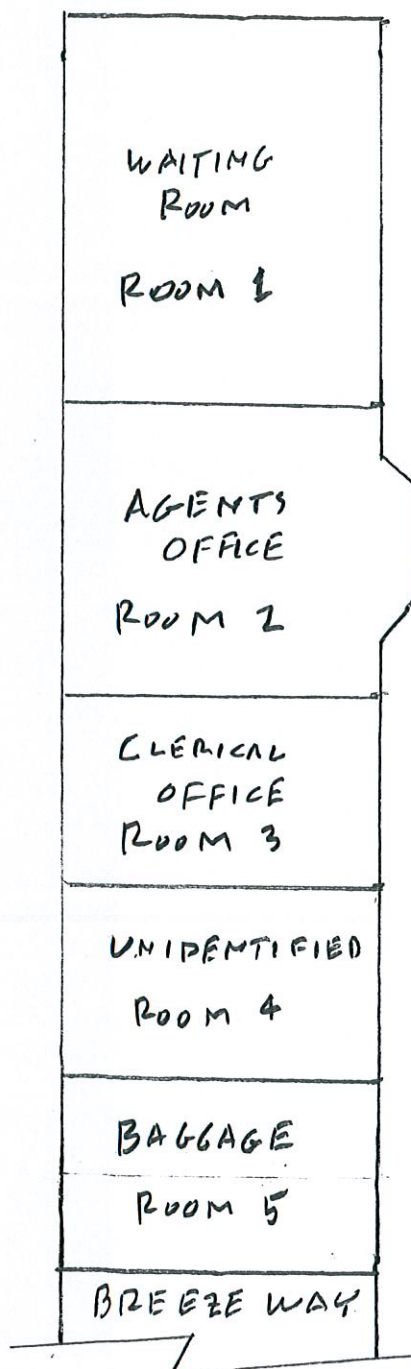
OLD DURANT RAILROAD DEPOT
SCHEMATIC BUILDING LAYOUT
NOT DETAILED AND NOT TO SCALE

V. NIMROD
3/26/15

↑
N.



SOUTH
BUILDING



NORTH
BUILDING

APPENDIX B

Laboratory Lead Paint Report

**EMSL Analytical, Inc.**

11931 Industripark, Suite 100, Baton Rouge, LA 70809

Phone/Fax: (225) 755-1920 / (225) 755-1989

<http://www.EMSL.com>batonrougelab@emsl.com

EMSL Order: 251501475

CustomerID: VNMS42

CustomerPO:

ProjectID:

Attn: **Vance Nimrod**
Vance Nimrod
323 Central Street
Greenville, MS 38701

Phone: (662) 820-9612
Fax:
Received: 03/16/15 10:00 AM
Collected: 3/12/2015

Project: **Lead Paint Survey****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

Client Sample Description	Lab ID	Collected	Analyzed	Lead Concentration
DL201	251501475-0001	3/12/2015	3/20/2015	7.3 % wt
	Site: Room 1			
DL202	251501475-0002	3/12/2015	3/20/2015	0.091 % wt
	Site: Room 1			
DL203 *	251501475-0003	3/12/2015	3/20/2015	<0.010 % wt
	Site: Room 1			
	* Comment 2			
DL204	251501475-0004	3/12/2015	3/20/2015	7.4 % wt
	Site: Room 2			
DL205	251501475-0005	3/12/2015	3/20/2015	4.6 % wt
	Site: Room 2			
DL206	251501475-0006	3/12/2015	3/20/2015	0.10 % wt
	Site: Room 2			
DL207	251501475-0007	3/12/2015	3/20/2015	4.9 % wt
	Site: Room 3			
DL208	251501475-0008	3/12/2015	3/20/2015	1.7 % wt
	Site: Room 3			
DL209 *	251501475-0009	3/12/2015	3/20/2015	14 % wt
	Site: Room 4			
	* Comment 2			
DL210 *	251501475-0010	3/12/2015	3/20/2015	11 % wt
	Site: Room 4			
	* Comment 1 & 2			
DL211	251501475-0011	3/12/2015	3/20/2015	<0.10 % wt
	Site: Room 5			
DL212	251501475-0012	3/12/2015	3/20/2015	26 % wt
	Site: West Side			
DL213	251501475-0013	3/12/2015	3/20/2015	24 % wt
	Site: West Side			
DL214	251501475-0014	3/12/2015	3/20/2015	21 % wt
	Site: East Side			

Brett Heitzmann, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIIA-LAP, unless specifically indicated otherwise.

Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA LELAP 01950, A2LA Accredited Environmental Testing Cert #2845.03

Initial report from 03/23/2015 08:14:35

**EMSL Analytical, Inc.**

11931 Industriplex, Suite 100, Baton Rouge, LA 70809

Phone/Fax: (225) 755-1920 / (225) 755-1989

<http://www.EMSL.com>batonrougelab@emsl.com

EMSL Order: 251501475
CustomerID: VNMS42
CustomerPO:
ProjectID:

Attn: **Vance Nimrod**
Vance Nimrod
323 Central Street
Greenville, MS 38701

Phone: (662) 820-9612
Fax:
Received: 03/16/15 10:00 AM
Collected: 3/12/2015

Project: **Lead Paint Survey****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
DL215 *	251501475-0015	3/12/2015	3/20/2015	0.48 % wt
	Site: West Side			
	* Comment 1			
DL216	251501475-0016	3/12/2015	3/20/2015	12 % wt
	Site: West Side			
DL217	251501475-0017	3/12/2015	3/20/2015	3.9 % wt
	Site: REA			
DL218	251501475-0018	3/12/2015	3/20/2015	19 % wt
	Site: REA			
DL219	251501475-0019	3/12/2015	3/20/2015	0.13 % wt
	Site: Bath Room			
DL220	251501475-0020	3/12/2015	3/20/2015	0.15 % wt
	Site: SW Room			
DL221	251501475-0021	3/12/2015	3/20/2015	29 % wt
	Site: West Side			
DL222	251501475-0022	3/12/2015	3/20/2015	27 % wt
	Site: East Side			
DL223	251501475-0023	3/12/2015	3/20/2015	11 % wt
	Site: East Side			

(1) Unable to completely isolate sample from substrate.

(2) Data reported may not reach applicable analytical sensitivity due to insufficient sample weight submitted.
Suggested weight for analysis is 0.2g.

Brett Heitzmann, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA-LAP, unless specifically indicated otherwise.

Samples analyzed by EMSL Analytical, Inc. Baton Rouge, LA LELAP 01950, A2LA Accredited Environmental Testing Cert #2845.03

Initial report from 03/23/2015 08:14:35

EMSL Analytical, Inc.

11931 Industripex Blvd

Suite 100

Baton Rouge, LA 70809

Subject Description:

LEAT PAINT INSPECTION
DURANT R. P. STATION
DURANT, MS

Signer (Signature)

Van Buren

TEST FOR LEAD (chips) ~~23~~ 23

21 WEEK T. A. T.

STATION

DATE _____

TIME
(Military)

SAMPLE DESCRIPTION

SEE ATTACHED LIST	
-------------------	--

0 F	23	SAMPLES
-----	----	---------

01-201	Tv D	L-223
--------	------	-------

Illegible by (Signature):

Date (Military)

Received by (Signature):

Date (Military)

Retiniquist

ed by (Signature):

Date Military

Received by (Signature):

Date: (Military)

liquidated by {Signature}):

Date (Military)

Received by (Signature):

Date (Military)

REMA

REMARKS:

RKS:

④

03010207

7950 1896 2390
282



PROJECT LEAD PAINT SURVEY JOB NO. _____ SHEET 1 OF 1
 SUBJECT DURANT R.R. STATION CALC. _____ DATE 3/12/15
 CHKD. _____ DATE V. Nimrod

SAMPLE NO. PAINT COLOR LOCATION COMMENTS

NORTH Bldg
INTERIOR

DL 201	CREAM	WALL, WAITING ROOM, Room 1	
202	WHITE	WINDOW SILL, WAITING RM " 1	
203	WHITE	DOOR " " " 1	
204	LIGHT GREEN	WALL, AGENTS OFFICE, WEST " 2	
205	" "	" " " NORTH " 2	
206	CREAM	CEILING " " " 2	
207	CREAM	WALL, OFFICE SOUTH OF AGENT " 3	
208	BROWN	WINDOW SILL " " " 3	
209	GRAY	NEXT OFFICE SOUTH " 4	
210	BROWN	" " " " 4	
211	WHITE	Luggage Room " 5	

EXTERIOR

DL 212	YELLOW	SOFFITT, WEST SIDE	
213	GRAY	" " " "	
214	YELLOW	" EAST " "	
215	WHITE	WINDOW, WEST " "	
216	TAN	" " " "	

SOUTH Bldg

INTERIOR

DL 217	LIGHT GREEN	WALL, REA	
218	GRAY	" "	
219	CREAM	CEILING, CROWN DOOR, BATH ROOM	
220	"	" " " SW. ROOM	

EXTERIOR

DL 221	GRAY	SOFFITT, WEST SIDE	
222	GRAY	" " EAST SIDE	
223	GRAY	FREIGHT ROOM, SLIDING DOOR, EAST SIDE	

APPENDIX C

Survey Contract



Vance Nimrod <vance.nimrod@gmail.com>

Fwd: Haz Mat Authorization -- Asbestos Forms

2 messages

ceemrs@aol.com <ceemrs@aol.com>

Wed, Feb 25, 2015 at 12:45 PM

To: craig@belindastewartarchitects.com, vance.nimrod@gmail.com, belinda@belindastewartarchitects.com,
gail@belindastewartarchitects.com, mayordavis@gmail.com, cityclerk@cityofdurant.org

Feb. 25, 2015

Craig Bjorgum
Belinda Stewart Architects

3/12
1:00 PM
CITY HALL

The file above is the scan of the haz mat letter with the authorization to proceed, page 3, signed by Mayor Davis. This email will send a copy to Mr. Nimrod so that he will have this authorization. Since the weather is so bad right now, I would prefer to postpone his visit to Durant until better weather in March.

March 12 is the date of our next Historic Preservation Commission meeting, and that would be a good date for the inspection. We will contact Mr. Nimrod and ask about his schedule.

Thank you for your reminder. More later.

Sharron Cauthen, Chairman, Durant Historic Preservation Commission

[601-853-9169](tel:601-853-9169)

501 826 5429 CELL

-----Original Message-----

From: cityclerk <cityclerk@cityofdurant.org>

To: Sharron Cauthen <ceemrs@aol.com>

Sent: Wed, Feb 25, 2015 12:11 pm

Subject: Absetos Forms

----- Original Message -----

Subject: Send data from Toshiba2830c 02/25/2015 11:47

Date: 2015-02-25 11:47

From: "City of Durant" <copier@cityofdurant.org>

To: "City Clerk" <cityclerk@cityofdurant.org>

EDGALIN CITY 662 653 3314
MICHAEL ALLEN

Scanned from Toshiba2830c.

Date: 02/25/2015 11:47

Pages: 3

Resolution: 200x200 DPI

Vance Nimrod
323 Central Street
Greenville, MS 38701

Cell Phone 662-820-9612
Email: vance.nimrod@gmail.com

January 7, 2015

City of Durant
Box 272
Durant, MS 39063

ATTN: Mayor Tasha Davis
Phone: 662-653-3314

Cc: Craig Bjorgom
Belinda Stewart Architects
Box 867
Eupora, MS 39744
662-258-6405
662-418-7660
craig@belindastewartarchitects.com

Re: Asbestos and Lead Paint Inspection Survey
Old Railroad Depot
Mulberry and West Depot
Durant, MS

Dear Mayor Davis:

INTRODUCTION:

I am pleased to submit this proposal for the referenced project. The proposal is in response to Craig Bjorgom's request January 7, 2015, for an asbestos and lead paint inspection survey.

SCOPE OF WORK

As a Mississippi Certified Asbestos Inspector and a Certified Lead Paint Inspector, I will conduct an asbestos and lead paint assessment of the construction materials in the one-story Old Railroad Depot building. The assessment will be performed in accordance with the following scope of work:

1. Interview with Knowledgeable Person(s) - I will attempt to meet with person Or persons who are familiar with past construction and renovation activities on the structure scheduled for renovation.

2. Preliminary Walk-Through - I will conduct a preliminary inspection of the Structure to locate any suspect asbestos containing materials (ACM's) and and suspect lead paint.
3. Sampling Program - I will develop asbestos and lead paint sampling programs for the structure, and will take the samples.
4. Report - An asbestos report and a lead paint report will be prepared which documents the work performed, references the test results, and tabulates any ACM or lead paint encountered on the site.

SCHEDULE

I will complete the outlined scope of work in approximately two (2) weeks from the date the Authorization to proceed is received.

COST ESTIMATE

The price, excluding the south building, of the asbestos and lead paint surveys including the written reports will be \$2600. The alternative price, including the north and south buildings, of the asbestos and lead paint surveys including the written reports will be \$2900. The work will be invoiced upon completion. Payment will be due in 30 days from the date of the invoice.

CONDITIONS

The following conditions qualify the proposal:

- Access to the structure including all offices, freight rooms, bathrooms, meeting rooms, utility rooms, storage rooms, roof and attic.

I appreciate the opportunity to provide you with this proposal. If you have any questions please feel free to call.

Sincerely,



VANCE NIMROD, P.E.

VN/jan

EXHIBIT B

AUTHORIZATION TO PROCEED

**ASBESTOS AND LEAD PAINT INSPECTION SURVEY
FOR**

**OLD RAILROAD DEPOT BUILDING
MULBERRY AND OLD DEPOT
DURANT, MISSISSIPPI**

I have reviewed the Vance Nimrod, P.E., proposal for the referenced project dated January 7, 2015, and agree to the terms and conditions, and hereby authorize Vance Nimrod, P.E., to proceed with the outlined services.

Please check scope of work required:

1. Asbestos and Lead Paint Surveys excluding south building @ \$2,600 -----
2. Asbestos and Lead Paint Surveys including both north and south buildings @ \$2,900 _____

Date



Signature of Representative

Mayor Tasha Davis

Name (print or type)

Mayor

Title (print or type)

City of Durant

Company (print or type)

253 W Mulberry

Address (print or type)

Durant, MS 39063

City/State/Zip Code

662 653 3314

Phone

662 653 1847

Fax

APPENDIX D

Professional Credentials



STATE OF MISSISSIPPI
PHIL BRYANT
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
GARY C. RIKARD, EXECUTIVE DIRECTOR

February 12, 2015

Vance L. Nimrod
323 Central Street
Greenville, Mississippi 38701

Re: Certificate of Licensure
Lead Inspector Certification

Your application for certification as a Lead Inspector has been approved by the Lead Certification Branch in accordance with the Mississippi Regulations for Lead-Based Paint Activities, Miss. Code Annotated Sections 49-17-501 through 49-17-531. Your Mississippi Certification number is PBI-00001068 which is reflected on your enclosed Mississippi Certification identification card or certificate.

Your Mississippi Certification is valid through Feb 24th, 2016. In order to maintain certification as a Lead Inspector, you must renew your license on or before the expiration date stated on your card or certificate and pay the renewal fee. If you should continue to perform lead-based paint activities after the expiration date, you will be in violation of the Mississippi Regulations for Lead-Based Paint Activities and may be cited for non-compliance.

It is your responsibility to ensure that you have met all the requirements for renewal of your lead certification.

If you have any questions, please feel free to contact Virginia Rickels at (601) 961-5777.

Sincerely,

A handwritten signature in blue ink, appearing to read "Connie Simmons".

Mr. Connie Simmons, P.E., Chief
Asbestos & Lead Certification Branch

Enclosure

48341 LIC20150001

**Vance Nimrod
323 Central Street
Greenville, MS 38701**

Phone: 662-820-9612

Email: vance.nimrod@gmail.com

**Craig Bjorgum
Belinda Stewart Architects, PA
61 North Dunn Street
P.O. Box 897
Eupora, MS 39744**

Phone: 662-258-6405

Email: craig@belindastewartarchitects.com

**RE: Addendum to Old Durant Railroad Depot
Lead Paint Survey of Basement Boiler Room
Original Lead Paint Survey dated March 16, 2015**

Dear Mr. Bjorgum:

**I did a Lead Paint Survey of the Basement Boiler room on November 27, 2015.
No paint was found in this survey.**

**Based on this report, it appears that there is no Lead Paint in the Basement Boiler
Room of the Old Durant Railroad Depot.**

Sincerely,



**Vance Nimrod, P.E.
Mississippi Certified Lead Paint Inspector
Certificate No: PBI-00001068
December 14, 2015**

Melinda L. McGrath
Executive Director

P. O. Box 1850
Jackson, MS 39215-1850
Telephone (601) 359-7001
FAX (601) 359-7110
GoMDOT.com



Mark C. McConnell
Deputy Executive Director/Chief Engineer
Lisa M. Hancock
Deputy Executive Director/Administration
Willie Huff
Director, Office of Enforcement
Charles R. Carr
Director, Office of Intermodal Planning

July 8, 2016

Mr. Andrew Hughes
Division Administrator
FHWA-Mississippi Division
100 West Capitol Street, Suite 1062
Jackson, MS 39269

RE: STP-0074-00(011) LPA
106866-701000
Historic Durant Depot—North Building Reno
City of Durant
Holmes County

Dear Mr. Hughes:

RIGHT-OF-WAY CERTIFICATION

This project will be constructed on existing right of way or other real property previously acquired and owned by the above referenced city, county or agency. Since no additional acquisition of right of way or other real property interests are required, there are no relocatees, improvements or contaminated sites involved in this project.

Attached:

Status of Right of Way
Encroachment Status
Hazardous Waste Status
Asbestos Abatement Status
Utility Status
Railroad Facilities Status Report

Mr. Andrew Hughes
July 8, 2016
Page 2

Very truly yours,

RIGHT OF WAY DIVISION

A handwritten signature in dark ink, appearing to read "Doug Downing". The signature is written in a cursive, flowing style.

Stephen D. Downing
Assistant Division Administrator

DD:ar

Pc: Chief Engineer (65-01)
LPA Division (77-01)
Construction Engineer (73-01)
District Three (23-01)
Project Engineer (23-01 PE)
Facility & Records Management (89-20)

**STATUS OF RIGHT-OF-WAY
STP-0074-00(011) LPA
106866-701000
HOLMES COUNTY
July 8, 2016**

All rights of way and legal rights of entry have been acquired **except:**

None.

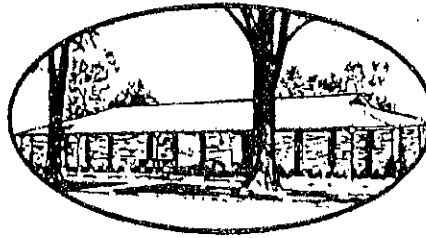
Phone: (662) 653-3221
Fax: (662) 653-6847

Tasha Davis
Mayor

Ursula Perry
City Clerk

Shannon Gallagher
Court Clerk

CITY OF DURANT



P. O. Box 272 • Durant, MS 39063-0272
Email: cityclerk@cityofdurant.org

Alderpersons
Ronnie Gladney
Linda McDonald
JoNell Payton
Leatha (Bo) Patterson
Dr. Henry Robinson, Jr.

John Haynes
Police Chief

Kelly Boyd
Fire Chief

RIGHT OF WAY STATUS REPORT

City of Durant
Historic Durant Depot – North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 10, 2016

The above named LPA certifies that "no ROW is required" for the above referenced project.

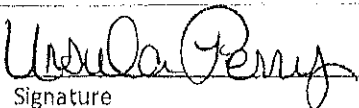
The LPA certifies that all project activities will take place on existing ROW.

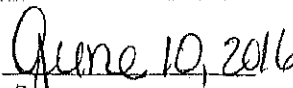
This is to certify that all necessary rights of way, including control of access rights (when pertinent), have been acquired, including legal and physical possession, for the above referenced project in accordance with Federal and State laws, including 49 CFR Part 24. All lands and improvements (if appropriate) are vacant, and the agency has physical possession and the right to enter upon all lands.

Furthermore, this is to certify that () there were or (X) there were no individuals or families displaced by this project. Therefore, the 49 CFR Part 24, covering the relocation of displaced persons to decent, safe, and sanitary housing and availability of adequate replacement housing () is or (X) is not, applicable to this project. If persons were displaced, as a result of the project, all individuals and families have been moved from the ROW and relocated in accordance with 49 CFR Part 24.

The attached Table 1, Right of Way Status Report, shows all real property interests that have been acquired as part of the above referenced project.


Ursula Perry, City Clerk – City of Durant


Signature


Date

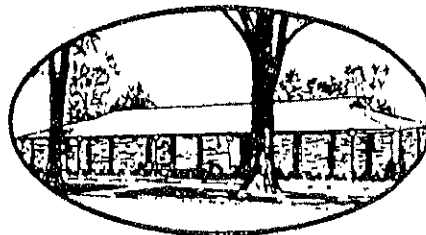
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Mayor

Ursula Perry
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Shannon Gallagher
Court Clerk

CITY OF DURANT



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Alderpersons
Ronnie Gladney
Linda McDonald
JoNell Payton
Leatha (Bo) Patterson
Dr. Henry Robinson, Jr.

John Haynes
Police Chief

Kelly Boyd
Fire Chief

Table 1 Right of Way Status Report

City of Durant
Historic Durant Depot – North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 15, 2016

Parcel/Interest Reference No.	Name of Owner/Tenant	Indicate acquired by Type of Deed or by ROE	Date of Possession (m/d/y)	Acquisition Cost /ROE Deposit Amt.	Relocation Assistance Cost
Durant ICRR Depot	City of Durant	Deed	Feb. 12, 2009	\$10,000	0

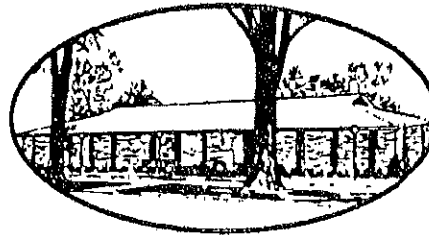
Phone: (662) 653-3221
Fax: (662) 653-6847

Tasha Davis
Mayor

Ursula Perry
City Clerk

Shannon Gallagher
Court Clerk

CITY OF DURANT



P. O. Box 272 • Durant, MS 39063-0272
Email: cityclerk@cityofdurant.org

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JoNell Payton
Leatha (Bo) Patterson
Dr. Henry Robinson, Jr.

John Haynes
Police Chief

Kelly Boyd
Fire Chief

City of Durant
Historic Durant Depot – North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 15, 2016

ENCROACHMENT STATUS REPORT

This is to certify that based on a site inspection of the right of way for the project, the project right of way (X) is clear of encroachments or () is NOT clear of encroachments.

If the site inspection identifies that the project right of way is not clear of encroachments, the encroachments are identified in attached Table 2, List of Encroachments within ROW, by type of encroachment, and location (station number, offset, etc.) and steps planned and timeline for the removal of the encroachment.

The LPA certifies that the listed encroachment(s) that will remain in place shall not cause delays to construction of the project, nor shall inhibit maintenance of traffic or constitute safety hazards to the public. The LPA certifies that the LPA will accept full financial responsibility for any damage caused, or delay claims that arise in whole or in part due to the failure of the LPA to remove the encroachment(s). Any additional construction costs incurred as a result of working around these encroachment(s) will be paid by the LPA as a non-reimbursable expense. The safety of the public will not be compromised as a result of not moving the encroachment(s). Future maintenance of the project will not be adversely affected by the encroachment(s).

Ursula Perry
Ursula Perry, City Clerk – City of Durant

Ursula Perry
Signature

June 15, 2016
Date

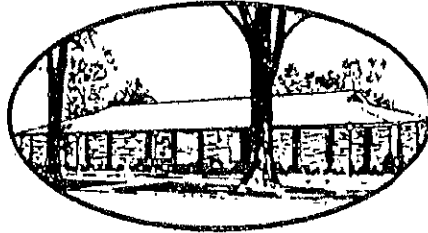
Phone: (662) 653-3221
Fax: (662) 653-6847

Tasha Davis
Mayor

Ursula Perry
City Clerk

Shannon Gallagher
Court Clerk

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Police Chief

Kelly Boyd
Fire Chief

HAZARDOUS WASTE STATUS REPORT

City of Durant
Historic Durant Depot – North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 15, 2016

A physical inspection of the rights of way for this project reveals that there () are (X) are no sites suspected of having any hazardous waste or underground storage tanks.

If there are suspected sites, these sites are identified and remediation plans are presented below.

Ursula Perry
Ursula Perry, City Clerk - City of Durant

Ursula Perry
Signature

June 15, 2016
Date

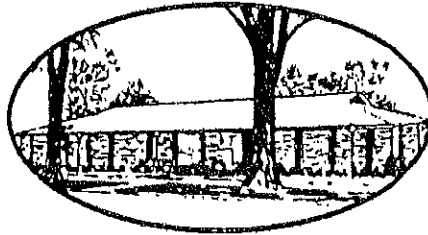
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John Haynes
Police Chief

Kelly Boyd
Fire Chief

ASBESTOS ABATEMENT STATUS REPORT

City of Durant
Historic Durant Depot -- North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 15, 2016

This is to certify that the project (X) does or () does not contain structures that required asbestos abatement.

If the project has structures that required asbestos abatement, the following is a list of each structure and the details regarding the asbestos abatement and demolition of each structure(s).

List of Structures Containing Asbestos	Asbestos Abatement and Demolition Plan
Durant ICRR Depot, North Building	Abatement, March, 2016

Ursula Perry
Ursula Perry, City Clerk -- City of Durant

Ursula Perry
Signature

June 15, 2016
Date

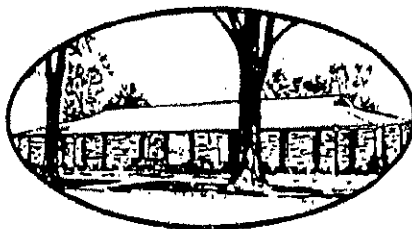
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Shannon Gallagher
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CITY OF DURANT



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Email: cityclerk@cityofdurant.org

UTILITY STATUS REPORT

Alderpersons
Ronnie Gladney
Linda McDonald
JoNell Payton
Leatha (Bo) Patterson
Dr. Henry Robinson, Jr.

John Haynes
Police Chief

Kelly Boyd
Fire Chief

City of Durant
Historic Durant Depot - North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 15, 2016

The following is a list of each utility owner on the above mentioned project, describing the status of each utility on the right of way and its impact on the project.

List of Each Utility Owner on the Project	Status of the Conflict with Project Construction
City of Durant Electric Department	No Conflict
City of Durant Water & Sewer Dept.	No Conflict
Atmos Energy	No Conflict

The above named LPA understands that any claim by the contractor due to NOT having the utilities relocated will be a non-participating item. In the event the utility facilities are discovered to be in conflict, damaged, or otherwise impact the proposed construction, the above named LPA shall bear all responsibility and/or claims associated with these facilities.

Ursula Perry
Ursula Perry, City Clerk - City of Durant

Ursula Perry
Signature

Charles Melvin
MDOT District Utility Coordinator

June 15, 2016
Date

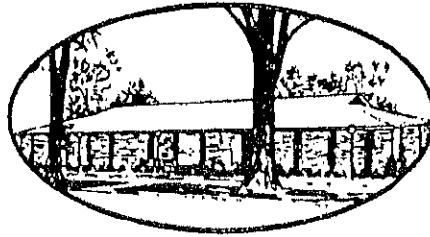
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John Haynes
Police Chief

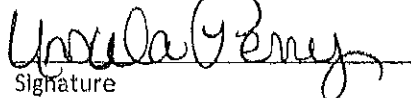
Kelly Boyd
Fire Chief

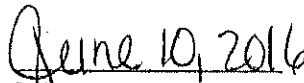
RAILROAD FACILITIES STATUS REPORT

City of Durant
Historic Durant Depot – North Building Renovation
STP 0074-00(011) LPA/106866-701000
Holmes County
June 10, 2016

The railroad agreements have been secured for the affected railroad facilities on the above referenced project.


Ursula Perry, City Clerk - City of Durant


Signature


Date

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4214

CODE: (IS)

DATE: 11/29/2012

SUBJECT: Safety Apparel

Bidders are advised that the Code of Federal Regulations CFR 23 Part 634 final rule was adopted November 24, 2006 with an effective date of November 24, 2008. This rule requires that "All workers within the right-of-way of a Federal-Aid Highway who are exposed either to traffic (vehicles using the highway for the purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel". High-visibility safety apparel is defined in the CFR as "personnel protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage, and that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled American National Standard for High-Visibility Safety Apparel and Headwear". All workers on Mississippi State Highway right-of-way shall comply with this Federal Regulation. Workers are defined by the CFR as "people on foot whose duties place them within the right-of way of a Federal-Aid Highway, such as highway construction and maintenance forces, survey crews, utility crews, responders to incidents within the highway right-of-way, and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right-of-way of a Federal-Aid Highway".

More information regarding high visibility safety apparel can be found at the following sites.

<http://www.gpo.gov/fdsys/pkg/CFR-2008-title23-vol1/pdf/CFR-2008-title23-vol1-sec634-1.pdf>

<http://ops.fhwa.dot.gov/wz/resources/policy.htm#hv>

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4488 LPA

CODE: (IS)

DATE: 05/01/2013

SUBJECT: DBE Forms, Participation and Payment

Bidders are hereby advised that the participation of a DBE Firm cannot be counted towards the Prime Contractor's DBE goal until the amount being counted towards the goal has been paid to the DBE.

Form OCR-482-LPA has been developed to comply with this requirement. Bidders are hereby advised that at the end of the job, the Prime Contractor will submit this form to the Project Engineer before the final estimate is paid and the project is closed out. This form certifies payments to all DBE Subcontractors over the life of the contract.

Form OCR-484-LPA has also been developed to comply with this requirement. Bidders are hereby advised that each month, the Prime Contractors will submit this form to the Project Engineer no later than the last day of each month. This form certifies payments to all Subcontractors and shows all firms even if the Prime Contractor has paid no monies to the firm during that estimate period (negative report). The Project Engineer will attach this form to the monthly estimate before forwarding the estimate to the Local Public Agency (LPA) Division for processing.

Bidders are also advised that Form OCR-485-LPA will be completed by ALL BIDDERS submitting a bid proposal and must be signed and included in the bid proposal package. If at least one copy of this form is not signed and included as part of bid proposal, your bid will be deemed irregular.

DBE Forms, including Forms OCR-482-LPA, OCR-484-LPA and OCR-485-LPA, can be obtained from the Office of Civil Rights Division, MDOT Administration Building, 401 North West Street, Jackson, MS, or at www.gomdot.com under *Business, Disadvantaged Enterprise, Applications and Forms for the DBE Program, MDOT Forms*.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4565

CODE: (SP)

DATE: 06/27/2013

SUBJECT: Manual on Uniform Traffic Control Devices

Any reference in the Standard Specifications or contract documents to a particular Section of the Manual on Uniform Traffic Control Devices (MUTCD) it shall mean that Section of the latest version of the Manual on Uniform Traffic Control Devices.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 4566

CODE: (SP)

| DATE: 07/02/2013

SUBJECT: DUNS Requirement for Federal Funded Projects

Bidders are advised that the Prime Contractor must maintain current registrations in the Central Contractor Registration (<http://www.sam.gov>) at all times during this project. A Dun and Bradstreet Data Universal Numbering System (DUNS) Number (<http://www.dnb.com>) is one of the requirements for registration in the Central Contractor Registration.

Bidders are also advised that the following information needs to be completed and included in the bid documents:

DUNS: _____

Company Name: _____

Company e-mail address: _____

By: _____

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 5053

CODE: (SP)

DATE: 06/03/2014

SUBJECT: Contractor Correspondence

Bidders are advised that all correspondence concerning this project, other than correspondence related to the execution of the contract and sub-contracting, shall be sent to the Project Engineer. The Project Engineer will then forward any necessary correspondence to the appropriate Division. This includes general correspondence, submittals, shop drawings, requests for advancement of materials, etc.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 5412

CODE: (SP)

DATE: 02/18/2015

SUBJECT: Weight Limits

Bidders are hereby advised that all trucks hauling materials to and from this project shall comply with the legal weight limits as established by law. MDOT will not compensate the Contractor for any portion of a load delivered to the project in excess of the legal limit for that truck.

Vehicles relying on harvest permits are limited to hauling only those materials set forth in Section 27-19-81(4) of the Mississippi Code, as amended.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 5866 LPA

CODE: (SP)

| DATE: 10/28/2015

SUBJECT: Payroll Requirements

Bidders are hereby advised that the Contractor and Subcontractor(s) are required to submit payroll information to the Project Engineers on a weekly basis.

On Federal-Aid Projects, LPA-880, LPA-881 and certified payroll submissions are required each week the Contractor or a Subcontractor performs work on the project. This is addressed in Section IV of Form FHWA-1273.

On State-Funded Projects, LPA-880 is required each week the Contractor or a Subcontractor performs work on the project.

| When no work is performed on either Federal-Aid or State-Funded Projects, the Contractor should only submit LPA-880 showing no work activities.

The Contractor shall make all efforts necessary to submit this information to the Project Engineer in a weekly manner. The Engineer will have the authority to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to submit the required information. Submission of forms and payrolls shall be current through the first full week of the month for the estimate period in order for the Project Engineer to process an estimate.

Bidders are advised to review the requirements regarding payroll submissions in Section 110 of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO NOTICE TO BIDDERS NO. 6411 LPA

DATE: 02/01/2017

The goal is 2 percent for the Disadvantaged Business Enterprise. The low bidder is required to submit Form OCR-481 for all DBEs.

Delete the second paragraph under CONTRACT GOAL on page 2, and substitute the following.

If the percentage of the contract that is proposed for DBEs is 1% or greater, the Contractor shall agree to meet or exceed the contract goal on the last bid sheet of the proposal.

Delete the third paragraph under CONTRACT GOAL on page 2, and substitute the following.

The apparent lowest responsive bidder shall submit to the LPA Form OCR-481, signed by the Prime Contractor and the DBE Subcontractors, **no later than the 3rd business day after opening of the bids.**

LPA Projects: Delete entire Pre-Bid Section at the top of page 6.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6411

CODE: (SP)

DATE: 06/06/2016

**SUBJECT: DISADVANTAGED BUSINESS ENTERPRISES IN FEDERAL-AID
HIGHWAY CONSTRUCTION**

This contract is subject to the "Moving Ahead for Progress in the 21st Century Act (MAP-21)" and applicable requirements of "Part 26, Title 49, Code of Federal Regulations". Portions of the Act are set forth in this Notice as applicable to compliance by the Contractor and all of the Act, and the MDOT DBE Program, is incorporated by reference herein.

The Department has developed a Disadvantaged Business Enterprise Program that is applicable to this contract and is made a part thereof by reference.

Copies of the program may be obtained from:

Office of Civil Rights
Mississippi Department of Transportation
P. O. Box 1850
Jackson, Mississippi 39215-1850

POLICY

It is the policy of the Mississippi Department of Transportation to provide a level playing field, to foster equal opportunity in all federally assisted contracts, to improve the flexibility of the DBE Program, to reduce the burdens on small businesses, and to achieve that amount of participation that would be obtained in a non-discriminatory market place. In doing so, it is the policy of MDOT that there will be no discrimination in the award and performance of federally assisted contracts on the basis of race, color, sex, age, religion, national origin, or any handicap.

ASSURANCES THAT CONTRACTORS MUST TAKE

MDOT will require that each contract which MDOT signs with a sub-recipient or a Contractor, and each subcontract the Prime Contractor signs with a Subcontractor, includes the following assurances:

“The Contractor, subrecipient or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as MDOT deems appropriate.”

DEFINITIONS

For purposes of this provision the following definitions will apply:

"Disadvantaged Business" means a small business concern: (a) which is at least 51 percent owned by one or more socially and economically disadvantaged individual(s) or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individual(s); and (b) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individual(s) who own it. It is important to note that the business owners themselves must control the operations of the business. Absentee ownership or title ownership by an individual who does not take an active role in controlling the business is not consistent with eligibility as a DBE under CFR 49 Part 26.71.

CONTRACTOR'S OBLIGATION

The Contractor and all Subcontractors shall take all necessary and reasonable steps to ensure that DBE firms can compete for and participate in the performance of a portion of the work in this contract and shall not discriminate on the basis of race, color, national origin, religion or sex. Failure on the part of the Contractor to carry out the DBE requirements of this contract constitutes a breach of contract and after proper notification the Department may terminate the contract or take other appropriate action as determined by the Department.

When a contract requires a zero percent (0%) DBE goal, the Contractor still has the responsibility to take all necessary and reasonable steps to ensure that DBE firms can compete for and participate in the performance of the work in the contract. In this case, all work performed by a certified DBE firm is considered to be a "race neutral" measure and the Department will receive DBE credit towards the overall State goals when the DBE firm is paid for their work. If the Prime Contractor is a certified DBE firm, the Department can receive DBE credit only for the work performed by the Prime Contractor's work force or any work subcontracted to another DBE firm. Work performance by a non-DBE Subcontractor is not eligible for DBE credit.

CONTRACT GOAL

The goal for participation by DBEs is established for this contract in the attached Supplement. The Contractor shall exercise all necessary and reasonable steps to ensure that participation is equal to or exceeds the contract goal.

If the percentage of the contract that is proposed for DBEs is 1% or greater, it shall be so stated on the last bid sheet of the proposal.

The apparent lowest responsive bidder shall submit to the Office of Civil Rights Form OCR-481, signed by the Prime Contractor and the DBE Subcontractors, no later than the 3rd business day after opening of the bids.

Form OCR-481 is available on the MDOT website at GoMDOT.com, then Divisions, Civil Rights, Forms, DBE, MDOT Projects, or by calling 601-359-7466.

FORMS ARE AVAILABLE FROM THE OFFICE OF CIVIL RIGHTS

The OCR-481 Form must contain the following information:

The name and address of each certified DBE Contractor / Supplier;

The Reference Number, percent of work and the dollar amount of each item. If a portion of an item is subcontracted, a breakdown of that item including quantities and unit price must be attached, detailing what part of the item the DBE firm is to perform and who will perform the remainder of the item.

If the DBE Commitment shown on the last bid sheet of the proposal, does not equal or exceed the contract goal, the bidder must submit, to MDOT Contract Administration Division prior to bid opening, information to satisfy the Department that adequate good faith efforts have been made to meet the contract goal.

Failure of the lowest bidder to furnish acceptable proof of good faith efforts, submitted to MDOT Contract Administration Division prior to bid opening, shall be just cause for rejection of the proposal. Award may then be made to the next lowest responsive bidder or the work may be re-advertised.

The following factors are illustrative of matters the Department will consider in judging whether or not the bidder has made adequate good faith effort to satisfy the contract goal.

- (1) Whether the bidder attended the pre-bid meeting that was scheduled by the Department to inform DBEs of subcontracting opportunities;
- (2) Whether the bidder advertised in general circulation, trade association, and minority-focus media concerning the subcontracting opportunities;
- (3) Whether the bidder provided written notice to a reasonable number of specific DBEs that their interest in the contract is being solicited;
- (4) Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested;
- (5) Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goal;
- (6) Whether the bidder provided interested DBEs with adequate information about the plans, specifications and requirements of the contract;
- (7) Whether the bidder negotiated in good faith with interested DBEs and did not reject them as unqualified without sound reasons based on a thorough investigation of their capabilities; and

- (8) Whether the bidder made efforts to assist interested DBEs in obtaining any required bonding or insurance.
- (9) Whether the bidder has written notification to certified DBE Contractors soliciting subcontracting for items of work in the contract.
- (10) Whether the bidder has a statement of why an agreement was not reached.

The bidder's execution of the signature portion of the proposal shall constitute execution of the following assurance:

The bidder hereby gives assurance pursuant to the applicable requirements of "Moving Ahead for Progress in the 21st Century Act (MAP-21)" and applicable requirements of "Part 26, Title 49, Code of Federal Regulations" that the bidder has made a good faith effort to meet the contract goal for DBE participation for which this proposal is submitted.

DIRECTORY

A list of "Certified DBE Contractors" which have been certified as such by the Mississippi Department of Transportation and other Unified Certification Partners (UPC) can be found on the Mississippi Department of Transportation website at www.gomdot.com. The DBE firm must be certified at the time the project is let and approved by MDOT to count towards meeting the DBE goal.

REPLACEMENT

If a DBE Subcontractor cannot perform satisfactorily, and this causes the OCR-481 commitment to fall below the contract goal, the Contractor shall take all necessary reasonable steps to replace the DBE with another certified DBE Subcontractor or submit information to satisfy the Mississippi Department of Transportation that adequate good faith efforts have been made to replace the DBE. The replacement DBE must be a DBE who was on the Department's list of "Certified DBE Contractors" when the job was let, and who is still active. All DBE replacements must be approved by the Department.

Under no circumstances shall the Prime or any Subcontractor perform the DBE's work (as shown on the OCR-481) without prior written approval from the Department. See "Sanctions" at the end of this document for penalties for performing DBE's work.

When a Contractor proposes to substitute/replace/terminate a DBE that was originally named on the OCR-481, the Contractor must obtain a release, in writing, from the named DBE explaining why the DBE Subcontractor cannot perform the work. A copy of the original DBE's release must be attached to the Contractor's written request to substitute/replace/terminate along with appropriate Subcontract Forms for the substitute/replacement/terminated Subcontractor, all of which must be submitted to the DBE Coordinator and approved, in advance, by MDOT.

GOOD FAITH EFFORTS

To demonstrate good faith efforts to replace any DBE that is unable to perform successfully, the Contractor must document steps taken to subcontract with another certified DBE Contractor. Such documentation shall include no less than the following:

- (1) Proof of written notification to certified DBE Contractors by certified mail that their interest is solicited in subcontracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.
- (2) If the Prime Contractor is a certified DBE firm, only the value of the work actually performed by the DBE Prime can be counted towards the project goal, along with any work subcontracted to a certified DBE firm.
- (3) If the Contractor is not a DBE, the work subcontracted to a certified DBE Contractor will be counted toward the goal.
- (4) The Contractor may count toward the goal a portion of the total dollar value of a contract with a joint venture eligible under the standards of this provision equal to the percentage of the DBE partner in the joint venture.
- (5) Expenditures to DBEs that perform a commercially useful function may be counted toward the goal. A business is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of the work and carries out its responsibilities by actually performing, managing, and supervising the work involved.
- (6) The Contractor may count 100% of the expenditures for materials and supplies obtained from certified DBE suppliers and manufacturers that produce goods from raw materials or substantially alters them for resale provided the suppliers and manufacturers assume the actual and contractual responsibility for the provision of the materials and supplies. The Contractor may count sixty percent (60%) of the expenditures to suppliers that are not manufacturers, provided the supplier performs a commercially useful function in the supply process. Within 30 days after receipt of the materials, the Contractor shall furnish to the DBE Coordinator invoices from the certified supplier to verify the DBE goal.
- (7) Any work that a certified DBE firm subcontracts or sub-subcontracts to a non-DBE firm will not count towards the DBE goal.
- (8) Only the dollars actually paid to the DBE firm may be counted towards the DBE goal.

Failure of the Contractor to demonstrate good faith efforts to replace a DBE Subcontractor that cannot perform as intended with another DBE Subcontractor, when required, shall be a breach of contract and may be just cause to be disqualified from further bidding for a period of up to 12 months after notification by certified mail.

PRE-BID MEETING

A pre-bid meeting will be held in Amphitheater 1 & 2 of the Hilton Jackson located at I-55 and County Line Road, Jackson, Mississippi at 2:00 P.M. on the day preceding the date of the bid opening.

This meeting is to inform DBE firms of subcontracting and material supply opportunities. Attendance at this meeting is considered of prime importance in demonstrating good faith effort to meet the contract goal.

PARTICIPATION / DBE CREDIT

Participation shall be counted toward meeting the goal in this contract as follows:

- (1) If the Prime Contractor is a certified DBE firm, only the value of the work actually performed by the DBE Prime can be counted towards the project goal, along with any work subcontracted to a certified DBE firm.
- (2) If the Contractor is not a DBE, the work subcontracted to a certified DBE Contractor will be counted toward the goal.
- (3) The Contractor may count toward the goal a portion of the total dollar value of a contract with a joint venture eligible under the standards of this provision equal to the percentage of the DBE partner in the joint venture.
- (4) Expenditures to DBEs that perform a commercially useful function may be counted toward the goal. A business is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of the work and carries out its responsibilities by actually performing, managing, and supervising the work involved.
- (5) The Contractor may count 100% of the expenditures for materials and supplies obtained from certified DBE suppliers and manufacturers that produce goods from raw materials or substantially alters them for resale provided the suppliers and manufacturers assume the actual and contractual responsibility for the provision of the materials and supplies. The Contractor may count sixty percent (60%) of the expenditures to suppliers that are not manufacturers, provided the supplier performs a commercially useful function in the supply process. Within 30 days after receipt of the materials, the Contractor shall furnish to the DBE Coordinator invoices from the certified supplier to verify the DBE goal.
- (6) Any work that a certified DBE firm subcontracts or sub-subcontracts to a non-DBE firm will not count towards the DBE goal.
- (7) Only the dollars actually paid to the DBE firm may be counted towards the DBE goal.

AWARD

Award of this contract to the low bidder will be contingent upon the following conditions:

- (1) Concurrence from Federal Highway Administration, when applicable.
- (2) Bidder must submit to the Office of Civil Rights for approval, Form OCR-481 (DBE Commitment) no later than the 3rd business day after opening of the bids to satisfy the Department and that adequate good faith efforts have been made to meet the contract goal. For answers to questions regarding Form OCR-481, contact the MDOT Office of Civil Rights at (601) 359-7466.
- (3) Bidder must include OCR-485 information with their bid proposal listing all firms that submitted quotes for material supplies or items to be subcontracted. OCR-485 information must be included with the bid proposal. If the OCR-485 information is not included as part of bid proposal, your bid will be deemed irregular.

Prior to the start of any work, the bidder must notify the Project Engineer, in writing, of the name of the designated "DBE Liaison Officer" for this project. This notification must be posted on the bulletin board at the project site.

DEFAULT

If the contract goal established by MDOT in this proposal is 1% or greater, it must be met to fulfill the terms of the contract. The Contractor may list DBE Subcontractors and items that exceed MDOT's contract goal, but should unforeseen problems arise that would prevent a DBE from completing its total commitment percentage, the Contractor will meet the terms of the contract as long as it meets or exceeds MDOT's Contract Goal. For additional information, refer to "Replacement" section of this Notice.

DBE REPORTS

- (1) OCR-481: Refer to "CONTRACT GOAL" section of this Notice to Bidders for information regarding this form.
- (2) OCR-482: At the conclusion of the project the Contractor will submit to the Project Engineer for verification of quantities and further handling Form OCR-482 whereby the Contractor certifies to the amounts of payments made to each Contractor / Supplier. The Project Engineer shall submit the completed Form OCR-482 to the DBE Coordinator (Office of Civil Rights). Final acceptance of the project is dependent upon Contract Administration Division's receipt of completed Form OCR-482 which they will receive from the Office of Civil Rights.
- (3) OCR-483: The Project Engineer/Inspector will complete Form OCR-483, the Commercially Useful Function (CUF) Performance Report, in accordance with MDOT S.O.P. No. OCR-03-09-01-483. Evaluations reported on this form are used to determine whether or not the DBE firm is performing a CUF. The Prime Contractor should take

corrective action when the report contains any negative evaluations. DBE credit may be disallowed and/or other sanctions imposed if it is determined the DBE firm is not performing a CUF. This form should also be completed and returned to the DBE Coordinator (Office of Civil Rights).

- (4) OCR-484: Each month, the Contractor will submit to the Project Engineer OCR-484 certifying payments to all Subcontractors. This OCR-484 will be attached to the monthly estimate for further processing. Failure of the Contractor to submit the OCR-484 will result in the estimate not being processed and paid.
- (5) OCR-485: Bidder must submit **signed form with bid proposal** of all firms that submitted quotes for material supplies or items to be subcontracted. *If the OCR-485 information is not included as part of bid proposal, your bid will be deemed irregular.*
- (6) OCR-487: Only used by Prime Contractors that are certified DBE firms. This form is used in determining the exact percentage of DBE credit for the specified project. It should be returned to MDOT with the OCR-481 form, or can also be returned with the Permission to Subcontract Forms (CAD-720, CAD-725 and CAD-521).

SANCTIONS

The Department has the option to enforce any of the following penalties for failure of the Prime Contractor to fulfill the DBE goal as stated on the OCR-481 form or any violations of the DBE program guidelines:

- (1) Disallow credit towards the DBE goal
- (2) Withhold progress estimate payments
- (3) Deduct from the final estimate or recover an amount equal to the unmet portion of the DBE goal which may include additional monetary penalties as outlined below based on the number of offenses and the severity of the violation as determined by MDOT.

1 st Offense	10% of unmet portion of goal	or	\$5,000 lump sum payment	or	Both
2 nd Offense	20% of unmet portion of goal	or	\$10,000 lump sum payment	or	Both
3 rd Offense	40% of unmet portion of goal	or	\$20,000 lump sum payment	or	\$20,000 lump sum payment and debarment

- (4) Debar the Contractor involved from bidding on Mississippi Department of Transportation projects.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7002

CODE: (SP)

DATE: 2/18/2015

SUBJECT: Contract Time

PROJECT: Yazoo & Mississippi Valley Railroad Depot Stabilization and Restoration
STP-0074-00(021) LPA / 106866-701000

The calendar date for completion of work to be performed by the Contractor for this project shall be **Specified Completion Date** which date or extension as provided in Subsection 907-108.06 shall be the end of contract time.

The Notice of Award will be issued within 60 days of the bid opening date and the effective date of the Notice to Proceed / Beginning of Contract Time Date will be within 3 months following the Date of the Notice of Execution of Contract Letter.

The Contractor shall request a Notice to Proceed / Beginning of Contract Time Date **in writing** after receiving the Notice of Execution of Contract Letter and the date requested should be within the 3 month period following the Date of the Notice of Execution of Contract Letter. The Contractor's **written request** for the Notice to Proceed Date should be given a **minimum of seven (7) calendar days** in advance of the Notice to Proceed Date requested.

Should the Contractor not request a Notice to Proceed Date within the 3 months allowed, the date for the Notice to Proceed / Beginning of Contract Time will be 3 months after the Date of the Notice of Execution of Contract Letter.

The "Number of Calendar Days" to complete the work will be 300 calendar days.

The Specified Completion Date for this project will be calculated by adding the above number of calendar days to the date of the Notice to Proceed / Beginning of Contract Time.

SCD = "Number of Calendar Days" to complete the work + "Notice to Proceed / Beginning of Contract Time" date

A Preconstruction Conference as required by Subsection 907-108.03.2 should be held prior to commencement of any field work by the Contractor.

Any fabrication of needed materials can begin after the contract has been executed and submittals are approved.

Holmes County Wage Rates

General Decision Number: MS180137 01/05/2018 MS137

Superseded General Decision Number: MS20170137

State: Mississippi

Construction Type: Building

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Counties: Attala, Bolivar, Carroll, Coahoma, Grenada, Holmes, Humphreys, Leflore, Montgomery, Panola, Quitman, Sunflower, Tallahatchie, Washington and Yalobusha Counties in Mississippi.

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

IRON0167-012 05/01/2017

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 24.15	15.44

* PLUM0568-003 11/01/2017

Rates	Fringes
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Holmes County Wage Rates

PLUMBER.....\$ 25.76 9.37

SUMS2015-007 04/03/2017

	Rates	Fringes
CARPENTER.....	\$ 18.11	1.69
CEMENT MASON/CONCRETE FINISHER...	\$ 20.00	0.00
ELECTRICIAN.....	\$ 17.03	9.10
LABORER: Common or General.....	\$ 10.00	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 12.98	0.00
LABORER: Pipelayer.....	\$ 12.52	0.75
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 18.00	0.00
PAINTER (Brush and Roller).....	\$ 15.17	0.00
PIPEFITTER.....	\$ 22.77	6.96
SHEET METAL WORKER, Includes HVAC Duct Installation.....	\$ 21.86	11.18
TRUCK DRIVER: Dump Truck.....	\$ 13.92	1.91

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

=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is

Holmes County Wage Rates

like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

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Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter

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- * a conformance (additional classification and rate) ruling

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

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

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

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

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

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

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

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

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

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SUPPLEMENT TO FORM FHWA-1273

DATE: 01/06/2016

SUBJECT: Final Certificate and Contract Provisions for Subcontracts

All subcontracts shall be in writing and contain all pertinent provisions and requirements of the prime contract.

Each "Request for Permission to Subcontract" (Mississippi Department of Transportation Form CAD-720) shall include a copy of subcontract upon request for review by the Mississippi Department of Transportation. The federal contract provisions may be omitted from the subcontract copy submitted for review provided the Contractor certifies that the provisions will be physically incorporated into the agreement furnished to the Subcontractor.

In lieu of submitting a copy of the subcontract for review, the Contractor may certify that the subcontract agreement is in writing and that it contains all the requirements and pertinent provisions of the prime contract.

Each Subcontractor will be required to provide a copy of the subcontract agreement for contract compliance reviews, along with physical evidence (copy of FHWA-1273) that requirements and pertinent provisions have been provided for review and adherence.

The Contractor is hereby advised of the requirements set forth in the following Attachment (Title 46 - Shipping) as it pertains to the implementation of Cargo Preference Act (CPA) requirements in the Federal-aid Highway Program.

By signing this contract, the Contractor agrees to conform to the requirements of the CPA.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

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

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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

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

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

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE
ACTION TO ENSURE EQUAL EMPLOYMENT
OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goal for female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work, is 6.9%.

Until further notice	Goals for minority participation for each trade (percent)
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SHSA Cities:

Pascagoula - Moss Point -----	16.9
Biloxi - Gulfport -----	19.2
Jackson -----	30.3

SMSA Counties:

Desoto -----	32.3
Hancock, Harrison, Stone-----	19.2
Hinds, Rankin -----	30.3
Jackson -----	16.9

Non-SMSA Counties:

George, Greene-----	26.4
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Alcorn, Benton, Bolivar, Calhoun, Carroll, Chickasaw, Clay, Coahoma, Grenada, Itawamba, Lafayette, Lee, Leflore, Marshall, Monroe, Montgomery, Panola, Pontotoc, Prentiss, Quitman, Sunflower, Tallahatchie, Tate, Tippah, Tishomingo, Tunica, Union, Washington, Webster, Yalobusha -----	26.5
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Attala, Choctaw, Claiborne, Clarke, Copiah, Covington, Franklin, Holmes, Humphreys, Issaquena, Jasper, Jefferson, Jefferson Davis, Jones Kemper, Lauderdale, Lawrence, Leake, Lincoln, Lowndes, Madison, Neshoba, Newton, Noxubee, Oktibbeha, Scott, Sharkey, Simpson, Smith, Warren, Wayne, Winston, Yazoo-----	32.0
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Forrest, Lamar, Marion, Pearl River, Perry, Pike, Walthall-----	27.7
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Adams, Amite, Wilkinson -----	30.4
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These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4.2(d). Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is to the county and city (if any), stated in the advertisement.

5. The notification required in Paragraph 3 shall be addressed to the following:

Contract Compliance Officer
Mississippi Department of Transportation
P.O. Box 1850
Jackson, Mississippi 39215-1850

(06/28/2012)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-101-4

CODE: (IS)

DATE: 11/05/2008

SUBJECT: Definitions

Section 101, Definitions and Terms, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-101.02--Definitions. Replace the following definitions in Subsection 101.02 on pages 3 through 13.

Contract - The written agreement between the Mississippi Transportation Commission and the Contractor setting forth the obligations of the parties thereunder, including but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment.

The contract includes the invitation for bids, proposal, contract form and contract bonds, specifications, supplemental specifications, interim specifications, general and detailed plans, special provisions, notices to bidders, notice to proceed, and also any agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

Contract Bonds - The approved form of security, executed by the Contractor and the Contractor's Surety(ies), guaranteeing complete execution of the contract and all supplemental agreements pertaining thereto and the payment of all legal debts pertaining to the construction of the project. This term includes Performance and Payment Bond(s).

Surety - A corporate body, qualified under the laws of Mississippi, which is bound with and for the successful bidder by "contract bond(s)" to guarantee acceptable performance of the contract and payment of all legal taxes and debts pertaining to the construction of the project, including payment of State Sales Tax as prescribed by law, and any overpayment made to the Contractor.

Add the following to the list of definitions in Subsection 101.02 on pages 3 through 13.

Performance Bond - The approved form of security, executed by the Contractor and issued by the Contractor's Surety(ies), guaranteeing satisfactory completion of the contract and all supplemental agreements pertaining thereto.

Payment Bond - The approved form of security, executed by the Contractor and issued by the Contractor's Surety(ies), guaranteeing the payment of all legal debts pertaining to the construction of the project including, but not limited to, the labor and materials of subcontractors and suppliers to the prime contractor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-102-4 LPA

CODE: (SP)

DATE: 04/29/2014

SUBJECT: Bidding Requirements and Conditions

907-102.06--Preparation of Proposal. Delete the fifth, sixth, seventh, eighth, and ninth paragraphs of Subsection 102.06 on page 18.

907-102.08--Proposal Guaranty. Delete the two paragraphs in Subsection 102.08 on page 20 and substitute the following:

No proposal will be considered unless accompanied by certified check, cashier's check or bid bond, made payable to the LPA listed in the contract, in an amount of not less than five percent (5%) of the total amount of the proposal offered. The guaranty shall be evidence of good faith that, if awarded the contract, the bidder will execute the contract and give performance and payment contract bond(s) as stipulated in Subsection 907-103.05.1, 907-103.05.2, and as required by law.

If a bid bond is offered as guaranty, the bond must be on a form approved by the Chief LPA Official, made by a Surety acceptable to the Chief LPA Official and signed or countersigned by a Mississippi Agent or Qualified Nonresident Agent and the Bidder. Such bid bond shall also conform to the requirements and conditions stipulated in Subsection 907-103.05.2 as applicable.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-103-11

CODE: (SP)

| DATE: 07/22/2015

SUBJECT: Award and Execution of Contract

Section 103, Award and Execution of Contract, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-103.04--Return of Proposal Guaranty. Delete the second paragraph of Subsection 103.04 on page 23 and substitute the following:

Certified checks or cashier's checks submitted as proposal guaranties, except those of the two lowest bidders, will be returned within 10 days of contract award. The retained proposal guaranty of the unsuccessful of the two lowest bidders will be returned within ten days following the execution of a contract with the successful low bidder. The retained proposal guaranty of the successful bidder will be returned after satisfactory performance and payment bonds have been furnished and the contract has been executed.

In the event all bids are rejected by the Commission, certified checks or cashier's checks submitted as proposal guaranty by all bidders will be returned within 10 days of rejection.

Delete Subsection 103.05 on page 23 and substitute the following:

907-103.05--Contract Bonds.

907-103.05.1--Requirement of Contract Bonds. Prior to the execution of the contract, the successful bidder shall execute and deliver to the Executive Director a performance and payment bond(s), in a sum equal to the full amount of the contract as a guaranty for complete and full performance of the contract and the protection of the claimants and the Department for materials and equipment and full payment of wages in accordance with Section 65-1-85 Miss. Code Ann. (1972 as amended). In the event of award of a joint bid, each individual, partnership, firm or corporation shall assume jointly the full obligations under the contract and the contract bond(s).

907-103.05.2--Form of Bonds. The form of bond(s) shall be that provided by or acceptable to the Department. These bonds shall be executed by a Mississippi agent or qualified nonresident agent and shall be accompanied by a certification as to authorization of the attorney-in-fact to commit the Surety company. A power of attorney exhibiting the Surety's original seal supporting the Mississippi agent or the qualified nonresident agent's signature shall be furnished with each bond. The Surety company shall be currently authorized and licensed in good standing to conduct business in the State of Mississippi with a minimum rating by A.M. Best of (A-) in the latest printing "Best's Key Rating Guide" to write individual bonds up to ten percent of the policy holders' surplus or listed on the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as

published by the United States Department of the Treasury, Financial Management Service, Circular 570 (latest revision as published and supplemented on the Financial Management Service Web site and in the Federal Register) within the underwriting limits listed for that Surety. The Mississippi agent or qualified nonresident agent shall be in good standing and currently licensed by the Insurance Commissioner of the State of Mississippi to represent the Surety company(ies) executing the bonds.

Surety bonds shall continue to be acceptable to the Commission throughout the life of the Contract and shall not be canceled by the Surety without the consent of the Department. In the event the Surety fails or becomes financially insolvent, the Contractor shall file a new Bond in the amount designated by the Executive Director within thirty (30) days of such failure, insolvency, or bankruptcy. Subsequent to award of Contract, the Commission or the Department may require additional security for any supplemental agreements executed under the contract or replacement security in the event of the surety(ies) loss of the ratings required above. Suits concerning bonds shall be filed in the State of Mississippi and adjudicated under its laws without reference to conflict of laws principles.

907-103.08--Failure to Execute Contract. In the first sentence of Subsection 103.08 on page 24, change “bond” to “performance and payment bonds”.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-104-5

CODE: (IS)

DATE: 05/01/2013

SUBJECT: Scope of Work

Section 104, Scope of Work, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-104.05--Removal and Disposal of All Materials From the Project. Delete the second sentence of the first full paragraph of Subsection 104.05 on page 30 and substitute the following:

The Contractor shall also furnish the Engineer a certified letter stating that the area of disposal is not in a wetland or in Waters of the U.S.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-105-10

CODE: (SP)

DATE: 01/18/2017

SUBJECT: Control of Work

Section 105, Control of Work, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is modified as follows.

907-105.04--Coordination of Plans, Specifications, Interim Specifications, Special Provisions and Notice to Bidders. Delete the second full paragraph of Subsection 105.04 on page 35, and substitute the following.

In case of a conflict between plan quantities, advertisement quantities, and/or bid sheet quantities, the bid sheet quantities shall prevail.

907-105.05--Cooperation by Contractor. Delete Subsection 105.05 on page 35 and substitute the following.

907-105.05--Cooperation by Contractor. The Contractor shall give the work the attention necessary to expedite its progress, and shall cooperate with the Engineer, inspectors and other Contractors in every possible way.

907-105.05.1--Project Superintendent. The Contractor shall have a competent and experienced full time resident superintendent who is capable of reading and understanding the plans and specifications for the particular work being performed. The superintendent shall be on the project site at any time work is being performed by the Prime Contractor or any Subcontractors. The superintendent shall advise the Project Engineer of an intended absence from the work and designate a person to be in charge of the work during such absence. The superintendent shall receive instructions from the Engineer or authorized representative. Upon issuance of the Notice to Award, the Contractor or duly appointed agent authorized to bind the Contractor shall file with the Executive Director the name and address of the superintendent who will supervise the work with copies to the Construction Engineer, Contract Administration Engineer, District Engineer and Project Engineer. The Executive Director shall be immediately notified in writing with copies to those stated when a change is made in the Contractor's superintendent or superintendent's address. The superintendent shall have full authority to execute orders or directives of the Engineer without delay and to promptly supply materials, equipment, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

907-105.05.2--Certified Erosion Control Person (CECP). On projects that require an erosion control plan, the Contractor shall also designate a responsible person who shall monitor and maintain the effectiveness of the erosion control plan, including NPDES permit requirements. This responsible person must be a Certified Erosion Control Person certified by an organization approved by the Department. Prior to or at the pre-construction conference, the Contractor shall designate in writing the Certified Erosion Control Person to the Project Engineer. The designated

CECP shall be assigned to only one (1) project. When special conditions exist, such as two (2) adjoining projects or two (2) projects in close proximity, the Contractor may request in writing that the State Construction Engineer approve the use of one (1) CECP for both projects. The Contractor may request in writing that the Engineer authorize a substitute CECP to act in the absence of the CECP. The substitute CECP must also be certified by an organization approved by the Department. A copy of the CECP's certification must be included in the Contractor's Protection Plan as outlined in Subsection 907-107.22.1. This in no way modifies the requirements regarding the assignment and availability of the superintendent.

907-105.05.2.1--Responsibilities and Duties of the Certified Erosion Control Person. The CECP shall be responsible for the following:

1. Attending pre-construction conferences and each Erosion Control Inspection conducted by the Department.
2. In accordance with the requirements of Subsection 907-107.22.1, ensuring all required documentation, such as, but not limited to, the SWPPP and the ECP are:
 - on the project site at all times,
 - updated on a daily basis, and
 - contain all revisions, additions, and modifications.
3. In accordance with Subsection 907-107.22.1, ensuring the "19-acre" rule is being adhered to, if applicable.
4. Ensuring the project has a rain gauge and maintain records of rainfall events on the Contractor's Erosion Control Inspection reports.
5. Ensuring the buffer zones around all stream-banks and wetland areas in which no construction activities are to take place are marked/flagged/roped off prior to any land disturbing activity.
6. Ensuring perimeter erosion/sedimentation control devices (BMPs) are in place prior to any land disturbing activity.
7. Reviewing and verifying the proper installation, maintenance, and effectiveness of the BMPs.
8. Notifying the Project Engineer within 24 hours of learning that sediment has been deposited off Department ROW or into a wetland or waters of the U.S.
9. Notifying the MDEQ within 24 hours of learning that sediment has been deposited into a wetland or waters of the U.S., copying the Project Engineer on the correspondence.
10. Performing the Contractor's Erosion Control Inspections of the project on the form provided for the purpose ensuring compliance with MDEQ's Storm Water Construction General Permit. Contractor Inspections shall be performed:
 - at least weekly, and
 - within 24 hours or on the business day prior to any forecasted rain event of 60% or greater, and
 - within 24 hours or on the next business day after a rainfall event of 0.5" or greater.

The Contractor's Erosion Control Inspections shall commence with the installation of the perimeter BMPs and continue until a Partial Maintenance Release has been issued. Within 24 hours of completing each Contractor Erosion Control Inspection, the CECP shall provide the Project Engineer with a copy of the report documenting the findings of each Contractor Erosion Control Inspection. The CECP will discuss the findings with the Contractor's Superintendent, if the CECP and the superintendent aren't the same person, and the Project

Engineer or his representative. Failure to submit the completed and signed inspection forms may result in the withholding of the monthly estimate.

907-105.05.2.2--Deficient Performance of the Certified Erosion Control Person. In the event that the Contractor's CECP is not meeting the requirements set forth above, the Project Engineer will notify the Contractor in writing, describing the CECP's deficient performance. If the deficient performance should continue, the Department may take any or all actions listed below:

1. stop all non-erosion control work,
2. require the Contractor to designate a new CECP with the responsibilities and authority listed in Subsection 907-105.05.2.1, **and**
3. revise the SWPPP and ECP with the newly designated CECP's certification information.

In the event that a CECP is removed from serving as a CECP on a project, this person shall not be accepted as a Contractor's CECP on MDOT projects for at least one year from the time of removal.

907-105.14--Maintenance During Construction. Before the first sentence Subsection 105.14 on page 39, add the following.

The Contractor will be responsible for the maintenance of existing roadways within the limits of this project starting on the date of the Notice to Proceed / Beginning of Contract Time. Anytime work is performed in a travel lane, the Contractor shall install portable lane closure signs meeting the requirement of the MDOT Standard Drawing or MUTCD.

907-105.16--Acceptance. Delete Subsection 105.16 on pages 40 and 41, and substitute the following.

907-105.16--Acceptance.

907-105.16.1--Partial Acceptance of a Unit. When the Contractor has completed a unit of the work such as an interchange, a structure, a portion of the road or pavement or one project of a multi-project contract, the Contractor may request the Engineer to make a final inspection of that unit; or the Executive Director may order a final inspection of the unit if it is in the public's interest. If the Engineer finds upon inspection that the unit has been completed in compliance with the contract and it is a complete facility which can be made available to the public or made available for the prosecution of work under another contract, the Executive Director may conditionally accept the unit and conditionally relieve the Contractor of certain contractual responsibilities as defined in the release.

In the event items of work covered by such release are found to be defective or deficient as evidenced by unsatisfactory test reports of materials incorporated in the work or other engineering determination, the release shall terminate upon written notification to the Contractor. The Contractor shall make all corrections, restorations, constructions or reconstructions deemed necessary and shall resume all contractual responsibilities until all corrective measures have been made in accordance with the terms of the contract.

Partial acceptance does not constitute final acceptance of the work, or any part thereof, nor in any way void or alter any of the terms of the contract.

Relief from "certain contractual responsibilities" as indicated herein may, or may not, include:

- (a) Further maintenance of the defined limits of the partially accepted work.
- (b) Further public liability for the defined limits of the partially accepted work.
- (c) Further liability for liquidated damages as applicable to the value of the partially accepted work when the quantities for the partially accepted work are separate quantities listed on the Summary of Quantities sheet of the plans, and the separate quantities and the total amounts thereof are listed on the Engineer's Estimate. Otherwise, no reduction in liquidated damages will be made because of such partial acceptance.

Unless specifically provided in the contract, the liability for liquidated damages shall not be reduced to less than that applicable under the contract for an amount of such work equal to at least fifty percent (50%) of the total amount of work under the contract.

907-105.16.2--Partial Maintenance Release of a Project. Upon written notice from the Contractor of presumptive completion of all the work and upon due notice from the Resident or Project Engineer, the Engineer will make an inspection.

If the inspection discloses any work as being unsatisfactory or incomplete, the Engineer will discuss in detail with the Contractor all discrepancies in the work. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed.

However, if during the final inspection the Engineer determines that all work has been satisfactorily completed save that of growth and coverage of plant establishment on all or part of the work, the Engineer may recommend partial release of all work except items related to growth and coverage. Upon such recommendation, the Contractor will be given a partial release of maintenance and shall be released from further contractual liabilities for the completed work. The Contractor will retain responsibility for plant establishment and all maintenance and repairs appurtenant thereto until satisfactory growth and coverage is achieved.

907-105.16.3--Final Maintenance Release of a Project. Upon written notice from the Contractor of presumptive completion of all the work and upon due notice from the Resident or Project Engineer, the Engineer will make an inspection. If all work provided by the contract has been completed to the Engineer's satisfaction, the inspection will constitute the final inspection, and the Engineer will conditionally release the Contractor of maintenance.

As provided in the contract, in the event items of work are found to be deficient or defective as evidenced by unsatisfactory test reports of material incorporated into the work, the Contractor shall assume full responsibility for corrective measures, and shall reassume maintenance and public liability until such corrective measures are completed to the satisfaction of the Engineer.

907-105.16.4.--Final Acceptance of a Project. Upon evidence that the Contractor has fulfilled all obligations under the contract, the Executive Director will make final acceptance and notify the Contractor in writing. Final acceptance of the project will not be given until all obligations imposed under the contract, including but not limited to the final reporting of payrolls, final reporting of DBE payments, acceptable certifications and test reports of materials used, etc., have been fulfilled.

**MISSISSIPPI DEPARTMENT OF TRANSPORTATION
EROSION AND SEDIMENT CONTROL FIELD INSPECTION REPORT**

A.

PROJECT #: _____ INSPECTION DATE: _____
 COUNTY: _____ DATE OF LAST PRECIPITATION: _____
 CONTRACTOR: _____ AMOUNT OF PRECIPITATION SINCE LAST INSPECTION: _____
 CECIP'S NAME: _____ EROSION CONTROL SUB: _____
 ACCOMPANIED BY MDOT STAFF? ☐ YES ☐ NO IF YES, NAME(S): _____
 INSPECTION TYPE: ☐ WEEKLY ☐ PRE-RAIN EVENT ☐ POST-RAIN EVENT (required after ½" or more of rain)

B.

	Yes	No	NA
HAVE ALL CORRECTIVE ACTIONS NECESSARY FROM PREVIOUS INSPECTION BEEN SATISFACTORILY TAKEN CARE OF?			
IS THE ECP ON-SITE?			
DOES THE ECP ACCURATELY REFLECT ALL THE CURRENT BMP'S?			
ARE ALL THE INSPECTIONS REPORTS COMPLETE AND ON-SITE?			
ARE THE CONTRACTOR'S OPERATIONS IN SEQUENCE WITH THE APPROVED ECP?			
ARE STOCKPILES PROPERLY MANAGED?			
ARE ROADWAYS CLEAR OF SEDIMENT?			
ARE STABILIZED CONSTRUCTION ENTRANCES IN PLACE PER THE ECP?			
HAVE MDEQ AND THE PE BEEN GIVEN PROPER NOTIFICATION OF ANY "UPSET" CONDITIONS SINCE THE PREVIOUS INSPECTION?			
HAS SEDIMENT BEEN DEPOSITED OUTSIDE THE ROW? IF YES, GIVE DETAILS IN THE COMMENTS SECTION ASSOCIATED WITH THE BMP WHICH FAILED.			
HAS SEDIMENT BEEN DEPOSITED INTO "WATERS OF THE US"? IF YES, GIVE DETAILS IN THE COMMENTS SECTION ASSOCIATED WITH THE BMP WHICH FAILED.			

COMMENTS	
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>	

C. EROSION AND SEDIMENT CONTROL BMP's INSPECTED

EXCEPT FOR THE INSTANCES LISTED BELOW, ALL EROSION AND SEDIMENT CONTROL BMP's HAVE BEEN INSPECTED AND FOUND TO BE IN WORKING ORDER AND DO NOT REQUIRE MAINTENANCE OR CORRECTIVE ACTIONS.

[illegible]

* **A** = ADDITIONAL BMP NEEDED, **I** = INCORRECT INSTALLATION OF EXISTING BMP, **M** = BMP MAINTENANCE NEEDED, **F** = BMP FAILURE

**** ROW = OFF RIGHT OF WAY, WOS = INTO WATERS OF THE STATE**

D. INSPECTION CERTIFICATION

I CERTIFY THAT THIS DOCUMENT IS A TRUE AND ACCURATE REPRESENTATION OF THE CONDITIONS REFLECTED ON THIS PROJECT AT THE TIME OF THE INSPECTION.

CECP

Date

E. I certify that the findings listed in this report have been discussed with me.

Contractor's Superintendent

Date

BMP TYPE TABLE			
NUMBER	BMP	NUMBER	BMP
1	Above Ground Storage Tank (AST)	27	Sanitary Facilities
2	Brush Barrier	28	Sediment Retention Barrier
3	Chemical Flocculation (PAM)	29	Silt Bags (Dewatering Bags)
4	Chemical Soil Stabilization (Pam or Polyacrylamide)	30	Silt Fence
5	Chemical Storage	31	Slope Erosion (Rill & Gully)
6	Clearwater Diversion Channel	32	Slope Surface Roughening (Slope Tracking)
7	Concrete Washouts	33	Solid Waste (Trash)
8	Construction Debris	34	Spill Detection
9	--	35	Stabilized Construction Entrance/Exit
10	Detention Pond	36	Stockpile Protection
11	Ditch Liner	37	Straw Bale Checks
12	Ditchline Erosion	38	Stream Bank Erosion
13	Dust Control	39	Super Silt Fence
14	Erosion Control Blanket (ECB)	40	Temporary Earthen Berm
15	Filter Stone Rock Check (Filter Stone Check Dam)	41	Temporary Mulch (Straw Mulch, etc.)
16	Illicit Discharge	42	Temporary Sediment Basin (Silt Basin)
17	Inlet Protection	43	Temporary Sediment Trap
18	--	44	Temporary Stream Crossing
19	Outlet Protection (Energy Dissipater)	45	Temporary Stream Diversion Channel (Box Culverts)
20	Paved Ditching	46	Temporary Vegetation
21	Permanent Sediment Basin	47	Topsoiling
22	Permanent Vegetation	48	Triangular Silt Dike
23	Retention Pond	49	Turbidity Barrier
24	Rip-Rap Armoring	50	Turf Reinforcement Mat (TRM)
25	Rock Bags (Sand Bags)	51	Vegatative Buffer Zone
26	Rock Check (Check Dam)	52	Vegetated Filter Strip (Sod)
		53	Wattles

Instructions:

1. Fill out the form
2. Use the numbers in the BMP TYPE table to identify the applicable BMP in each row of the Table in C.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-107-13

DATE: 11/17/2015

SUBJECT: Permits, Licenses and Taxes

After the second paragraph of Subsection 907-107.02 on page 1, add the following.

Prior to commencing work on any Project, the Contractor shall obtain a Material Purchase Certificate number (MPC#) from the Mississippi Department of Revenue, pursuant to Miss. Code Ann. § 27-65-21, and Miss. Admin. Code 35.IV.10.01. Upon receipt of the MPC#, the Contractor must immediately provide the MPC# to the Contract Administration Division of the Department. Failure to obtain and submit a MPC# prior to commencing work shall result in the withholding of payment to the Contractor until such time that a MPC# is obtained and submitted to the Department.

Delete the last sentence of the last paragraph of Subsection 907-107.02 on page 1, and substitute the following.

The Department will notify the Mississippi Department of Revenue of the names and addresses of any Contractors or Subcontractors.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-107-13

CODE: (IS)

| DATE: 05/01/2013

SUBJECT: Legal Relations and Responsibility to Public

Section 107, Legal Relations and Responsibility to Public, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-107.02--Permits, Licenses and Taxes. Delete in toto Subsection 107.02 on page 49 and substitute the following.

The Contractor or any Subcontractor shall have the duty to determine any and all permits and licenses required and to procure all permits and licenses, pay all charges, fees and taxes and issue all notices necessary and incidental to the due and lawful prosecution of the work. At any time during the life of this contract, the Department may audit the Contractor's or Subcontractor's compliance with the requirements of this section.

The Contractor or any Subcontractor is advised that the "Mississippi Special Fuel Tax Law", Section 27-55-501, et seq. and the Mississippi Use Tax Law, Section 27-67-1, et seq., and their requirements and penalties, apply to any contract or subcontract for construction, reconstruction, maintenance or repairs, for contracts or subcontracts entered into with the State of Mississippi, any political subdivision of the State of Mississippi, or any Department, Agency, Institute of the State of Mississippi or any political subdivision thereof.

The Contractor or any Subcontractor will be subject to one or more audits by the Department during the life of this contract to make certain that all applicable fuel taxes, as outlined in Section 27-55-501, et seq., and any sales and/or use taxes, as outlined in Section 27-67-1, et seq. are being paid in compliance with the law. The Department will notify the Mississippi State Tax Commission of the names and addresses of any Contractors or Subcontractors.

907-107.14--Damage Claims and Insurance.

| **907-107.14.2--Liability Insurance.** Delete Subsection 107.14.2 beginning on page 60 and substitute the following.

907-107.14.2.1--General. The Contractor shall carry Contractor's liability, including subcontractors and contractual, with limits not less than: \$500,000 each occurrence; \$1,000,000 aggregate; automobile liability - \$500,000 combined single limit - each accident; Workers' Compensation and Employers' Liability - Statutory & \$100,000 each accident; \$100,000 each employee; \$500,000 policy limit. Each policy shall be signed or countersigned by a Mississippi Agent or Qualified Nonresident Agent of the Insurance Company.

The Contractor shall have certificates furnished to the Department from the insurance companies providing the required coverage. The certificates shall be on the form furnished by the Department and will show the types and limits of coverage.

907-107.14.2.2--Railroad Protective. The following provisions are applicable to all work performed under a contract on, over or under the rights-of-way of each railroad shown on the plans.

The Contractor shall assume all liability for any and all damages to work, employees, servants, equipment and materials caused by railroad traffic.

Prior to starting any work on railroad property, the Contractor shall furnish satisfactory evidence to the Department that insurance of the forms and amounts set out herein in paragraphs (a) and (b) has been obtained. Also, the Contractor shall furnish similar evidence to the Railroad Company that insurance has been obtained in accordance with the Standard Provisions for General Liability Policies and the Railroad Protective Liability Form as published in the Code of Federal Regulations, 23 CFR 646, Subpart A. Evidence to the Railroad Company shall be in the form of a Certificate of Insurance for coverages required in paragraph (b), and the original policy of the Railroad Protective Liability Insurance for coverage required in paragraph (a).

All insurance herein specified shall be carried until the contract is satisfactorily complete as evidenced by a release of maintenance from the Department.

The Railroad Company shall be given at least 30 days notice prior to cancellation of the Railroad Protective Liability Insurance policy.

For work within the limits set out in Subsection 107.18 and this subsection, the Contractor shall provide insurance for bodily injury liability, property damage liability and physical damage to property with coverages and limits no less than shown in paragraphs (a) and (b). Bodily injury shall mean bodily injury, sickness, or disease, including death at anytime resulting therefrom. Property damage shall mean damages because of physical injury to or destruction of property, including loss of use of any property due to such injury or destruction. Physical damage shall mean direct and accidental loss of or damage to rolling stock and their contents, mechanical construction equipment or motive power equipment.

(a) **Railroad Protective Liability Insurance** shall be purchased on behalf of the Railroad Company with limits of \$2,000,000 each occurrence; \$6,000,000 aggregate applying separately to each annual period for lines without passenger trains. If the line carries passenger train(s), railroad protective liability insurance shall be purchased on behalf of the Railroad Company with limits of \$5,000,000 each occurrence; \$10,000,000 aggregate applying separately to each annual period.

Coverage shall be limited to damage suffered by the railroad on account of occurrences arising out of the work of the Contractor on or about the railroad right-of-way, independent of the railroad's general supervision or control, except as noted in paragraph 4 below.

Coverage shall include:

- (1) death of or bodily injury to passengers of the railroad and employees of the railroad not covered by State workmen's compensation laws,
- (2) personal property owned by or in the care, custody or control of the railroads,
- (3) the Contractor, or any of the Contractor's agents or employees who suffer bodily injury or death as a result of acts of the railroad or its agents, regardless of the negligence of the railroads, and
- (4) negligence of only the following classes of railroad employees:
 - (i) any supervisory employee of the railroad at the job site
 - (ii) any employee of the railroad while operating, attached to, or engaged on, work trains or other railroad equipment at the job site which are assigned exclusively to the Contractor, or
 - (iii) any employee of the railroad not within (i) or (ii) above who is specifically loaned or assigned to the work of the Contractor for prevention of accidents or protection of property, the cost of whose services is borne specifically by the Contractor or Governmental authority.

(b) **Contractor's Liability - Railroad**, including subcontractors, XCU and railroad contractual with limits of \$1,000,000 each occurrence; \$2,000,000 aggregate. **Automobile** with limits of \$1,000,000 combined single limit any one accident; **Workers' Compensation and Employer's Liability** - statutory and \$100,000 each accident; \$100,000 each employee; \$500,000 policy limit. **Excess/Umbrella Liability** \$5,000,000 each occurrence; \$5,000,000 aggregate. All coverage to be issued in the name of the Contractor shall be so written as to furnish protection to the Contractor respecting the Contractor's operations in performing work covered by the contract. Coverage shall include protection from damages arising out of bodily injury or death and damage or destruction of property which may be suffered by persons other than the Contractor's own employees.

In addition, the Contractor shall provide for and on behalf of each subcontractor by means of a separate and individual liability and property damage policy to cover like liability imposed upon the subcontractor as a result of the subcontractor's operations in the same amounts as contained above; or, in the alternative each subcontractor shall provide same.

907-107.15--Third Party Beneficiary Clause. In the first sentence of the first paragraph of Subsection 107.15 on page 61, change "create the public" to "create in the public".

907-107.17--Contractor's Responsibility for Work. Delete the fifth sentence of the fifth paragraph of Subsection 107.17 on page 63 and substitute the following.

The eligible permanent items shall be limited to traffic signal systems, changeable message signs, roadway signs and sign supports, lighting items, guard rail items, delineators, impact

attenuators, median barriers, bridge railing or pavement markings. The eligible temporary items shall be limited to changeable message signs, guard rail items, or median barriers.

907-107.18--Contractor's Responsibility for Utility Property and Services. After the first sentence of Subsection 107.18 on page 63, add the following:

Prior to any excavation on the project, the Contractor shall contact MS 811 and advise them to mark all known utilities in the area of the excavation.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-38

CODE: (SP)

DATE: 04/18/2016

SUBJECT: Prosecution and Progress

Section 108, Prosecution and Progress, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-108.01--Subletting of Contract.

907-108.01.1--General. At the end of the last paragraph of Subsection 108.01.1 on page 73, add the following.

The Engineer will have the authority to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to make prompt payment within 15 calendar days as required above, or failure to submit the required OCR-484 Form, Certification of Payments to Subcontractors, which is also designed to comply with prompt payment requirements.

907-108.02--Notice To Proceed. Delete the second paragraph of Subsection 108.02 on page 75 and substitute the following.

The anticipated date of the Notice to Proceed (NTP) / Beginning of Contract Time (BCT) will be specified in the proposal.

Delete the fourth paragraph of Subsection 108.02 on page 75 and substitute the following.

Upon written request from the Contractor and if circumstances permit, the Notice to Proceed may be issued at an earlier date subject to the conditions stated therein. The Contractor shall not be entitled to any monetary damages or extension of contract time for any delay claim or claim of inefficiency occurring between the early issuance Notice To Proceed date and the Notice to Proceed date stated in the contract.

907-108.03--Prosecution and Progress. Delete Subsection 108.03.1 on pages 75 & 76, and substitute the following.

907-108.03.1--Progress Schedule. On working day projects, the Department will furnish the Contractor a progress schedule developed for the determination of contract time which may be used as the contract progress schedule, or the Contractor's own proposed progress schedule may be submitted for approval. If the Contractor elects to furnish a progress schedule for approval by the Engineer, it should be furnished promptly after award of the contract.

On completion date projects which include A + B projects, the Contractor shall furnish a progress schedule and be prepared to discuss both its proposed methodologies for fulfilling the scheduling requirements and its sequence of operations.

On projects using A + C bidding, the Contractor shall furnish a progress schedule and be prepared to discuss both its proposed methodologies for fulfilling the scheduling requirements and its sequence of operations.

The Engineer will review Contractor prepared progress schedules and approve schedules as it relates to compliance with the specifications and logic. The progress schedule must be approved by the Engineer prior to commencing work. The progress schedule shall be a computer generated bar-chart type schedule meeting the below minimum requirements. These activities shall be significantly detailed enough to communicate the Contractor's understanding of the construction sequencing and phasing of the project.

When preparing the progress schedule, the Contractor shall include the following:

- Show a time scale to graphically show the completion of the work within contract time.
- Define and relate activities to the contract pay items.
- Show all activities in the order the work is to be performed including submittals, submittal reviews, fabrication and delivery.
- Show all activities that are controlling factors in the completion of the work.
- Show the time needed to perform each activity and its relationship in time to other activities.

This progress schedule shall provide a bar for each major phase of construction such as, but not limited to, clearing and grubbing, grading, drainage structures, bridges, base, shoulders, paving, etc. with an estimated start working day and completion working day for each bar, all within the specified contract time.

A revised progress schedule may be required within ten days of the occurrence of any one of the following conditions:

- when a major change occurs in the work
- when a time extension is granted
- when the progress schedule becomes unrealistic

The Engineer's approval of the aforementioned Progress Schedules does not waive any contract requirements.

In the event the Contractor has not submitted an approvable progress schedule by the beginning of contract time, the progress schedule prepared by the Department shall be the approved progress schedule and used to assess contract time.

An approved progress schedule shall be in effect until the date on which a revised schedule is approved. The approved progress schedule will be the basis for contract time assessment.

When a Critical Path Method (CPM) schedule is required in the proposal, this schedule will be used in lieu of the bar graph progress schedule in evaluating work progress. In such case, the same time frame noted in this subsection for the original submittal along with the update requirements will apply.

907-108.03.2--Preconstruction Conference. Delete the first paragraph of Subsection 108.03.2 on page 76 and substitute the following.

Prior to commencement of the work, a preconstruction conference shall be held for the purpose of discussing with the Contractor essential matters pertaining to the prosecution and satisfactory completion of the work. The Contractor will be responsible for scheduling the preconstruction conference. The Contractor will advise the Project Engineer in writing 14 days prior to the requested date that a conference is requested. When the contract requires the Contractor to have a certified erosion control person, the Contractor's certified erosion control person shall be at the preconstruction conference. The Department will arrange for utility representatives and other affected parties to be present.

Delete the third paragraph of Subsection 108.03.2 on page 76.

907-108.06--Determination and Extension of Contract Time. Delete Subsections 108.06.1 and 108.06.2 on pages 79 thru 85 and substitute the following.

907-108.06.1--Based on Working Day Completion.

907-108.06.1.1--General. Contract Time will be established on the basis of an allowable number of Working Days, as indicated in the contract. A working day is defined as a day the Contractor worked or could have worked in accordance with the conditions set forth in Subsection 907-108.06.1.2, Subparagraphs (a) and (b), except during the months of December, January, and February.

During the months of December, January, and February, time will be assessed in the miscellaneous phase regardless of whether or not the Contractor actually works. The value for the time on any particular day will be determined by dividing the number of anticipated working day shown in the following table by the number of days in the particular month. This number will be expressed to three decimal places (0.000)

The span of time allowed for the completion of the work included in the contract will be indicated in the contract documents and will be known as "Contract Time".

907-108.06.1.2--Contract Time. The following TABLE OF ANTICIPATED WORKING DAYS indicates an average/anticipated number of working days per month.

TABLE OF ANTICIPATED WORKING DAYS

Month	Working Days
January	6
February	7
March	11
April	15
May	19
June	20
July	21
August	21
September	20
October	16
November	11
December	5
Calendar Year	172

NOTE: The above Table is for informational purposes only. The actual working day total as assessed by the Project Engineer on Form CSD-765 shall govern.

On projects other than A + C projects, available working days will start being assessed at the original Notice to Proceed/Beginning of Contract Time date shown in the contract documents, regardless of whether or not the Contractor has been issued an early Notice to Proceed. On A + C projects, available working days will start being assessed at the original Notice to Proceed/Beginning of Contract Time date shown in the contract documents, or the earlier Notice to Proceed/Beginning of Contract Time date if an early Notice to Proceed is allowed.

Available working days will be based on soil and weather conditions and other specific conditions cited in the contract. The Engineer will determine on each applicable day the extent to which work in progress could have been productive, regardless of whether the Contractor actually worked.

An available working day will be assessed as follows:

(a) any day of the week, Monday through Friday, exclusive of legal holidays recognized by the Department in Subsection 108.04.1, in which the Contractor works or could have worked for more than six (6) consecutive hours on the controlling item(s) of work, as determined by the Engineer from the approved progress schedule. When the Contractor works or could work more than four but less than six consecutive hours, one-half (0.5) of an available work day will be charged for that day. When the Contractor works or could work six or more consecutive hours during the day, one (1.0) available work day will be charged for that day, and

(b) any Saturday, exclusive of legal holidays recognized by the Department in Subsection 108.04.1, in which the Contractor works for more than six (6) consecutive hours on the controlling item(s) of work, as determined by the Engineer from the approved progress schedule.

When the Contractor works less than four consecutive hours during the day, no time will be charged for that day. When the Contractor works more than four but less than six consecutive hours, one-half (0.5) of an available work day will be charged for that day. When the Contractor works six or more consecutive hours during the day, one (1.0) available work day will be charged for that day.

Should the weather or other conditions be such that four (4) consecutive satisfactory hours are not available prior to noon (for daytime operations) or midnight (for nighttime operations), no time will be assessed for that day regardless of the above conditions. However, if the Contractor elects to work, time will be assessed in accordance with the previous paragraph.

Time will not be charged during any required waiting period for placement of permanent pavement markings as set forth in Subsection 618.03 provided all other work is complete except growth and coverage of vegetative items as provided in Subsection 210.01.

Each month the Engineer will complete, and furnish to the Contractor, an "Assessment Report of Working Days" (CSD-765). This report shows the number of working days assessed during the estimate period and the cumulative working days assessed to date. The Contractor should review the Engineer's report as to the accuracy of the assessment and confer with the Resident or Project Engineer to rectify any differences. Each should make a record of the differences, if any, and conclusions reached. In the event mutual agreement cannot be reached, the Contractor will be allowed a maximum of 15 calendar days following the ending date of the monthly report in question to file a protest Notice of Claim in accordance with the provisions of Subsection 105.17. Otherwise, the Engineer's assessment shall be final unless mathematical errors of assessment are subsequently found to exist, and any claim of the Contractor as to such matter shall be waived.

The Contractor's progress will be determined monthly at the time of each progress estimate and will be based on the percentage of money earned by the Contractor compared to the percentage of elapsed time.

The percentage of money earned will be determined by comparing the total money earned to-date by the Contractor, minus any payment for advancement of materials, to the total dollar amount of the contract. The percentage of time elapsed will be determined by comparing the working days assessed to-date on Form CSD-765 to the total allowable working days for the contract.

When the "percent complete" lags more than 20 percent behind the "percentage of elapsed time", the Contractor shall immediately submit a written statement and revised progress schedule indicating any additional equipment, labor, materials, etc. to be assigned to the work to ensure completion within the specified contract time. When the "percent complete" lags more than 40 percent behind the "percentage of elapsed time", the contract may be terminated.

907-108.06.1.3--Extension of Time. The Contractor may, prior to the expiration of the Contract Time, make a written request to the Engineer for an extension of time with a valid justification for the request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time.

An extension of contract time may be granted for unforeseen utility delays, abnormal delays caused solely by the State or other governmental authorities, or unforeseeable disastrous phenomena of nature of the magnitude of earthquakes, hurricanes, named tropical storms, tornadoes, or flooded essential work areas which are deemed to unavoidably prevent prosecuting the work.

The span of time allowed in the contract as awarded is based on the quantities used for comparison of bids. If satisfactory fulfillment of the contract requires performance of work in greater quantities than those set forth in the proposal, the time allowed for completion shall be increased in Working Days in the same ratio that the cost of such added work, exclusive of the cost of work altered by Supplemental Agreement for which a time adjustment is made for such altered work in the Supplemental Agreement, bears to the total value of the original contract unless it can be established that the extra work was of such character that it required more time than is indicated by the money value.

Any extension of contract time will be on a working day basis.

The Contractor shall provide sufficient materials, equipment and labor to guarantee the completion of the work in the contract in accordance with the plans and specifications within the Contract Time.

If the contract time of the project is extended into a season of the year in which completion of certain items of work would be prohibited or delayed because of seasonal or temperature limitations, the Engineer may waive the limitations provided the completion of the work will not result in a reduction in quality. When determined that the completion of the out-of-season items will cause a reduction in the quality of the work, the completion of the project will be further extended so the items may be completed under favorable weather conditions. In either case, the Engineer will notify the Contractor in writing.

Liquidated damages as set forth in Subsection 907-108.07 under the heading "Daily Charge Per Calendar Day" in the Table titled "Schedule of Deductions for Each Day of Overrun in Contract Time", shall be applicable to each calendar day after the specified completion date, or authorized extension thereof, and until all work under the contract is completed.

907-108.06.1.4--Cessation of Contract Time. When the Engineer by written notice schedules a final inspection, time will be suspended until the final inspection is conducted and for an additional 14 calendar days thereafter. If after the end of the 14-day suspension all necessary items of work have not been completed, time charges will resume. If the specified completion date had not been reached at the time the Contractor called for a final inspection, the calendar day difference between the specified completion date and the date the Contractor called for a final inspection will be added after the 14-day period before starting liquidation damages. If a project is on liquidated damages at the time a final inspection is scheduled, liquidated damages will be suspended until the final inspection is conducted and for seven (7) calendar days thereafter. If after the end of the 7-day suspension all necessary items of work have not been completed, liquidated damages will resume. When final inspection has been made by the Engineer as prescribed in Subsection 105.16 and all items of work have been completed, the daily time charge will cease.

907-108.06.2--Based on Specified Completion Date.

907-108.06.2.1--General. Contract Time will be established on the basis of a Specified Completion Date indicated in the Contract, or as determined by the Contractor in accordance with the contract documents. The span of time allowed for the completion of the work included in the contract will be known as "Contract Time".

For contracts in which a Specified Completion Date is indicated in the Contract, the span of Contract Time shall be between the date of the Beginning of Contract Time and the Specified Completion Date indicated in the Contract.

For contracts in which a Completion Date is determined by the Contractor (A + B Contracts), the span of Contract Time shall be between the date of the Beginning of Contract Time and the date representing the number of Calendar Days determined by the Contractor to complete the work.

The Contractor shall provide sufficient materials, equipment and labor to guarantee the completion of the work in the contract in accordance with the plans and specifications within the Contract Time.

At any given date, the ratio of the accumulated monetary value of that part of the work actually accomplished to the total contract bid amount adjusted to reflect approved increases or decreases shall determine the "percent complete" of the work.

The Contractor's progress will be determined monthly at the time of each progress estimate and will be based on the percentage of money earned by the Contractor compared to the percentage of elapsed time.

The percentage of money earned will be determined by comparing the total money earned to-date by the Contractor, minus any payment for advancement of materials, to the total dollar amount of the contract. The percentage elapsed time shall be calculated as a direct ratio of the expired Calendar Days to the total Calendar Days provided for in the contract.

When the "percent complete" lags more than 20 percent behind the "percentage of elapsed time", the Contractor shall immediately submit a written statement and revised progress schedule indicating any additional equipment, labor, materials, etc. to be assigned to the work to ensure completion within the specified contract time. When the "percent complete" lags more than 40 percent behind the "percentage of elapsed time", the contract may be terminated.

907-108.06.2.2--Extension of Time. The Contractor may, prior to the expiration of the Contract Time, make a written request to the Engineer for an extension of time with a valid justification for the request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time.

On all completion date contracts, an extension of contract time may be granted for unforeseen utility delays, abnormal delays caused solely by the State or other governmental authorities, or unforeseeable disastrous phenomena of nature of the magnitude of earthquakes, hurricanes, named

tropical storms, tornadoes, or flooded essential work areas which are deemed to unavoidably prevent prosecuting the work.

The span of time allowed in the contract as awarded is based on the quantities used for comparison of bids. If satisfactory fulfillment of the contract requires performance of work in greater quantities than those set forth in the proposal, the time allowed for completion shall be increased in Calendar Days in the same ratio that the cost of such added work, exclusive of the cost of work altered by Supplemental Agreement for which a time adjustment is made for such altered work in the Supplemental Agreement, bears to the total value of the original contract unless it can be established that the extra work was of such character that it required more time than is indicated by the money value.

Any extension of contract time will be based on a calendar day basis, excluding Saturdays, Sundays or legal holidays recognized by the Department in Subsection 108.04.1.

If the contract time of the project is extended into a season of the year in which completion of certain items of work would be prohibited or delayed because of seasonal or temperature limitations, the Engineer may waive the limitations provided the completion of the work will not result in a reduction in quality. When determined that the completion of the out-of-season items will cause a reduction in the quality of the work, the completion of the project will be further extended so the items may be completed under favorable weather conditions. In either case, the Engineer will notify the Contractor in writing.

Liquidated damages as set forth in Subsection 907-108.07 under the heading "Daily Charge Per Calendar Day" in the Table titled "Schedule of Deductions for Each Day of Overrun in Contract Time", shall be applicable to each calendar day after the specified completion date, or authorized extension thereof, and until all work under the contract is completed.

907-108.06.2.3--Cessation of Contract Time. When the Engineer by written notice schedules a final inspection, time will be suspended until the final inspection is conducted and for an additional 14 calendar days thereafter. If after the end of the 14-day suspension all necessary items of work have not been completed, time charges will resume. If the specified completion date had not been reached at the time the Contractor called for a final inspection, the calendar day difference between the specified completion date and the date the Contractor called for a final inspection will be added after the 14-day period before starting liquidation damages. If a project is on liquidated damages at the time a final inspection is scheduled, liquidated damages will be suspended until the final inspection is conducted and for seven (7) calendar days thereafter. If after the end of the 7-day suspension all necessary items of work have not been completed, liquidated damages will resume. When final inspection has been made by the Engineer as prescribed in Subsection 105.16 and all items of work have been completed, the daily time charge will cease.

907-108.07--Failure to Complete the Work on Time. Delete the Schedule of Deductions table in Subsection 108.07 on page 85, and substitute the following.

Schedule of Deductions for Each Day of Overrun in Contract Time

Original Contract Amount		Daily Charge Per Calendar Day
From More Than	To and Including	
\$ 0	100,000	\$ 150
100,000	500,000	360
500,000	1,000,000	540
1,000,000	5,000,000	830
5,000,000	10,000,000	1,200
10,000,000	20,000,000	1,800
20,000,000	-----	3,500

907-108.10--Termination of Contractor's Responsibility. In the last sentence of Subsection 108.10 on page 88, change “bond” to “performance and payment bond(s)”.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-109-8

CODE: (SP)

| DATE: 09/10/2015

SUBJECT: Measurement and Payment

Section 109, Measurement and Payment, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-109.01--Measurement of Quantities. Delete the third full paragraph of Subsection 109.01 on page 90 and substitute the following.

When requested by the Contractor, material specified to be measured by the cubic yard or ton may be converted to the other measure as appropriate. Factors for this conversion will be determined by the District Materials Engineer and agreed to by the Contractor. The conversion of the materials along with the conversion factor will be incorporated into the contract by supplemental agreement. The supplemental agreement must be executed before such method of measurement is used.

After the second sentence of the fourth full paragraph of Subsection 109.01 on page 90, add the following.

Where loose vehicle measurement (LVM) is used, the capacity will be computed to the nearest one-tenth cubic yard and paid to the whole cubic yard. Measurements greater than or equal to nine-tenths of a cubic yard will be rounded to the next highest number. Measurements less than nine-tenths of a cubic yard will not be rounded to the next highest number. Example: A vehicle measurement of 9.9 cubic yards will be classified as a 10-cubic yard vehicle. A vehicle measurement of 9.8 cubic yards will be classified as a 9-cubic yard vehicle.

907-109.04--Extra and Force Account Work. Delete the first paragraph under Subsection 109.04 on page 91, and substitute the following.

When extra work results for any reason and is not handled as prescribed elsewhere herein, the Engineer and the Contractor will attempt to agree on equitable prices. When such prices are agreed upon, a Supplemental Agreement will be issued by the Engineer.

When the Supplemental Agreement process is initiated, the Contractor will be required to submit to the Engineer a detailed breakdown for Material, Labor, Equipment, Profit and Overhead. The total allowable markup (which includes Prime Contractor and Subcontractor work, if applicable) for Supplemental Agreement work shall not exceed 20%, which also includes tax and bond.

The requirement for detailed cost breakdowns may be waived when a Department's Bid Item History exists for the proposed item(s), and the Contractor's requested price, including mark-up, is within 20% of the Department's Bid History cost for that item(s). In any case, the Department reserves the right to request detailed cost breakdowns from the Contractor on any Supplemental Agreement request.

When equitable prices cannot be agreed upon mutually by the Engineer and the Contractor, the Engineer will issue a written order that work will be completed on a force account basis to be compensated in the following manner:

In the last sentence of subparagraph (b) in Subsection 109.04 on page 91, change "bond" to "bond(s)".

Delete the first and second paragraphs of subparagraph (d) in Subsection 109.04 on page 92 and substitute the following.

Equipment. For any machinery or special equipment, other than small tools, authorized by the Engineer, the Contractor will use the rates shown in the book entitled "Rental Rate Blue Book For Construction Equipment" as published by EquipmentWatch® and is current at the time the force account work is authorized, unless otherwise allowed by the Engineer. This book shall be used to determine equipment ownership and operating expense rates. These rates do not include allowances for operating labor, mobilization or demobilization costs, overhead or profit, and do not represent rental charges for those in the business of renting equipment. Operating labor and overhead cost will be allowed. Subject to advance approval of the Engineer, actual transportation cost for a distance of not more than 200 miles will be reimbursed for equipment not already on the project. The cost of transportation after completion of the force account work will be reimbursed except it cannot exceed the allowance for moving the equipment to the work.

907-109.06--Partial Payment.

907-109.06.1--General. Delete the fourth and fifth sentences of the third paragraph of Subsection 109.06.1 on page 94, and substitute the following.

In the event mutual agreement cannot be reached, the Contractor will be allowed a maximum of 25 calendar days following the Contractor's receipt of the monthly estimate in question to file in writing, a protest Notice of Claim in accordance with the provisions Subsection 105.17. Otherwise, the Engineer's estimated quantities shall be considered acceptable pending any changes made during the checking of final quantities.

907-109.06.2--Advancement on Materials. Delete Subsection 109.06.2 on pages 94 & 95, and substitute the following.

907-109.06.2--Advancement on Materials. Partial payments may include advance payment for certain nonperishable or durable materials such as base aggregates, reinforcing steel, bridge piling, structural steel, prefabricated bridge components, traffic signal equipment, electrical equipment, fencing materials, and sign materials with approval of the Engineer. Advance payment may be requested for structural steel members provided fabrication has been completed and the members have been declared satisfactory for storage by a Department representative. The Contractor must make a written request to the Project Engineer for advanced payment and furnish written consent of the Surety. To qualify for advance payment, materials must be stored or stockpiled on or near the project or at other locations approved by the Engineer; or in the case of precast concrete members, treated timber, guard posts and other approved preprocessed durable and bulky materials, the materials may be stored at the commercial producer's yard provided it is located in Mississippi; or in the case of prestressed concrete members that may

require being produced at an out-of-state location, the prestress members shall be produced and may be stored at the commercial manufacturer's yard provided it is a PCI certified plant on the Department's List of Approved Prestress & Precast Plants and it is located within the continental United States; or in the case of structural steel members that may require fabrication at an out-of-state location, the fabricated members may be stored at the location of the commercial fabricator's yard provided it is located within the continental United States.

Advancements will not be allowed until the Project Engineer has received copies of material invoices and certified test reports or acceptable certificates of conformance, and in the case of materials stored at the commercial producer's/fabricator's yard, the material shall be positively identified for the specific project and a Certificate of Storage issued by the Department or a designated representative of the Department. Requests for advancements on fabricated structural steel members and prestress concrete members stored out-of-state will be denied when the Department does not have available a designated representative to issue a Certificate of Storage.

The Contractor shall make suitable arrangements to the satisfaction of the Engineer for storage and protection at approved sites or, in the case of materials stored at the commercial producer's yard located in Mississippi or, in the case of fabricated structural steel members stored at the commercial fabricator's yard or prestress concrete members stored at a commercial manufacturer's yard located within the continental United States, the Contractor shall make arrangements with the producer/fabricator for suitable storage and protection. If advanced payment is allowed and the materials are damaged, lost, destroyed or for any reason become unacceptable, the previous payments will be deducted from subsequent estimates until the materials are replaced or restored to an acceptable condition. In all cases, the Contractor shall save harmless the Commission in the event of loss or damage, regardless of cause.

An invoice or an accumulation of invoices for each eligible material must total \$10,000 or more before consideration will be given for making advanced payment. When allowed, advance payment will be based on verified actual material cost plus transportation charges to the point of storage. Sales tax, local haul and handling costs shall not be included as material cost.

Advanced payment shall not exceed 100% of the invoice price or 75% of the total contract bid price for the pay item, whichever is less.

Advanced payment for a component of a pay item shall not exceed 95% of the invoice price or 75% of the total contract bid price for the pay item of which the material is a part, whichever is less.

Advanced payment will be made only on materials that will be incorporated permanently in the project.

No advanced payment will be made on minor material items, hardware, etc.

No advanced payment will be made for materials when it is anticipated that those materials will be incorporated into the project within 60 calendar days.

Advanced payment will be paid for those materials which are not readily available, and which can be easily identified and secured for a specific project and for which lengthy stockpiling periods would not be detrimental.

Where a storage area is used for more than one project, material for each project shall be segregated from material for other projects, identified, and secured. Adequate access for auditing shall be provided. All units shall be stored in a manner so that they are clearly visible for counting and/or inspection of the individual units.

Unless specifically provided for in the contract, advance payment will not be made on materials, except for fabricated structural steel members or prestress concrete members, stored or stockpiled outside of the State of Mississippi.

Materials for which an advanced payment has been allowed must be paid for by the Contractor within 60 days of the estimate on which the advanced payment was first allowed and proof of said payment must be verified by the supplier. If proof of payment is not furnished within the allowable 60 days, the advanced payment will be deducted on subsequent current estimates until such time proof of payment is furnished.

As the materials are incorporated into the work, proportionate reductions for advance payments shall be made from monthly estimates covering the work performed. Calculation of percentage of completion, or rate of progress, shall be based on completed work and no consideration will be given to stockpiled materials.

907-109.07--Changes in Material Costs. Delete the third full paragraph of Subsection 109.07 on page 96 and substitute the following.

A link to the established base prices for bituminous products and fuels will be included in the contract documents under a Notice to Bidders entitled "Petroleum Products Base Prices."

Delete the last paragraph of Subsection 109.07 on pages 97 & 98, and substitute the following.

Adjustments herein provided shall not apply to fuels consumed or materials incorporated into the work during any monthly estimate period falling wholly after the expiration of contract time as defined in Subsection 101.02 of the applicable Mississippi Standard Specifications for Road and Bridge Construction, and as determined by checked final quantities.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-110-2

CODE: (SP)

| DATE: 04/02/2010

SUBJECT: Wage Rates

Section 110, Required Contract Provisions, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-110.02--Application. Delete Subsection 110.02.2 on page 100 and substitute the following.

907-110.02.2--Wage Rates. All persons employed or working upon the site of the work will be paid at wage rates not less than those contained in the wage determination decision of the Secretary of Labor in effect 10 days prior to taking bids.

| Bidders are advised that regardless of the wage rates listed in the Supplement to FHWA 1273 in the contract, minimum federal wage rates must be paid.

City of Durant

SPECIAL PROVISION NO. 907-242-22 LPA

CODE: (SP)

DATE: 12/22/2017

SUBJECT: Historic Durant Depot – North Building Renovation

PROJECT: Federal Aid Project No. STP-0074-00(021) LPA/106866-701000

Section 907-242, Durant – Historic Durant Depot – North Building Renovation, is hereby added to and made part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-242—HISTORIC DURANT DEPOT – NORTH BUILDING RENOVATION

The following specifications are to be used ONLY for the Historic Durant Depot – North Building Renovation. Measurement and payment will be lump sum under pay item 907-242-A015.

The Mississippi Standard Specifications for Road and Bridge Construction shall be used for all items of work other than the building construction.

SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: 1213 - Historic Durant Depot - North Building Renovation
Federal Aid Project No. STP-0074-00(011) LPA/106866-701000
City of Durant, Holmes County, Mississippi
- B. Owner's Name: City of Durant.
- C. Architect's Name: Belinda Stewart Architects, PA.
- D. The Project consists of the renovation of the Historic Durant Depot - North Building on East Mulberry Street in Durant, MS at the site shown in the drawings. .

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Section 902 - Contract Form.
- B. No Railroad Insurance will be required for this Project.

1.03 DESCRIPTION OF ALTERATIONS WORK

- A. Scope of demolition and removal work is shown on drawings.
- B. Scope of alterations work is shown on drawings.
- C. Plumbing: Installation of all new plumbing..
- D. HVAC: Installation of all new Mechanical System.
- E. Electrical Power and Lighting: Replace existing system with new construction.
- F. Telephone: Replace existing system with new construction.
- G. The City of Durant will provide and Install the following items prior to completion of project:
 - 1. Handicap Parking Sign.
 - 2. Concrete Handicap Parking Spaces.
 - 3. Traffic Striping.
 - 4. Concrete Wheel Stops.
 - 5. Construct Accessible Ramp and Stairs.
- H. Contractor shall remove and deliver the following to City of Durant prior to start of work:
 - 1. Noted historic items and furniture salvaged from the building.

1.04 WORK BY OWNER

1.05 OWNER OCCUPANCY

- A. City of Durant intends to occupy the Project upon Established Final Completion Date.
- B. Cooperate with City of Durant to minimize conflict and to facilitate City of Durant's operations.
- C. Schedule the Work to accommodate City of Durant occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Arrange use of site and premises to allow:
 - 1. Work by Others.
 - 2. Work by City of Durant.
- C. Provide access to and from site as required by law and by City of Durant:
 - 1. Do not obstruct roadways, sidewalks, or other public ways without permit.
- D. Utility Outages and Shutdown:
 - 1. Prevent accidental disruption of utility services to other facilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Number of copies of submittals.
- F. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Belinda Stewart Architects, PA will schedule a meeting after receipt of MDOT Letter of Concurrence.
- B. Attendance Required:
 - 1. City of Durant.
 - 2. Belinda Stewart Architects, PA and Consultants.
 - 3. Contractor.
 - 4. Primary Subcontractors.
 - 5. MDOT Architect.
 - 6. MDOT LPA District Coordinator.
- C. Agenda:
 - 1. Execution of City of Durant-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to Contract, City of Vicksburg and Belinda Stewart Architects, PA.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Belinda Stewart Architects, PA, City of Durant, participants, and those affected by decisions made.
- E. See MDOT Special Provision No. 907-108-37 (Prosecution and Progress) for additional information.

3.02 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Contractor shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

- C. Attendance Required: Contractor's Project Manager, Job superintendent, Major Subcontractors and Suppliers, City of Durant, Belinda Stewart Architects, PA, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, issues, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of RFIs log and status of responses.
 - 7. Review of off-site fabrication and delivery schedules.
 - 8. Maintenance of progress schedule.
 - 9. Corrective measures to regain projected schedules.
 - 10. Planned progress during succeeding work period.
 - 11. Coordination of projected progress.
 - 12. Maintenance of quality and work standards.
 - 13. Effect of proposed changes on progress schedule and coordination.
 - 14. Other business relating to Work.
- E. Contractor shall record minutes and distribute copies within two days after meeting to participants, with copies sent to Belinda Stewart Architects, PA, City of Durant, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

- A. See MDOT Special Provision No. 907-108-37 (Prosecution and Progress).

3.04 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. Submit to Belinda Stewart Architects, PA for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 1. Digital submittals may be acceptable at the discretion of Belinda Stewart Architects, PA.
- C. Samples will be reviewed for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below.

3.05 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
- B. Submit for Belinda Stewart Architects, PA's knowledge as contract administrator or for City of Durant.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.

- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit at project closeout to Belinda Stewart Architects, PA:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.
- D. Submit to Belinda Stewart Architects, PA for City of Durant's benefit during and after project completion.

3.07 NUMBER OF COPIES OF SUBMITTALS

- A. Documents for Review:
 - 1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies that Contractor requires, plus two copies that will be retained by Belinda Stewart Architects, PA.
 - 2. Larger Sheets, Not Larger Than 24 x 36 inches: Submit the number of opaque reproductions that Contractor requires, plus two copies that will be retained by Belinda Stewart Architects, PA.
- B. Documents for Information: Submit number of reproductions that Contractor requires, plus two copies to be retained by Belinda Stewart Architects, PA.
- C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Belinda Stewart Architects, PA.
 - 1. Retained samples will not be returned to Contractor unless specifically so stated.

3.08 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Use a separate transmittal for each item.
 - 2. Transmit using approved form.
 - a. Use Contractor's form, subject to prior approval by Belinda Stewart Architects, PA.
 - 3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 - 4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 - 5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
 - 6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
 - a. Deliver submittals to Belinda Stewart Architects, PA at business address.
 - 7. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Belinda Stewart Architects, PA's consultants, City of Durant, or another affected party, allow an additional 7 days.
 - 8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 - 9. Provide space for Contractor and Belinda Stewart Architects, PA review stamps.
 - 10. When revised for resubmission, identify all changes made since previous submission.
 - 11. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.

12. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
 13. Submittals not requested will be recognized, and will be returned "Not Reviewed",
- B. Product Data Procedures:
1. Submit only information required by individual specification sections.
 2. Collect required information into a single submittal.
 3. Submit concurrently with related shop drawing submittal.
 4. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
 2. Do not reproduce the Contract Documents to create shop drawings.
 3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as single package.
 2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.09 SUBMITTAL REVIEW

- A. Submittals for Review: Belinda Stewart Architects, PA will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Belinda Stewart Architects, PA will acknowledge receipt and review. See below for actions to be taken.
- C. Belinda Stewart Architects, PA's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Belinda Stewart Architects, PA's and his consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
 - a. "Approved", or language with same legal meaning.
 - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
 - 1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
 - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
 2. Not Authorizing fabrication, delivery, and installation:
- E. Belinda Stewart Architects, PA's and his consultants' actions on items submitted for information:
1. Items for which no action was taken:
 - a. "Received" - to notify the Contractor that the submittal has been received for record only.
 2. Items for which action was taken:
 - a. "Reviewed" - no further action is required from Contractor.

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Testing and inspection agencies and services.
- C. Control of installation.
- D. Mock-ups.
- E. Tolerances.
- F. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittal procedures.
- B. Section 01 4216 - Definitions.
- C. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).
- B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.
- C. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.
- D. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2014a.

1.04 SUBMITTALS

- A. Design Data: Submit for Belinda Stewart Architects, PA's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for City of Durant's information.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Belinda Stewart Architects, PA and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Conformance with Contract Documents.
 - k. When requested by Belinda Stewart Architects, PA, provide interpretation of results.
 - 2. Test report submittals are for Belinda Stewart Architects, PA's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for City of Durant's information.

- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Belinda Stewart Architects, PA, in quantities specified for Product Data.
 - 1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Belinda Stewart Architects, PA.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the City of Durant's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Manufacturer's Field Reports: Submit reports for Belinda Stewart Architects, PA's benefit as contract administrator or for City of Durant.
 - 1. Submit report in duplicate within 30 days of observation to Belinda Stewart Architects, PA for information.
 - 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.05 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Belinda Stewart Architects, PA before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Belinda Stewart Architects, PA shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency to perform specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 - 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
 - 2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
 - 3. Laboratory: Authorized to operate in the State in which the Project is located.
 - 4. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
 - 5. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Belinda Stewart Architects, PA before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

- A. Before installing portions of the Work where mock-ups are required, for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Accepted mock-ups establish the standard of quality the Belinda Stewart Architects, PA will use to judge the Work.
- C. Integrated Exterior Mock-ups: construct integrated exterior mock-up as indicated on Drawings. Coordinate installation of exterior envelope materials and products as required in individual Specification Sections. Provide adequate supporting structure for mock-up materials as necessary.
- D. Room Mock-ups: Construct room mock-ups as indicated on Drawings. Coordinate installation of materials, products, and assemblies as required in Specification Sections; finish according to requirements. Provide required lighting and any supplemental lighting where required to enable Belinda Stewart Architects, PA to evaluate quality of the mock-up.
- E. Notify Belinda Stewart Architects, PA ten (10) working days in advance of dates and times when mock-ups will be constructed.
- F. Provide supervisory personnel who will oversee mock-up construction. Provide workers that will be employed during the construction at Project.
- G. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- H. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- I. Obtain Belinda Stewart Architects, PA's approval of mock-ups before starting work, fabrication, or construction.
 - 1. Belinda Stewart Architects, PA will issue written comments within seven (7) working days of initial review and each subsequent follow up review of each mock-up.
 - 2. Make corrections as necessary until Architect's approval is issued.
- J. Accepted mock-ups shall be a comparison standard for the remaining Work.
- K. Where mock-up has been accepted by Belinda Stewart Architects, PA and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Belinda Stewart Architects, PA.

- L. Where possible salvage and recycle the demolished mock-up materials.

3.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Belinda Stewart Architects, PA before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

- A. See individual specification sections for testing required.
- B. Testing Agency Duties:
 - 1. Test samples of mixes submitted by Contractor.
 - 2. Provide qualified personnel at site. Cooperate with Belinda Stewart Architects, PA and Contractor in performance of services.
 - 3. Perform specified sampling and testing of products in accordance with specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify Belinda Stewart Architects, PA and Contractor of observed irregularities or non-conformance of Work or products.
 - 6. Perform additional tests and inspections required by Belinda Stewart Architects, PA.
 - 7. Submit reports of all tests/inspections specified.
- C. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- D. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work .
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Belinda Stewart Architects, PA and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with City of Durant's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Belinda Stewart Architects, PA.
- F. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.05 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.

- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Belinda Stewart Architects, PA, it is not practical to remove and replace the Work, Belinda Stewart Architects, PA will direct an appropriate remedy or payment adjustments.
- C. If, in the opinion of City of Durant, it is not practical to remove and replace the Work, City of Durant will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4216
DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. This section supplements the definitions contained in MDOT Section Notice To Bidders 907: 101-4 Definitions.
- B. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

- A. Furnish: To supply, deliver, unload, and inspect for damage.
- B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.
- C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Does not include materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result.
- D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.
- E. Provide: To furnish and install.
- F. Supply: Same as Furnish.

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary sanitary facilities.
- C. Temporary Controls: Barriers, enclosures, and fencing.
- D. Security requirements.
- E. Vehicular access and parking.
- F. Waste removal facilities and services.
- G. Field offices.

1.02 TEMPORARY UTILITIES

- A. City of Durant will provide the following:
 - 1. Electrical power and metering, consisting of connection to existing facilities.
 - 2. Water supply, consisting of connection to existing facilities.
- B. Existing facilities may not be used.
- C. New permanent facilities may not be used.
- D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations .
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way .
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.
 - 1. Location of fencing layout is indicated on the drawings.

1.06 EXTERIOR ENCLOSURES

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.07 SECURITY

- A. Provide security and facilities to protect Work, existing facilities, and City of Durant's operations from unauthorized entry, vandalism, or theft.

1.08 VEHICULAR ACCESS AND PARKING

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

- B. Coordinate access and haul routes with governing authorities and City of Durant.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.09 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.10 FIELD OFFICES

- A. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Final Completion. inspection.
- B. Remove underground installations to a minimum depth of 2 feet (600 mm). Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore new permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.
- F. Procedures for City of Durant-supplied products.
- G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Unforeseen historic items encountered remain the property of the City of Durant; notify City of Durant promptly upon discovery; protect, remove, handle, and store as directed by City of Durant.
- C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the City of Durant, or otherwise indicated as to remain the property of the City of Durant, become the property of the Contractor; remove from site.
- D. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Belinda Stewart Architects, PA will consider requests for substitutions only within 30 days after date established in Notice to Proceed.
- B. Substitutions may be considered by the Owner and Architect when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- D. A request for substitution constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to City of Durant.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 - 5. Will reimburse City of Durant and Belinda Stewart Architects, PA for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 - 3. Belinda Stewart Architects, PA will notify Contractor in writing of decision to accept or reject request.

3.02 OWNER-SUPPLIED PRODUCTS

- A. City of Durant's Responsibilities:
 - 1. Arrange and pay for product delivery to site.
 - 2. On delivery, inspect products jointly with Contractor.
- B. Contractor's Responsibilities:
 - 1. Review City of Durant reviewed shop drawings, product data, and samples.
 - 2. Receive and unload products at site; inspect for completeness or damage jointly with City of Durant.
 - 3. Handle, store, install and finish products.
 - 4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- J. Prevent contact with material that may cause corrosion, discoloration, or staining.
- K. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- L. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
- C. Pre-installation meetings.
- D. Cutting and patching.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of City of Durant personnel.
- H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 02 4100 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.
- F. Individual Product Specification Sections:
 - 1. Advance notification to other sections of openings required in work of those sections.
 - 2. Limitations on cutting structural members.

1.03 REFERENCE STANDARDS

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of City of Durant or separate Contractor.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

- D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
 - 1. Minimize amount of bare soil exposed at one time.
 - 2. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After City of Durant takes occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of City of Durant's activities.

PART 2 PRODUCTS - NOT USED

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.

- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Belinda Stewart Architects, PA four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Belinda Stewart Architects, PA, City of Durant, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Belinda Stewart Architects, PA of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Belinda Stewart Architects, PA the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Belinda Stewart Architects, PA.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, ground floor elevations.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 - 1. Verify that construction and utility arrangements are as indicated.
 - 2. Report discrepancies to Belinda Stewart Architects, PA before disturbing existing installation.

3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Remove existing work as indicated and as required to accomplish new work.
 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 2. Remove items indicated on drawings.
 3. Relocate items indicated on drawings.
 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- C. Services (Including but not limited to HVAC, Plumbing, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
 2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
 3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
 - b. Provide temporary connections as required to maintain existing systems in service.
 4. Verify that abandoned services serve only abandoned facilities.
 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- D. Protect existing work to remain.
 1. Prevent movement of structure; provide shoring and bracing if necessary.
 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
- E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
 1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Belinda Stewart Architects, PA.
 2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
 3. Where a change of plane of 1/4 inch (6 mm) or more occurs in existing work, submit recommendation for providing a smooth transition for Belinda Stewart Architects, PA review and request instructions.
 4. Trim existing wood doors as necessary to clear new floor finish. Refinish trim as required.
- F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- G. Refinish existing surfaces as indicated:
 1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

- H. Clean existing systems and equipment.
- I. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- J. Do not begin new construction in alterations areas before demolition is complete.
- K. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.
- D. Obtain written approval from the City of Durant and submit to Belinda Stewart Architects, PA certifying that the owner and users have adequate instruction/demonstration for operating and maintaining the building.

3.12 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.13 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces,
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.

- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to Belinda Stewart Architects, PA.
- B. Notify Belinda Stewart Architects, PA in writing when work is considered ready for Substantial Completion.
- C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Belinda Stewart Architects, PA's Substantial Completion inspection.
- D. Correct items of work listed in Final Correction Punch List and comply with requirements for access to City of Durant-occupied areas.
- E. Notify Belinda Stewart Architects, PA when work is considered finally complete and ready for Belinda Stewart Architects, PA's Substantial Completion final inspection.
- F. Complete items of work determined by Belinda Stewart Architects, PA listed in executed Certificate of Substantial Completion.

3.15 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the City of Durant.

END OF SECTION

SECTION 02 2140
RESTORATION AND RENOVATION TECHNIQUES

PART 1 - GENERAL

1.01 GENERAL

- A. This section specifies the particular procedures to be employed in the renovation of original building features, materials, surfaces and artifacts during the course of the work. Refer to Demolition and Restoration and Repair Notes on drawings for additional information.

1.02 RELATED SECTIONS

- A. Section 02 4100 - Demolition
- B. Section 04 0100 - Masonry Restoration
- C. Section 04 4000 - Stonework Restoration
- D. Section 04 9150 - Masonry Cleaning
- E. Section 08 5550 - Restoration of Historic Wood Windows
- F. Section 09 9113 - Exterior Painting
- G. Section 09 9123 - Interior Painting

1.03 ARCHITECT CONSULTATION

- A. Notify Architect immediately if existing conditions uncovered vary significantly from that shown herein and/or pose structural instability, or situation requires modification to the architectural details and intent. Obtain approval before proceeding with the work.

1.04 ALTERNATE METHODS

- A. Alternate techniques for specified renovation procedures may be submitted for review and approval by the Architect. Provide detailed description of technique, including chemical composition of chemicals (if any) and list of projects at which procedure has been used successfully. See Product Material Substitutions, Section 01 6000.

1.05 REQUIREMENTS TO MATCH EXISTING

- A. Selection of materials for restoration, reconstruction and repair shall exactly match designated material or feature in type, form, construction, density, grain, surface texture, etc. When extant feature is to be reproduced remove intact sample of the existing feature or material and furnish to manufacturer as a template for fabrication, where possible.

1.06 ORIGINAL MATERIALS

- A. Limit cutting and patching in original materials to the absolute minimum necessary to accomplish the work.

1.07 DEFINITIONS

- A. **WELL MAINTAINED CONDITION:** Items indicated to be returned to a well maintained condition shall be repaired to a fully-functioning condition, with replacement of any damaged or deteriorated materials or components that interfere with the function of the item being restored - or elements that show visual signs of a lack of maintenance. Items are to appear as though they have been well maintained over their life, showing minor imperfections, scars and other signs of wear that do not interfere with the function of the item.

1.08 STANDARDS AND REGULATIONS

- A. Comply with the standards of the U.S. Department of the Interior "Secretary of the Interior's Standards for Rehabilitation".

1.09 SAMPLES AND DEMONSTRATION AREAS

- A. Unless otherwise indicated, prepare samples and demonstration areas indicated below for approval by Architect before proceeding with the work: (Architect to designate sample/demonstration location prior to proceeding with sample/demonstration.)
 - 1. Wood repair and refinishing: 10 sq. ft. Area at each type.

2. New elements to match existing: 2 lin. ft. each type.
3. Plaster Repair: One complete crack repair and one restabilization repair. See Section 09 9220 - Plaster Systems for additional information.
4. Window repair/restoration: See Section 08 5550 - Restoration of Historic Wood Windows.
5. Door repair/restoration: 1 door of each type.
6. Stone cleaning and patching: 1 full window sill.
7. Roof Cleaning: Smallest area possible to determine gentlest means of cleaning.

1.10 SUBMITTALS

- A. Submit manufacturer's specifications, samples and other data as requested by the Architect for each product, including certification that each product complies with specified requirements.
- B. Submit information as noted in individual sections/paragraphs.

PART 2 - SCHEDULE OF TECHNIQUES

2.01 PAINT RESTORATION

- A. It is assumed that historic paint typically contains lead. Contractors are therefore required to take all necessary precautions and methods to limit employee exposure to lead-based paint and comply with OSHA standard number 1926.62 regarding lead.
- B. Where paint is to be restored without 100% removal:
 1. Scrape loose, bubbled, flaking, alligatored or otherwise deteriorated paint from the substrate. Do not scratch or damage the substrate or nearby surfaces.
 2. Sand smooth edges of thick paint to provide smooth transition.
 3. Provide 3'x3' mockup sample of paint removal.
 4. Prime and paint as directed.
- C. Where 100% paint removal is required:
 1. Utilize non-chemical, non-abrasive means of removing paint where possible.
 2. Use of infrared paint removers is allowed at the approval of the architect only and limited to areas of use approved by architect.
 3. Chemical stripping agents must be approved by architect. No "Dip Stripping" of components.
 4. No heat guns are allowed.

2.02 METAL CLEANING

- A. Scrape and wire brush surface to remove loose paint and rust. Sandblast metal exceeding 1/16" minimum thickness to the extent required to expose clean metal for repairs.
 1. Do not sandblast, use grinders or sanding disks except with prior approval of Architect.
 2. Do not sandblast lead coated copper, or other coated materials.

2.03 METAL REPAIRS

- A. Inspect metal items, catalogue and repair matching materials and finishes. Consult with Architect about repair techniques and obtain approval before continuing. Repair metal items in place unless otherwise indicated or acceptable to Architect. Do not sandblast non-ferrous metal surfaces. Do not use grinder or sanding disks except with prior approval of architect.
 1. Stainless Steel: Grind and Buff to remove dirt, corrosion and other deleterious material to provide smooth, #2B finish. Solder patches on where necessary. Replace former inadequate patches. Grind smooth to provide continuous, smooth finish. Provide sample of stainless steel repair and cleaning for approval before continuing with work. After inspection by architect, apply one coat of clear lacquer.
 2. Cast Metal: Grind and polish to #2B finish. Use gentlest methods possible. Apply one coat of clear lacquer to protect from weathering.
 3. Steel: Weld and grind smooth.
 4. Copper: Solder and grind smooth.

2.04 METAL RECONSTRUCTION

- A. Inspect metal items to be reconstructed. Select materials to match profile, gauge, alloy, thickness, size, shape, surface texture and other characteristics of original materials. Reuse original materials in reconstruction to the extent possible. Fabricate reconstructed items in accordance with provisions of specification Division 5 as applicable. Reproduce connection systems accurately.

2.05 WOOD CLEANING

- A. Scrape to remove loose paint, using tools ground to match trim profiles if required. Do not use open flames to soften paints. Acceptable paint softening methods are as follows:
 - 1. Water-reducible paint stripping compound (protect surface below)

2.06 WOOD PATCHING

- A. Wood putty minor cracks and crevices (interior and exterior putty types). Fill defects up to 2" minimum width and depth with cellulose fiber wood filler, installed per manufacturer's recommendations. For larger defects, install matching wood patches cut to fit and glued in place using filled epoxy adhesives. See Section 08 5550 Restoration of Historical Windows, for wood patching at windows.

2.07 WOOD RECONSTRUCTION

- A. Inspect wood artifacts to be reconstructed. Select materials to match profile, thickness, size, shape, surface texture and other characteristics of original materials. Reuse original materials in reconstruction to the extent possible. Fabricate reconstructed items in accordance with provisions of Section 06 2000 & 08 5550 as applicable. Reproduce connection systems accurately. Install reconstruction materials using same techniques as originals, except that concealed joints and fasteners may be installed where applicable.
- B. Wood Reconstruction System:
 - 1. Provide Abatron ALiquidWood® or AWood Epox® system to restore deteriorated/damaged wood elements or approved equal.
 - 2. Install per manufacturer's recommendations.
 - 3. Provide accessory products as needed and as recommended by manufacturer.

2.08 WOOD ROOF DECKING REPAIR AND/OR REPLACEMENT

- A. Inspect wood roof decking for damage, deterioration, missing or otherwise non-functional elements. Return to well-maintained functional condition. Replace members where necessary with wood to match existing size and configuration.

2.09 WOOD TRUSS/RAFTER REPAIR

- A. Inspect wood trusses/rafters for damage and deterioration. Return to well maintained condition. Replace truss members with salvaged wood of same size if possible, otherwise use 2x materials of size closest to original member B sistered onto existing members. Refer to Structural drawings for additional information.

2.10 CONCRETE REPAIR AND PATCHING

- A. Patch holes and other defects larger than 1" or greater width, and 2" or greater depth to the extent encountered. Refer to Concrete Reconstruction procedures for defects exceeding 4" minimum width and 2" minimum depth.
- B. (Exterior Concrete Repair/Patching) Perform all patch work after cleaning work is completed. Scrape and brush away loose material. Chip away fractured materials. Coat area to be patched with acrylic bonding agent. Prepare damp patching mix using clean, sharp natural sand and Portland cement similar to repointing mortar. Select sand color and cement color to match existing concrete surface. Pack patching mix into defect and strike off flush with existing surface. Moist cure; after curing finish surface shall match existing contiguous or adjacent surface as directed by Architect.

2.11 MASONRY AND CMU REPAIR & RESTORATION

- A. Refer to Section 04 0100 - Masonry Restoration.

2.12 CONCRETE RECONSTRUCTION

- A. Inspect surfaces to be reconstructed, if existing. Unless otherwise directed, provide finish to match existing continuous or adjacent surface.
- B. Perform reconstruction work after demolition and cleaning work is completed. Provide concrete mix as specified, except select Portland cement and sand aggregate for color range matching existing surfaces. Provide forms for finished surfaces as indicated. Coat area to be patched with bonding agent.
- C. See Drawing Details for additional information.

2.13 GLASS REPAIRS

- A. Protect existing historic glass for the duration of the project.
- B. New glass to match existing appearance unless specified otherwise. Salvage and reuse historic glass where possible.
- C. See 08 5500 Historic Window Restoration for glass window repairs.

2.14 CLAY TILE ROOF CLEANING

- A. DO NOT walk on existing roof surfaces. All work shall be performed from a lift or other means to avoid foot traffic on roof.
- B. Protection:
 - 1. Protect pedestrians, workers and vehicles and surfaces below during cleaning activities.
 - 2. Protect any existing roof flashings, gutters and downspouts from damage.
 - 3. Adjacent areas (i.e., windows, doors, wood cornice) should be protected during the cleaning of the masonry.
- C. Cleaning
 - 1. Cleaning to be performed on the ground to prevent further water infiltration into the structure.
 - 2. All cleaning to be carried out using gentlest means possible.
 - 3. Cleaning clay roof tiles with low-pressure water wash is acceptable provided that the psi remains below 300 supplemented by brushing with stiff natural bristles. The use of metal wire brushes or sandblasting is strictly prohibited.
 - 4. Cleaning Products:
 - a. Heavy duty cleaners should be used only after the use of water and/or mild cleaners are found to be unacceptable.
 - b. The use of acidic cleaners is prohibited unless specifically approved by Architect and MDAH.
 - c. A list of the chemicals or cleaners that is proposed to be used should be submitted to MDAH before the test panels are prepared.
 - d. Any chemicals or cleaners that MDAH does not approve shall be omitted from the test panels and project altogether.
 - e. If determined and approved for use, apply cleaning detergents according to manufacturer's recommendations and requirements in same manner as approved test area.
 - 5. Test Area: A test area shall be prepared in an inconspicuous location demonstrating competent cleaning of the roof tile for MDAH to review prior to releasing the contractor to complete the remainder of the cleaning.

2.15 WINDOW REPAIRS

- A. Refer to Section 08 5550 - Restoration of Historic Wood Windows

2.16 DOOR REPAIRS

- A. Inspect all doors, transoms, frames and moulding for water damage, structural damage or other damage. Return doors to well maintained condition. Clean and replace broken or irreparable parts as needed, match existing parts exactly. Confer with architect on parts that appear to be non-original and replace/repair as directed. Refer to Door Schedule for door finishes.

- B. Coordinate repairs to existing doors with specific new hardware applications.
- C. Inspect sliding doors for water damage, structural damage and other damage. Return doors to well maintained condition. Repair/adjust metal track system to allow doors to operate.

2.17 HARDWARE RENOVATION

- A. Existing transom window hardware to remain and be restored. Remove hardware, clean, repair and lubricate. Buff and clean hardware to approximate original finish to provide a well-maintained appearance.
- B. At existing doors scheduled for removal (and not reinstalled), remove and salvage all existing hardware components. Safely store and turn over to the owner.
- C. Rolling Door Hardware - Inspect rolling door hardware and track. Fix track and hardware in place if feasible. Remove track and hardware for repairs if required. Repair broken or missing components to a well maintained operable condition. Replace components to match original when they cannot be repaired.

2.18 CABINET RENOVATION

- A. Adjust misaligned existing doors.
- B. Replace missing cabinet door and drawer handles and pulls. Match existing as closely as possible.
- C. Clean all surfaces of cabinets and drawers (inside and out).
- D. Make sure all doors and drawers are in proper working order.
 - 1. Provide replacement parts as required, matching existing as closely as possible.
 - 2. Align cabinet doors and drawers for smooth operation and visual purposes.

2.19 BEADED TONGUE AND GROOVE BOARD REPAIR

- A. Repair beaded tongue and groove ceilings to match existing adjacent areas. Remove nails, fasteners, and other surface mounted elements from the face of all surfaces to be exposed to view. Fill and sand former nail holes and other imperfections. All new boards are to be fingered in a minimum of 8 inches. Paint as indicated.

2.20 PLASTER REPAIRS

- A. Clean soiled surfaces and shallow gouges and other defects requiring fillers. Fill with pre-mixed exterior latex or acrylic spackle, following manufacturer's recommendations for preparation of surface and installation. Route small cracks to V-shaped groove min. 1/8" wide before installing spackle.
 - 1. Test cleaning methods and utilize the gentlest method possible, as approved by the architect.
 - 2. Remove water-damaged and delaminated cement plaster and replace with new cement plaster exactly matching existing. Replace missing areas of plaster to match adjacent plaster.
 - 3. Scrape loose paint, but do not remove paint tightly adhered to plaster surface. Sand paint surface and install spackle or other approved synthetic filler to feather edges of paint to provide smooth wall surface. Where sand finish plaster is existing, match sand finish exactly.
 - 4. Sand existing plaster surfaces and patchwork to remove surface irregularities including old paint runs, protrusions, ridges, wrinkles and other surface defects that might interfere with quality of finish at new work.
 - 5. Completely prime, and paint entire wall, as specified in Section 09 9123, on any existing wall that receives patches and repairs to surface.
- B. Refer to Section 09 9220 - Plaster Systems for additional plaster repair and restoration information.

2.21 STONE CLEANING AND REPAIR

- A. Refer to Section 04 0100 - Masonry Restoration.

- B. Refer to Section 04 4000 - Stonework Restoration.
- C. Refer to Section 04 9150 - Masonry Cleaning.
- D. Exterior Stone & Cast Stone Cleaning:
 - 1. Scrub masonry surface with clear water and mild detergents using stiff natural or synthetic bristle brushes. Rinse thoroughly with clear water and allow to dry. Existing stone is to be returned to a "well-maintained" condition.
 - 2. Steam cleaning is considered a low pressure cleansing method by the National Park Service and is allowed upon approval of a test panel. Steam cleaning must be performed when there is no threat of freezing or other detrimental affects.
 - 3. Do not spray-apply chemical cleaners.
 - 4. Comply with recommendations of manufacturers of chemical cleaners for protecting adjacent surfaces against damage from exposure to their products.
 - 5. Do cleaning by methods which result in uniform coverage of all surfaces, and which produce an even effect without streaking or damage to stone surfaces.

2.22 GUTTER AND DOWNSPOUT REPLACEMENT

- A. Restore existing gutters, downspouts and downspout boots as indicated on the construction drawings and in these specifications to a well maintained condition.
 - 1. Scrape all loose paint, old sealant, and paint.
 - 2. Patch rusted and damaged sections as required. Replace severely damaged sections with no new section to be less than 6 linear feet.
 - 3. Seal all joints weathertight.
 - 4. Prime and paint.
 - 5. Ensure all drain lines are free of obstruction and free flowing.
 - 6. Match all new work to existing exactly.

2.23 SAWCUTTING MASONRY OPENINGS

- A. Provide smooth even cuts at new masonry openings.
 - 1. DO NOT Overcut corners.
- B. Replace broken or damaged brick edges with salvaged matching brick if needed to provide even opening to match original brick openings in similar situations.

2.24 SALVAGED ITEMS

- A. Salvaged items shall include all original elements.

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of built site elements.
- B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 1000 - Summary: Description of items to be salvaged or removed for re-use by Contractor.
- C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- D. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- E. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

PART 3 EXECUTION

2.01 SCOPE

- A. Remove walls, finishes, doors, windows, hardware, substrates and other items as indicated on the drawings. .
- B. Remove other items indicated, for salvage and relocation.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with other requirements specified in Section 01 7000.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Use of explosives is not permitted.
 - 4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 5. Provide, erect, and maintain temporary barriers and security devices.
 - 6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.

8. Do not close or obstruct roadways or sidewalks without permit.
 9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from City of Durant.
- D. Do not begin removal until built elements to be salvaged or relocated have been removed.
- E. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
- F. If hazardous materials are discovered during removal operations, stop work and notify Belinda Stewart Architects, PA and City of Durant; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
- G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

2.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to City of Durant.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to City of Durant.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

2.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. Verify that construction and utility arrangements are as indicated.
 2. Report discrepancies to Belinda Stewart Architects, PA before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- C. Remove existing work as indicated and as required to accomplish new work.
1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 2. Remove items indicated on drawings.

- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 - 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 - 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 3. See Section 01 1000 for other limitations on outages and required notifications.
 - 4. Verify that abandoned services serve only abandoned facilities before removal.
 - 5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- E. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

2.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 04 0100
MASONRY RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Repointing mortar joints at exterior brick masonry walls, parapet caps and copings, window sills and decorative elements.
- B. Repair of damaged or deteriorated masonry (Brick, Limestone and Cast Stone).
- C. Waterproofing of horizontal and low-slope masonry surfaces.
- D. Laying up of any missing masonry.

1.02 RELATED SECTIONS

- A. Section 02 2140 - Restoration and Renovation Techniques
- B. Section 04 4000 - Stonework.
- C. Section 04 91 50 - Masonry Cleaning
- D. Section 07 19 00 - Water Repellants

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week prior to commencing work of this section.
 - 1. Require attendance of parties directly affecting work of this section.
 - 2. Review conditions of installation, installation procedures, and coordination with related work.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on cleaning compounds and cleaning solutions.
- C. Test Panel: 3'x3' test panel in inconspicuous location demonstrating competent removal of old mortar and repointing such that the new mortar joints match in color, texture, hardness and tooling. Power tools shall not be permitted in removing old mortar. The Architect and MDAH preservation specialist shall review and approve the test panels prior to releasing the Contractor to complete the remainder of repointing.
- D. Manufacturer's Instructions: For cleaning materials, indicate special procedures, conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Single-source responsibility for new masonry units: Obtain masonry units to match existing masonry within the acceptable ranges as approved by the Architect, from one source and by a single manufacturer for each different product required.
- B. Single-source responsibility for mortar materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- C. Protect sand, lime, cement and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer's recommendations for minimum temperature requirements for storage.
- D. Mortar Analysis Testing Firm or Lab must have a minimum of 5 years experience in Mortar Analysis and developing reports that follow the ASTM C1324 Standard.
- E. Masonry Restoration Contractor:
 - 1. Company specializing in masonry restoration with minimum 5 years of documented experience.

- a. Submit a list of five successful masonry restoration projects completed by the masonry contractor with similar scope as this project. Include name, location, owner and contact information (Phone numbers).
 - b. All persons working on this project shall be trained for the work specified herein.
- F. Pre-Application/Installation Meeting: Convene 3 weeks prior to commencing work of this section.
 1. Require attendance of all parties directly affecting work of this section.
 2. Review conditions of installation, installation procedures, and coordination with related work.
 3. Review environmental regulations, test panel(s) procedures, protection of surrounding areas and non-masonry surfaces, surface preparation, application and coordination of other work.

1.06 MOCK-UP

- A. Mortar Repointing Test Panel: 3'x3' test panel demonstrating competent removal of old mortar and repointing such that the new mortar joints match in color, texture, hardness and tooling. Power tools shall not be permitted in removing old mortar. The Architect and MDAH preservation specialist shall review and approve the test panels prior to releasing the Contractor to complete the remainder of repointing.
- B. Mock-ups/Test Panels: At least 30 days prior to installing masonry, construct a sample wall section/panel to verify selections made under sample submittals and to demonstrate aesthetic and technical effects as well as other qualities of material and execution. Build mock-up to comply with the following requirements, using materials indicated for final work.
- C. Notify Architect one week in advance of the dates and times when mock-ups will be constructed.
- D. Locate mock-ups & test panels where directed by Architect.
- E. Acceptance of Mock-Up does not constitute approval of deviations from the Contract Documents, unless such deviations are approved in writing by Architect.
- F. Acceptable panel and procedures employed will become the standard for work of this section.
- G. Accepted Mock-ups may remain as part of the Work.
 1. Protect accepted Mock-Up from the elements with weather resistant membrane.
 2. When directed, demolish and remove mock-up from site.

1.07 PRE-INSTALLATION MEETING

- A. Require attendance of all parties directly affecting work of this section.
 1. Review environmental regulations, test panel(s) procedures, protection of surrounding areas and non-masonry surfaces, surface preparation, application and coordination of other work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.
- B. Deliver all materials required to clean, repair, restore, stain and seal in manufacturer's unopened containers.

1.09 FIELD CONDITIONS

- A. Maintain materials and surrounding air temperature to minimum 40 degrees F (5 degrees C) prior to, during, and 48 hours after completion of masonry work.
- B. Maintain materials and surrounding air temperature to maximum 90 degrees F (32 degrees C) prior to, during, and 48 hours after completion of masonry work.

1.10 WARRANTY

- A. Provide written warranty ensuring that all replacement masonry units, patching materials, rebuilt work, sealants and mortar joints that are determined to become displaced, cracked,

spalled, hairlined, delaminated, discolored or otherwise unacceptable within a period of two (2) years from the date of substantial completion will be replaced in a manner conforming with the requirements of the specifications.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Install all anchors, ties, flashing, etc. which bear on masonry work. Anchors and bolts shall be provided where necessary or indicated to secure work in place. Sizes, types and spacing of anchors, bolts, clamps, or dowels not indicated shall be as necessary for their purpose.

2.02 MANUFACTURERS

- A. Masonry Restoration Materials:
 - 1. Jahn Mortars: www.jahnmortars.com
 - 2. Edison Coatings, Inc.: www.edisoncoatings.com
 - 3. US Heritage Group: www.usheritage.com
 - 4. Substitutions: See Section 01630 - Substitutions and Product Options.

2.03 BRICK

- A. Brick: Match existing adjacent brick in size, texture and performance.
- B. Salvaged brick that has been cleaned and that matches the original may be used if approved by the architect.
- C. Brick that will be visible upon completion of work shall match the original adjacent brick in every manner.

2.04 MORTAR MATERIALS

- A. Mortar Analysis:
 - 1. Existing mortar must be tested in accordance with ASTM C1324, "Standard Test Method for Examination and Analysis of Hardened Masonry Mortars" in order to determine the composition of the mortar and provide basis of mix design (or close variant) for mortar to be used for repointing and masonry repair/reconstruction work on the project.
 - 2. Mortar Analysis must be performed by a reputable Testing Firm or Lab having a minimum of 5 years experience in Mortar Analysis and developing reports that follow ASTM C1324 Standard.
 - 3. Final Analysis of Report shall be submitted to and approved by the Architect and Mississippi Department of Archives and History (MDAH) prior to proceeding with work.
 - 4. Mortar Sample, as determined by Analysis, shall be used as part of the required Masonry Restoration Mock-Up. Final Approval of Color, Composition and "Texture" shall be made by Architect and MDAH,

2.05 MORTAR MIXES:

- A. Measurement and Mixing: Measure cementitious and aggregate material in a dry condition by volume or equivalent weight. Do not measure by shovel; use known measure.
- B. Mixing Mortar: Thoroughly mix cementitious and aggregate materials together before adding any water. Then mix again, adding half the water and mix for approximately five minutes. The remaining water should then be added in small portions until the mortar will stick to a trowel held upside down. Do not over wet mortar, as it will smear easily (causing difficult cleanup), and is not as strong.
- C. The Final Mortar Color shall be determined by the sand/aggregate and by the comparison match to existing adjacent mortar joints.
 - 1. Several different mortar colors may be required to match existing mortar colors in different areas.
 - 2. The use of color pigments in mortar is prohibited.
- D. Overall texture of the mortar must also be taken into consideration and will be reviewed in comparison to existing adjacent mortar.

- E. Water: Potable water free of acid, alkali, oil or organic contamination.

2.06 MASONRY CLEANING AND WATER REPELLANTS:

- A. Refer to Section 04 9150, for Masonry Cleaners.
- B. Refer to Section 07 1900, for Water Repellants for Masonry.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces to be restored are ready for work of this section.

3.02 PREPARATION

- A. Protect surrounding elements from damage due to restoration procedures.
- B. Carefully remove and store removable items located in areas to be restored, including fixtures, fittings, finish hardware, and accessories; reinstall upon completion.
- C. Separate areas to be protected from restoration areas using means adequate to prevent damage.
- D. Cover existing landscaping with tarpaulins or similar covers.
- E. Mask immediately adjacent surfaces with material that will withstand cleaning and restoration procedures.
- F. When using cleaning methods that involve water or other liquids, install drainage devices to prevent runoff over adjacent surfaces unless those surfaces are impervious to damage from runoff.

3.03 BRICK REMOVAL

- A. Carefully remove by hand at locations indicated any brick which are damaged, spalled, deteriorated, or indicated to be demolished or removed. Cut out full units from joint to joint and in manner to permit replacement with full size units.
- B. Support and protect masonry indicated to remain which surrounds removal area.
- C. Salvage as many whole, undamaged bricks as possible for use in reconstruction.
- D. Remove mortar, loose particles and soil from salvaged brick by cleaning with brushes and water. Store brick for reuse.
- E. Clean remaining brick at edges of removal areas by removing mortar, dust, and loose debris in preparation for rebuilding.

3.04 REBUILDING

- A. Cut out damaged and deteriorated masonry with care in a manner to prevent damage to any adjacent remaining materials.
- B. Support structure as necessary in advance of cutting out units.
- C. Cut away loose or unsound adjoining masonry as directed.
- D. Build in new units following procedures for new work specified in other section(s).
- E. Mortar Mix: Colored and proportioned to match existing work.
- F. Ensure that anchors are correctly located and built in.
- G. Install new or salvaged brick to replace removed brick. Fit replacement units into bonding and coursing pattern of existing brick. Areas to be completely rebuilt are to match the existing original brickwork exactly unless noted otherwise. If cutting is required, use motor driven saw designed to cut masonry with clean, sharp unchipped edges.
- H. Lay replacement brick with completely filled bed, head and collar joints. Butter ends with sufficient mortar to fill head joints and shove into place. Wet any clay brick which have ASTM C67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use

wetting methods which ensure that units are nearly saturated but surface dry when laid. Maintain joint width for replacement units to match existing.

- I. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
- J. Install built in masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build in all openings, accessories and fittings.

3.05 REPOINTING

- A. Perform repointing prior to cleaning masonry surfaces.
- B. Repoint brick masonry, limestone and cast stone work in areas denoted on drawings and meeting the following criteria:
 - 1. Open joints where the mortar has eroded more than 1/4" from the face of the masonry or is powdery, or has fallen out.
 - 2. Cracked joints where cracks of hairline width or larger have formed in the mortar.
 - 3. Separated joints where the mortar and the masonry do not adhere, resulting in a crack or gap between the two, or the mortar is sitting loosely in the joint.
- C. Removing Old Mortar:
 - 1. Remove deteriorated mortar by hand, using mallet and small-headed chisel no wider than half the joint width. Power operated rotary hand saws and grinders will not be permitted on the job.
 - 2. Rake out deteriorated mortar from joints to depths equal to 2 1/2 times their widths, but not less than 1/2", nor less than that required to expose sound, unweathered mortar. Exercise extreme care to prevent damage to brick during the removal of mortars.
 - 3. Remove mortar from masonry surfaces with raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 4. Do not spall edges of masonry units or widen joints. Replace any masonry units that are damaged during the course of this work with units that exactly match original.
- D. New Mortar:
 - 1. Rinse masonry joint surfaces with water to remove any dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.
 - 2. Apply first layer of pointing mortar to areas where existing mortar was removed to depths greater than the surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow to become thumb print-hard before applying next layer.
 - 3. Where existing bricks have rounded edges, recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or to feather-edge mortar.
 - 4. Form a smooth, compact joint to match existing.
 - 5. Remove excess mortar from edge of joint by brushing.
 - 6. Cure mortar by maintaining in a damp condition for not less than 72 hours.
- E. Conduct work to minimize open joints and other areas that allow moisture to penetrate the walls.

3.06 RESTORATION CLEANING

- A. See Section 04 9150 - Masonry Cleaning for products and procedures to be used in the cleaning of new and existing masonry surfaces.

3.07 CLEANING

- A. See Section 04 9150 for cleaning products and procedures.
- B. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon or bristle brushes and clean water. Metal scrapers or brushes will not be permitted.

- C. Immediately remove stains, efflorescence, or other excess resulting from the work of this section.
- D. Remove excess mortar, smears, and droppings as work proceeds and upon completion.
- E. Clean surrounding surfaces.

END OF SECTION

SECTION 04 4000
STONEMWORK

PART 1 - GENERAL

1.01 1.01 WORK INCLUDED:

- A. Extent of limestone or cast stone restoration work is indicated on the drawings and generally includes the following:
 - 1. New stone work to match existing and dutchman.
 - 2. Cleaning and repairing existing stone work.
 - 3. Relocating, cutting, reworking, repairing, refinishing, storing, and reinstalling existing stone as necessary to complete the Work under this Contract.
 - 4. Water repellant on horizontal surfaces.

1.02 RELATED WORK

- A. The following sections contain requirements that relate to this section:
 - 1. Section 02 2140 - Restoration and Renovation Techniques
 - 2. Section 04 0100 - Masonry Restoration
 - 3. Section 04 0915 - Masonry Cleaning
 - 4. Section 07 1900 - Water Repellants

1.03 SUBMITTALS:

- A. Shop and Setting Drawings:
 - 1. Shop Drawings: Submit for approval. Show:
 - a. Variations to repair procedures due to actual conditions different from those indicated.
 - b. Locations and elevations of new and relocated stones.
 - c. Details and elevations of existing construction to be repaired; include each type of condition.
 - d. Cutting and Setting Drawings: Submit for approval. Show dimensions, sections, and profiles of stonework units; arrangement and provisions for jointing, anchoring, fastening, supports, and other necessary details. Include elevation drawings indicating the location of each new stone unit, each refabricated stone unit, and each existing stone unit to be removed and reinstalled, marked with a number or number-letter designation corresponding to designation marked on concealed face of each unit. Use water based paint except do not paint on face of stone.
 - 2. Do not remove stones from the site or deliver new stones to the site until Architect has approved specified cutting, setting, and shop drawings.
 - 3. Architect's drawings may be used as shop drawings if verified and certified by Contractor.
- B. Samples: Submit, for verification purposes, samples of the following:
 - 1. Mortar: Each type of mortar for stone rebuilding and repair. Verified in field by mock-up.
 - 2. Stone samples of each color, grade, finish, edge profile, type and variety of stone required and consisting of stones not less than 12" square.
 - 3. Two of each type of dowels, anchors, shims and embeds, with drawings, and installation instructions for each.
 - 4. On request, also submit samples and manufacturers information of each proprietary material proposed for use in stone repair, restoration, and cleaning.
- C. Product Data:
 - a. For approval, submit manufacturers' brochures and technical data for each mortar material, cleaning agent, repairing compound, and other product and material required. Include recommendations for mixing, applying, and using and certifications and test reports substantiating that products comply with requirements.

1.04 QUALITY ASSURANCE:

- A. Applicable Standards: Work shall comply with the recommendations of Indiana Limestone Institute (ILI).

- B. Fabricator's Qualifications: Provide fabrication of new stone, and refabrication of existing stone, from a single firm which has successfully fabricated, and refabricated, similar stone for a period of not less than 5 years and is equipped to provide the services needed. Provide company brochure and list of completed projects.
- C. Installer Qualifications: Engage an installer who has successfully completed stonework repair and restoration similar in material, design, and extent to that indicated for this project for a period of not less than five years and who have worked on at least five similar Mississippi Landmarks. Submit list of completed projects; including project names, addresses, phone numbers, and names of architects and owners.
 - 1. Compatibility Tests: Before starting each type of Work specified in this section, test proposed methods and materials in small inconspicuous locations approved by Architect for compatibility with existing materials. Do not use incompatible materials. Do not proceed with Work until Architect approves the tests.
 - 2. Allowable Tolerances: In both new and reinstalled stone, variations shall not exceed:
 - a. Variations from Plumb: For lines and surfaces of walls and arises, do not exceed 1/4 inch in 10 feet, 3/8 inch in 20 feet maximum. For external corners and other conspicuous lines, do not exceed 1/4 inch in 20 feet maximum.
 - b. Variation from Level or Plane: For grades indicated for exposed lintels, sills, parapets, and other conspicuous lines, do not exceed 1/4 inch in 20 feet maximum, nor 3/4 inch in 40 feet or more.
 - c. Variation of Line: From existing or indicated position in plan, do not exceed 1/2 inch in any 20 feet maximum or 3/4 inch in 40 feet or more.
 - d. Variation in Cross Section: Form existing or indicated dimensions, do not exceed minus 1/4 inch, nor plus 1/2 inch.
 - e. Make junctures with existing materials flush within 1/8 inch.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Carefully pack, handle, and ship new and refabricated salvaged stone units and accessories strapped together in suitable packs or pallets or in heavy cartons. Unload and handle to prevent chipping and breakage. Deliver to project in undamaged condition.
- B. Protect existing-in-place, new, and refabricated and other salvaged stone during storage and construction against moisture, soiling, staining, physical damage, temperature changes, contaminants and corrosion.
- C. Protect restoration materials during storage and construction from wetting by rain, snow, or groundwater, and from straining or intermixture with earth or other types of materials, but allow air to circulate around stones.
- D. Do not use pinch or wrecking bars.
- E. Lift with wide-belt type slings where possible; do not use wire rope or ropes containing tar or other substances which might cause staining. If required to move stone, use wood rollers with cushions at end of wood slides.
- F. Store stone on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones.
- G. Store stone to prevent mud stains. Mud stained stones shall be replaced from the quarry.
- H. Store cementitious materials off the ground, under cover and in dry location.

1.06 PROJECT CONDITIONS:

- A. Protect persons, motor vehicles, fencing, landscaping and other site features and surrounding areas from injury resulting from stonework.
 - 1. Prevent chemical cleaning solutions from coming into contact with people and surfaces they might injure.

2. Dispose of runoff from cleaning operations by legal means. Prevent soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 3. Protect adjacent surfaces from damage due to stone restoration, repair, and cleaning. Use drop cloths, polyethylene sheeting, tape, and other means necessary.
 4. Provide temporary barricades, fences, shoring, lights, barriers, partitions, casing of openings, chutes, closures, and other protection.
 5. Ensure safe passage of people around area of demolition. Prevent injury to adjacent facilities, and to people.
 6. Clean stone surfaces only when air temperatures are 40 degrees F. and above and will remain so until stone has dried out, but for not less than seven (7) days after completion of cleaning.
 7. Cold-Weather Protection for Installing New Stone and for Reinstalling Removed Existing Stone:
 - a. Do not build on frozen work; remove existing and new stonework in the area of the Work under this Contract that has been damaged by frost or freezing; discard and provide new matching stone, except where repair of existing stone damaged by freezing before this Contract began is specifically approved in each specific case.
 8. Cover stone work with anchored non-staining waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress. Extend cover a minimum of 24" down sides and hold securely in place.
 9. Prevent staining of stone from mortar, grout, sealants, and other sources. Immediately remove such materials from stone without damage to latter.
 10. Environmental conditions for sealants: Do not proceed with installation of sealants when ambient and substrate temperatures are outside the limits permitted by sealant manufacturer or below 40 degrees F. or when joint substrates are wet due to rain, frost, condensation or other causes.
 11. Cleaning: Remove debris from site daily. At completion, remove all excess materials, rubbish, packaging and other construction debris.
- B. Shoring: Provide shoring of existing building elements as required to prevent damage to the building during the course of this work.

PART 2 - MATERIALS

2.01 NEW STONE MATERIALS:

- A. Upon approval of Architect, provide new stone (matching existing stone makeup, density, finish & color) in lieu of repairing severely damaged existing stone.
- B. Provide new stone:
 1. Where repair of existing stone requires partial replacement "Dutchman".
 2. Where new stone is indicated.
 3. Where existing stone is to be removed and new stone provided.
 4. Where existing stone is damaged beyond repair, does not exist, or is insufficient in quantity to carry out the work under this contract.
 5. Where stones have been previously patched/replaced with cement.
 6. Provide stone from single quarry or manufacturer.
 7. Make samples available for inspection by Architect.
- C. Limestone: Furnish Limestone complying with ASTM C568, with density category to match existing limestone. Minimum compressive strength: 4000 psi per ASTM C170. Maximum absorption: 7.5 percent per ASTM C97. Limestone shall match existing limestone (cleaned) in color, grade, texture, appearance and finish.
- D. Cast Stone: Where existing stone is cast stone not limestone, furnish cast stone manufactured to simulate appearance of natural limestone, complying with ASTM C1364. Calculate strength of pieces to be field cut at 80 percent of uncut piece. Surface texture shall be fine grained with no bugholes, air voids, or other surfaces blemishes visible from distance of 20 feet. Provide

shapes to match existing, provide drip edges on projecting components wherever possible. Provide reinforcement as required to withstand handling and structural stresses: comply with ACI 318. Pieces more than 12 inches in any direction: provide full length two-way reinforcement of cross-sectional area not less than .25 percent of unit cross-sectional area.

2.02 MORTAR, GROUT AND PATCHING MATERIALS:

- A. Portland cement: ASTM C150, Type I, except use Type III for setting stone in cold weather; complying with the staining requirements of ASTM C91 for not more than 0.03 percent water soluble alkali. White or natural as necessary to produce visible mortar and grout colors to match existing.
- B. Hydrated Lime: Type N.
- C. Sand: ASTM C144, except graded with 100 percent passing a No. 8 sieve and 95 percent the No. 16 sieve, for 1/4 inch and narrower joints.
 - 1. For white mortar and grout, provide natural white sand or ground white stone meeting specified requirements.
 - 2. Use discarded original stone. For colored mortar or grout, furnish sand ground from discarded original limestone for sand, as required to produce a mortar to match that existing.
 - 3. Use discarded original stone. For pointing mortar, provide sand with rounded edges.
 - 4. Match size, texture, and gradation of aggregate in existing mortar.
- D. Patching Compound: (Limited to patches 6 inches or less) Jahn Restoration Mortars approved for material/stone type, Edison Coatings Custom System 45, or Mimic or Matrix by Conproco Corporation or approved equal; color and texture to match stone being repaired. Install per manufacturer's recommendations.
- E. Cementitious Crack Filler: An ultrafine superplasticized grout that can be injected into cracks, is suitable for application to dry cracks, exhibits low shrinkage, and develops high bond strength to all types of stone. Products: Jahn Injection grout, Conproco Corporation Terra Cotta Finish, Edison Coatings Inc, Pump-X 53-Series, or equal; color and texture to match stone being repaired. Install per manufacturer's recommendations.
- F. Water: Clean, non-alkaline and potable.
- G. Where existing stone material is not to be reused; it may be ground and used as an additive for color in mortar and patching mixes.

2.03 MORTAR AND GROUT MIXES AND MIXING:

- A. Mixes: Except where otherwise specified, use nonstaining, cement-lime mortar, complying with ASTM C270, "Proportion Specification," using specified materials. Set Limestone with Type N mortar.
 - 1. Patching and rebuilding mortar for Limestone: Mix composed of white or gray cement combined with lime and selected aggregates to produce color matching existing stone. Proportion mix with 1 part cement, 1 part lime and 6 parts aggregate, unless different mixes or materials are recommended by stone producer and approved. Contractor may submit for consideration a proprietary patching mortar material for each stone type, in lieu of specified Portland cement-lime mix.

2.04 ACCESSORIES, ANCHORS, AND SUPPORTS:

- A. Except where indicated otherwise, stonework accessories, anchors, and supports shall match those of the existing work. Use existing accessories, anchors, and supports when specifically approved. Provide new accessories, anchors, and supports where existing accessories are damaged or otherwise unacceptable and where new accessories are necessary to carry out the Work.
- B. Provide anchors and attachments of type and size required to support the stonework fabricated from Stainless steel, AISI Type 304, or 316, for anchors and expansion bolts embedded within the stone.

- C. The requirements for the stone support and anchorage as shown by the details are intended to establish the basic intent of the stone anchorage system. The Contractor shall be responsible for the design of the support and anchorage system and shall request approval of and make whatever modifications and additions to the details as may be required to fulfill the performance requirements.

2.05 CLEANING MATERIALS AND EQUIPMENT:

- A. Water for Cleaning: Clean; potable; free of oils, acids, alkalis, salts, and organic matter. Heat warm water, if required, to temperature of 140 degrees F. to 180 degrees F.
- B. Brushes: Fiber bristle only.
- C. Dilute chemical cleaners with water to produce solutions not exceeding concentrations recommended by the chemical cleaner manufacturer.
- D. Clean stone with least stringent cleaning solutions first continue to more stringent cleaning products for more stubborn stains after approval of architect. Follow manufacturer's written instructions for application of cleaning agent to building material.
- E. Mold, Mildew, and Algae Remover: Biocides designed for stone cleaning. Products: D2 Architectural Antimicrobial, Prosoco; Biowash, or approved equal.
- F. Nonacidic Gel Cleaner: Manufacturers standard gel formulation with pH between 6 and 9, that contains detergents with agents specifically formulated for cleaning masonry surfaces. Products: Price Research, Ltd.; Price Marble Cleaner-Gel, Prosoco; Sure Klean 942 Limestone and Marble Cleaner.
- G. Mild Acidic Cleaner: Manufacturer's standard mildly acidic cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid: or ammonium bifluoride or chlorine bleaches. Products: ABR Products, Inc.; X-190 Limestone & Concrete cleaner, Diedrich Technologies Inc.; Envirostore 100, Dominion Restoration Products, Inc; DR-60 Stone and Masonry Cleaner, Prosoco; Enviro Klean BioWash or approved equal.
- H. Two-Part Limestone Cleaner: Manufacturer's standard two-part system consisting of potassium or sodium hydroxide based alkaline prewash cleaner and acidic afterwash cleaner that does not contain hydrofluoric acid. Subject to compliance with requirements, the product shall be ABR Products, Inc.; 500 Limestone Prewash Cleaner followed by 500 Limestone Afterwash, Diedrich Technologies Inc.; Diedrich 707X Limestone cleaner Pre-Rinse or Diedrich 808X Black Encrustation Remover - Super Strong followed by 707N Limestone Neutralizer After-Rinse, Prosoco; Enviro Klean BioKlean followed by Sure Klean Limestone & Masonry Afterwash, or approved equal.

2.06 LIMESTONE WATER REPELLENT

- A. Refer to section 07 1900 Water Repellents
- B. Apply to all horizontal surfaces.
- C. Do not apply until prepared surface and application methods are approved by architect.

2.07 MISCELLANEOUS MATERIALS:

- A. Stone-to-Stone Adhesive: Two-part epoxy- resin stone adhesive with a 15- to 45-minute cure at 70 degrees F., in formulation (knife or flowing grade) recommended by adhesive manufacturer for type of stone repair needed and in color as selected by Architect from tinted or standard colors available from adhesive manufacturer. Subject to compliance with requirements, provide two part: Akemi North America; Akepox, Bonstone Materials Corporation; Fast Set 41, or Edison Coatings, Inc; Flexi-Weld 520T or One part: Jahn Restoration adhesive, or approved equal.
- B. Stone Consolidation Treatment: Ready-to-use product designed for consolidation of stone that has deteriorated due to weathering and exposure to pollutants. Treatment shall be composed of silicic-ethyl esters, a neutral catalyst, and solvents. Products: Akemi North America; Stone Strengthener K, Diedrich Technologies Inc.; D50C, Cohalan Company, Inc.; Keim Silex OH, Prosoco; Conservare OH100 Stone Strengthener with HCT pretreatment or approved equal.

- C. Joint Fillers: Cork or other nonbituminous type to match existing.
- D. Brick: Existing salvaged brick or new brick at Contractor's option may be used as infill as indicated in the drawings and in areas not visible. Provide same mortar mix as for stone.

2.08 FABRICATION:

- A. Cut accurately to shape and dimensions shown on final shop drawings, maintain fabrication tolerances of applicable stone associations.
 - 1. Dress joints (bed and vertical) straight and at 90 degree angle to face, unless otherwise indicated.
 - 2. Joint Width: Exactly match existing joints, and as indicated on drawings.
 - 3. Sizes and Thicknesses: Unless otherwise indicated, provide stone of thickness to match existing stone, with maximum variation from existing stone of 3/8 inches for units less than 3 inches thick and 1/2 inch for thicker units. Saw-cut back surfaces which will be concealed in finished work. Sizes shall match existing. Leave not less than 1 inch clearance between back face of units and structure framing. Clean sawn backs of rust stains and iron particles.
 - 4. Comply with recommendations of the Indiana Limestone Institute of America, Inc. (ILI) as published in the latest edition of the Indiana Limestone Handbook.
 - 5. Cut and drill sinkages and holes in stones for anchors, fasteners, supports and lifting devices as indicated or needed to set stonework securely in place.
 - 6. Quick-miter corners, unless otherwise indicated; shall provide for cramp anchorage in top and bottom bed joints of corner pieces.
 - 7. Cut stones to produce joints of uniform width and in locations indicated: Joint Width: 1/4".
 - 8. Finish exposed faces and edges of stones to comply with requirements indicated for finish under each type and application of stone required and to match approved samples and field constructed mockups.

2.09 REFABRICATION:

- A. Refabricate existing stone:
 - 1. Where indicated.
 - 2. Where necessary to affect proper repairs.
 - 3. Where Contractor elects to use existing, unnecessary stone in a new location and such use is approved.
 - 4. Refabricate at Project site or at a fabrication shop, using equipment and methods appropriate to material and condition of material, and recommended in referenced standards and criteria. Cut existing stone using power masonry saws with diamond- or other special-tipped blades; create straight lines and consistent surfaces for entire depth of stone. Grind if necessary to complete joints, and refinish exposed edges. Do not spall or chip stone. Do not use refabricated stone with chipped edges.
 - 5. Do not refabricate fractured, chipped, permanently stained, deteriorated, freeze damaged, or otherwise unacceptable stone, unless specifically approved in each case.
 - 6. Requirements specified for fabricating new stone also apply to refabricating existing stone. Mark each refabricated stone with a number or number-letter designation identical with designation shown on cutting and setting drawings.
 - 7. Refabricate neatly to suit existing coursing and pattern. Match faces of adjacent stone units. Dress edges to follow established edges of adjacent units, including units left in place, to follow established pattern and joint size.
 - 8. Refabricate stone back-up material from sound, approved material, shaped to engage existing coursing. Finish opening edges level and square where applicable.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Require Installer to examine surfaces to receive stonework and conditions under which stonework will be installed and to report in writing any conditions which are not in compliance with requirements. Do not proceed with installation until surfaces and conditions comply with

requirements indicated in specifications or elsewhere for execution of other work which affects stonework.

- B. Should different materials, systems, or conditions occur than those assumed, immediately notify Architect. Do not proceed without instructions.

3.02 PREPARATION:

- A. Advise installers of other work concerning requirements for placing inserts and flashing reglets to be used for anchoring, supporting, and flashing stonework. Furnish installers of other work with drawings or template showing location of inserts for stone anchors and supports.
- B. Clean stone surfaces which have become dirty or stained prior to setting to remove soil, stains and foreign materials. Clean stones by thoroughly scrubbing stones with fiber brushes followed by a thorough drenching with clear water. Use only mild cleaning compounds that contain no acid, caustic or abrasives.

3.03 INSTALLING AND REINSTALLING STONE - GENERAL REQUIREMENTS:

- A. Provide items and stonework indicated. In addition, provide items and work not indicated but necessary to ensure that new stone and existing stone within the area of the Work under this Contract which is indicated to be repaired, restored, replaced, or removed and reinstalled is:
 - 1. Complete and watertight.
 - 2. Suitable in construction for the necessary function.
 - 3. In appearance comparable with the best of the existing stonework. Nothing in this paragraph limits other parts of the Contract documents.
 - 4. Do not install or reinstall stones units which in Architect's opinion are damaged beyond satisfactory repair, have not been satisfactorily repaired, or are permanently stained or improperly cleaned. Where reinstallation of removed units is unacceptable, regardless of the reason, provide new matching units.
 - 5. Where practicable, reinstall removed stone, including loose whole units and fragments, and refabricated stone, in same location from which removed.
 - 6. Where practicable, original stone units which are not needed for reinstallation in the location from which they were removed but are otherwise in acceptable condition may be refabricated and refinished and used in another location where stone of the same type, specie, and color is required.
 - 7. Where using salvaged stone is not practicable, material is declared unacceptable, or Contractor elects to do so and the action is approved, provide new matching stone in lieu of reinstalling removed stone. New stone shall exactly match removed stone in specie, type, color, shape, size, and configuration and shall be finished to match the adjacent existing stone left in place after the adjacent stone left in place has been placed in acceptable condition to comply with the requirements of this Contract.
 - 8. Employ skilled and experience stone fitters at the site to do necessary field cutting as stone is set.
 - 9. Anchor stonework and bond-replacement wythes in the same manner as existing construction. Use stainless steel at least 1/8 inch thick for all added ties and anchors.
 - 10. When installing new or salvaged stone units, butter joints for full width before setting and set units in full bed of mortar, unless otherwise indicated.
 - 11. Set stone in accordance with drawings, final shop drawings, setting drawings, and layout plans. Reconstruct stonework equal to adjacent stone areas and other similar existing installations. As the Work progresses, set and build in supports, anchors fasteners, and other attachments shown or necessary to secure stonework in place, and accessories and flashings. Shim and adjust accessories for proper setting of stone. Completely fill holes, slots and other signages for anchors, dowels, fasteners, and supports with expanding grout during setting of stones.
 - 12. Joints:
 - a. Provide mortar joints except where indicated otherwise. In every case, make and finish joints neatly and uniformly.
 - b. Keep joints uniformly similar but not less than 1/8 inch wide.

- c. Tool joints after setting to match joints of surrounding stone.
- d. Repoint new mortar joints to comply with requirements for repointing existing masonry but rake out joints before mortar sets.
- e. Clean all old mortar from existing stones.

3.04 POINTING, AND SEALING STONE JOINTS:

- A. Restore/repair/patch existing stonework indicated to be reused to a well-maintained condition.
 - 1. Repair all cracks, repair corners and spalls, patch and patch damaged and missing stone to match original. All patches shall be 1/2" deep minimum. Larger patches shall be installed in layers no more than 1/2" depth with each layer roughened to key the following layer. Patches showing hairline cracks or edge (feather) separation shall be deemed as ineffective.
 - 2. Replace missing pieces either through patching or stone replacement. Match original stone and mortar.
 - 3. Patches/repairs to existing stonework shall be completed by a stone restoration specialist with a minimum of 5 years experience and with similar stone work on at least 5 Mississippi Landmarks. Work may be completed either in the field or in a shop.

3.05 ADJUSTING AND CLEANING NEW AND REINSTALLED STONE:

- A. Remove stone installed or reinstalled under this Contract which is broken, chipped, stained, or otherwise damaged. Also remove stone patched or rebuilt under this Contract where those units are unacceptable. Provide new stone units to replace those so removed, install as specified, and point up joints to eliminate evidence of replacement.
- B. Repoint or reseal, as applicable, defective and unsatisfactory joints which were installed, reinstalled, pointed, sealed, or damaged during the Work under this Contract. Leave joints neat, uniform, and acceptable.
- C. Clean stonework installed or reinstalled under this Contract not less than 6 days after completing Work. Use clean water and stiff-bristle brushes. Do not use sand blasting, wire scrapers or brushes, acid cleaning agents, or cleaning compounds with caustic or harsh fillers. Clean reinstalled stonework, including refabricated stonework, as specified in Paragraph "Cleaning Existing Stonework".

3.06 CLEANING EXISTING STONEWORK:

- A. The Contract requires general stonework cleaning of all existing stonework. Existing stone is to be returned to a "well-maintained" condition.
- B. Use only those cleaning methods recommended by organizations specified in Paragraph "Quality Assurance" of this section and approved. Do not spray-apply chemical cleaners.
- C. Comply with recommendations of manufacturers of chemical cleaners for protecting adjacent surfaces against damage from exposure to their products.
- D. Do cleaning by methods which result in uniform coverage of all surfaces, and which produce and even effect without streaking or damage to stone surfaces.

3.07 DUTCHMAN TO REPAIR STONE MATERIALS

- A. Remove defective portion of existing stone unit (parent stone). Carefully remove defective portion of stone by making vertical and horizontal saw cuts at face of parent stone and demolishing defective material to depth required for fitting partial replacement (dutchman).
 - 1. Make edges of parent stone at cuts smooth and square to each other and to finished surface; essentially rectangular. Make back of removal area flat and parallel to stone face.
 - 2. Do not overcut at corners and intersections. Hand trim to produce clean sharp corners with no rounding and no damage to existing to remain.
 - 3. If existing stone that is to remain becomes damaged, remove damaged area and enlarge partial replacement as required.

- B. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff natural bristle brush.
- C. Cut and trim partial replacement to accurately fit area where material was removed from parent stone. Fabricate to size required to produce joints between partial replacement and parent stone of no more than 1/16 inch width, and joints between partial replacement and other stones that match existing joints between stones. Cut partial replacement so that, when it is set in final position, natural bedding planes will match the orientation of bedding planes of the parent stone unless otherwise indicated.
- D. Pinning: Before applying adhesive, prepare for mechanical anchorage, if appropriate, consisting of 1/8 to 1/4 inch - diameter, threaded stainless steel pins set into holes drilled at an angle that will ensure a durable repair, through the partial replacement and into parent stone. Center and space pins to provide required anchorage and at least 1 inch from any edge.
- E. Concealed Pinning: Before applying adhesive, prepare for concealed mechanical anchorage consisting of 1/4 inch diameter, threaded stainless-steel pins set into 1/4 inch diameter holes drilled into parent stone and into, but not through, the partial replacement. Center and space pins to provide anchorage at least 1 inch from any edge.
- F. Apply stone-to-stone adhesive to comply with adhesive manufacturer's written instructions. Coat bonding surfaces of parent stone and partial replacement, completely filling all crevices and voids. Protect surrounding stone from adhesive smears and drips.
- G. Apply partial replacement while adhesive is still tacky and hold securely in place until adhesive has cured. Use shims, clamps, wedges, or other devices as necessary to align face of partial replacement with face of parent stone.
- H. Clean adhesive residue from exposed surfaces and patch chipped areas and exposed drill holes.

3.08 CRACK INJECTION

- A. General: Comply with epoxy crack-filler manufacturer's written instructions.
- B. Always test the technique on scrap stone prior to the work.
- C. Drill 1/16 to 3/32-inch diameter injection holes as follows: 1. Drill holes through center of crack at 2 to 3 inches o.c. 2. Drill holes 1 1/2 to 2 inches deep.
- D. Blow dust and debris out of the holes with a can of compressed air using nozzle.
- E. Plug the crack between holes with non-oily clay building up dams and diverters around each hole to prevent epoxy from staining the stone surface. Use temporary painted-on latex film barriers in a thickness that will not penetrate pores of the stone surface.
- F. Mix the epoxy and fill an appropriate sized syringe and needle.
- G. Slowly inject the epoxy into the lower holes working up to the upper holes. Check surrounding surfaces, joints, or cracks for leakage.
- H. Remove any leaked epoxy with approved manufacturer solvent.
- I. Allow material to cure. Remove clay dams and wash surface as necessary.

4.01 CLEANING UP AND FINAL CLEANING:

- A. Clean stone installed, reinstalled, repaired, repointed, sealed, damaged, stained, or soiled during the Work under this Contract, and stone which was indicated to be cleaned under this Contract, clean and free from dirt, mortar stains, traces of cleaning compound, and other defacements.

END OF SECTION

SECTION 04 9150
MASONRY CLEANING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Restoration cleaning of interior and exterior brick masonry and cast stone surfaces by use of chemical restoration cleaners.

1.02 RELATED SECTIONS

- A. Section 02 2140 - Restoration and Renovation Techniques
- B. Section 04 0100 - Masonry Restoration
- C. Section 04 4000 - Stonework

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 3000 - Administrative Requirements, for submittal procedures
- B. Product Data: Provide manufacturer's product data sheets on all products to be used for the work.
- C. A list of the chemicals or cleaners that is proposed to be used should be submitted to MDAH before the test panels are prepared.
 - 1. Any chemicals or cleaners that MDAH does not approve shall be omitted from the test panels and project altogether.
- D. Applicator Qualifications: Submit qualifications of applicator.
 - 1. Certification that applicator has a minimum of 5 years experience in the application of the specified products.
 - 2. List of 5 recently completed similar exterior masonry restoration cleaning projects, including project name and location, names of owner and architect, and description of cleaning products used, substrates, environmental regulations, and application procedures.
- E. Environmental Regulations: Describe testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes and cleaning effluents. Describe any hazardous materials to be cleaned from substrates. Describe types of coatings and paints to be stripped from substrates. Indicate any lead-based paints. Submit applicable local environmental regulations.
- F. Protection: Describe methods for protecting surrounding areas, landscaping, building occupants, pedestrians, vehicles, and non-masonry surfaces during the work from contact with chemical restoration cleaners and paint strippers, residues, rinse water, fumes, wastes, and cleaning effluents.
- G. Surface Preparation: Describe surface preparation to be completed before application of restoration cleaners.
- H. Application: Describe application procedures of restoration cleaners.

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications:
 - 1. 5 years experience in the application of the specified products.
 - 2. All persons working on this project shall be trained for the application of the specified products.
- B. Pre-Application Meeting: Convene a pre-application meeting 4 weeks before the start of exterior masonry restoration cleaning. Require attendance of parties directly affecting work of this section, including the Contractor, Architect, applicator, and primary cleaning product representative. Review environmental regulations, test panel procedures, protection of

surrounding areas and nonmasonry surfaces, surface preparation, application, and coordination with other work.

1.05 ENVIRONMENTAL REGULATIONS

- A. Comply with applicable federal, state, and local environmental regulations regarding testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes and cleaning effluents.
- B. Clean masonry surfaces only when air temperatures are 40 degrees F and above and will remain so until masonry dries.

1.06 TEST PANELS

- A. Before full scale application, review manufacturer's product data sheets to determine the suitability of each product for the specific surfaces. Apply each restoration cleaner and paint stripper to test panels to determine dilution rates, dwell times, number of applications, compatibility, effectiveness, application procedures, effects of pressure rinsing, and desired results.
- B. A test panel shall be prepared in an inconspicuous location demonstrating competent cleaning of the masonry for MDAH to review prior to releasing the contractor to complete the remainder of the cleaning.
- C. Apply restoration cleaners and paint strippers to test panels in accordance with manufacturer's instructions. Allow 48 hours or until test panels are thoroughly dry, before evaluating final appearance and results. Do not begin full scale application until test panels are inspected and approved by the Architect.
 - 1. Size: Minimum 4 feet by 5 feet each.
 - 2. Locations: As determined by the Architect.
 - 3. Restoration Cleaners: Number of test panels as required to completely test each restoration cleaner with each type of substrate and with each type of material or stain to be cleaned. (Provide minimum of 2 test panels).
- D. Test all cleaning effluents generated by the restoration cleaning and paint stripping of the test panels to determine any hazardous characteristics. Comply with applicable federal, state, and local environmental regulations regarding testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes.
- E. Retain and protect approved test panels in undisturbed condition during the work of this section, as a standard for judging the restoration cleaning work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling: Store containers upright in a cool, dry, well ventilated place, out of the sun. Store away from all other chemicals and potential sources of contamination. Keep lights, fire, sparks, and heat away from containers. Do not drop onto or slide across sharp objects. Keep containers tightly closed when not in use. Store and handle materials in accordance with manufacturer's instructions.

1.08 PROJECT CONDITIONS

- A. Do not clean masonry surfaces when temperatures are below freezing or will be overnight, to avoid harm to masonry. Clean masonry surfaces only when air and masonry surface temperatures are 40°F and above. Allow adequate time for masonry to thaw if freezing conditions exist prior to application.
- B. Do not apply chemicals in wind conditions sufficient to carry the chemicals to adjacent surfaces, landscaping elements to be protected or vehicles. Repair or replace all items damaged as a result of contact with the chemicals.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. For the purposes of designating the minimum functional and quality standards for the work of this section, proprietary products are specified. Substitutions will be accepted in accordance with Section 01 6000. Prior approval of the owner and architect is required for product or process substitution.
 - 1. D/2 Biological Solutions, Inc. (www.d2blo.com).
 - 2. PROSOCO - EnviroKlean-ReVive. (www.prosoco.com)
 - 3. KEIM Sone Cleaner-N (Steinreiniger-N). (www.keim.com)
 - 4. Architect Approved Equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify by examination that masonry surfaces are acceptable to receive the specified restoration cleaners.

3.02 PROTECTION

- A. Protect surrounding areas, landscaping, building occupants, pedestrians, vehicles, and nonmasonry surfaces during the work from contact with chemical restoration cleaners and paint strippers, residues, rinse water, fumes, wastes, and cleaning effluents in accordance with manufacturer's instructions.
- B. Adjacent areas (i.e., windows, doors, wood cornice) should be protected during the cleaning of the masonry.
- C. Avoid wind drifting of spray of chemical cleaning products, residues, and rinse water.

3.03 SURFACE PREPARATION

- A. Apply all specified caulking and sealants and allow to cure before chemical cleaning
- B. begins.
- C. Prepare substrates prior to application of restoration cleaners in accordance with cleaning product manufacturer's recommendations.

3.04 APPLICATION OF RESTORATION CLEANERS

- A. Cleaning of the exterior masonry with low-pressure water wash is acceptable provided that the psi remains below 300 supplemented by brushing with stiff natural bristles. The use of metal wire brushes or sandblasting is strictly prohibited. Heavy duty cleaners should be used only after the use of water and/or mild cleaners are found to be unacceptable.
- B. The use of acidic cleaners is prohibited unless specifically approved by MDAH.
- C. General: Apply restoration cleaners to substrates in accordance with manufacturer's instructions, environmental regulations, and application procedures determined from test panel results approved by the Architect. Comply with manufacturer's instructions for information on equipment to be used and precautions to be taken with the specified products.

3.05 FIELD QUALITY CONTROL

- A. Inspection: Inspect the restoration cleaning work with the Contractor, Architect, applicator, and cleaning product manufacturer's representative, and compare with approved test panels. Determine if the substrates are suitably prepared to start masonry restoration.
 - 1. Do not proceed with cleaning process until substrates are properly prepared.
 - 2. Do not proceed with cleaning work if cleaned limestone and masonry does not match approved test panels.
- B. Manufacturer's Field Services: Provide the services of a manufacturer's authorized field representative to verify specified products are used, and to ensure test panels, protection, surface preparation, and application of restoration cleaners and paint strippers are in accordance with manufacturer's instructions.

3.06 APPLICATION OF RESTORATION CLEANERS

- A. General: Apply restoration cleaners to substrates in accordance with manufacturer's instructions, environmental regulations, and application procedures determined from test panel results approved by the Architect. Comply with manufacturer's instructions for information on equipment to be used and precautions to be taken with the specified products.
- B. Masonry cleaning projects should be carried out starting at the bottom and proceeding to the top of the building always keeping all surfaces wet below the area being cleaned.

3.07 FIELD QUALITY CONTROL

- A. Inspection: Inspect the restoration cleaning work with the Contractor, Architect, applicator, and cleaning product manufacturer's representative, and compare with approved test panels. Determine if the substrates are suitably prepared to start masonry restoration.
 - 1. Do not proceed with cleaning process until substrates are properly prepared.
 - 2. Do not proceed with cleaning work if cleaned limestone and masonry does not match approved test panels.
- B. Manufacturer's Field Services: Provide the services of a manufacturer's authorized field representative to verify specified products are used, and to ensure test panels, protection, surface preparation, and application of restoration cleaners and paint strippers are in accordance with manufacturer's instructions.

3.08 FINAL CLEANING

- A. Clean site of all unused chemical cleaning products, residues, rinse water, wastes, and cleaning effluents in accordance with environmental regulations. Clean the site at the end of each work day.
- B. Remove and dispose of all materials used to protect surrounding areas and nonmasonry surfaces, following completion of the work of this section.
- C. Remove and dispose of all containers, used materials and other debris at the end of each work day.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural dimension lumber framing.
- B. Non-structural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Subflooring.
- E. Underlayment.
- F. Roofing nailers.
- G. Preservative treated wood materials.
- H. Miscellaneous framing and sheathing.
- I. Concealed wood blocking, nailers, and supports.
- J. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

- A. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.
- B. Structural Drawings - Wood Trusses/Beams and other structural components.

1.03 REFERENCE STANDARDS

- A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- D. PS 1 - Structural Plywood; 2009.
- E. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.
- F. PS 20 - American Softwood Lumber Standard; 2010.
- G. SPIB (GR) - Grading Rules; 2014.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on wood preservative materials.
 - 1. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Plywood: Stack plywood and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Southern Pine, unless otherwise indicated.
 - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.

3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
 5. See Structural Drawing Notes for additional information.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Construction Panels:
1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
 2. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, Rough (unsurfaced).
- B. Moisture Content: Kiln-dry or MC15.
- C. Stud Framing (2 by 2 through 2 by 6 (50 by 50 mm through 50 by 150 mm)):
1. Species: Any allowed under referenced grading rules.
 2. Grade: No. 2.
- D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 (50 by 150 mm through 100 by 400 mm)):
1. Species: Any allowed under grading rules.
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
1. Lumber: S4S, No. 2 or Standard Grade.
 2. Boards: Standard or No. 3.
- F. See Structural Drawing Notes for additional information and requirements.

2.03 CONSTRUCTION PANELS

- A. Subflooring: Any PS 2 type, rated Sheathing.
1. Bond Classification: Exterior.
 2. Span Rating: 24.
 3. Performance Category: 3/4 PERF CAT.
 4. Exposure Class: Exposure 2.
 5. Thickness: 3/4 inch (19 mm), nominal.
- B. Other Applications:
1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
 2. Plywood Exposed at underside of Exterior Soffit/Eaves: C-C Plugged or better. Exterior Grade.
 3. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
 4. Other Locations: PS 1, C-D Plugged or better.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations (including roof sheathing fasteners), unfinished steel elsewhere.
 2. Anchors: Toggle bolt type for anchorage to hollow masonry.
 3. Nails, Brads, and Staples: ASTM F 1667.
 4. Power-Driven Fasteners: NES NER-272.

- B. Subfloor Glue: Waterproof, water base, air cure type, cartridge dispensed, and type approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Preservative Treatment:
 - 1. Manufacturers:
 - 2. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative .
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.
 - c. Treat lumber in contact with roofing, flashing, or waterproofing.
 - d. Treat lumber in contact with masonry or concrete.
 - e. Treat lumber less than 18 inches (450 mm) above grade.
 - f. Treat lumber in other locations as indicated.

PART 3 EXECUTION

3.01 PREPARATION

- A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- B. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.
- D. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
- F. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- G. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- H. Cut and space edges of panels to match spacing of structural support elements.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches (38 mm) of bearing at each end.
- F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- E. Provide the following specific non-structural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Handrails.
 - 4. Grab bars.
 - 5. Towel and bath accessories.
 - 6. Wall-mounted door stops.
 - 7. Wall paneling and trim.
 - 8. Joints of rigid wall coverings that occur between studs.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.
- B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches (610 mm) on center on all edges and into studs in field of board.
 - 1. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 - 2. Install adjacent boards without gaps.
 - 3. Size and Location: As indicated on drawings.

3.07 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

- A. Framing Members: 1/4 inch (6 mm) from true position, maximum.

- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet (2 mm/m) maximum, and 1/4 inch in 30 feet (7 mm in 10 m) maximum.

3.09 CLEANING

- A. Waste Disposal:
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 2000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Finish carpentry items.
- B. Wood casings and moldings.
- C. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

- A. Section 02 2140 - Restoration and Renovation Techniques.
- B. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- C. Section 06 4100 - Architectural Wood Casework: Shop fabricated custom cabinet work.
- D. Section 08 1433 - Stile and Rail Wood Doors.
- E. Section 09 9113 - Exterior Painting: Painting and finishing of exterior finish carpentry items.
- F. Section 09 9123 - Interior Painting: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. ANSI A135.4 - American National Standard for Basic Hardboard; 2004.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- C. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.
- D. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.
- E. PS 1 - Structural Plywood; 2009.
- F. PS 20 - American Softwood Lumber Standard; 2010.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1.06 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture exposure.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Unless otherwise indicated provide products of quality specified by AWI Architectural Woodwork Quality Standards Illustrated for Custom grade.

- C. Exterior Woodwork Items:
 - 1. Window Casings and Moldings: Softwood; prepare for paint finish.
 - 2. Soffits and Fascias: Prepare for paint finish.
 - 3. Enclosing Soffit Spaces: As detailed.
 - 4. Enclosing Structural Members: Softwood lumber; "PT" preservative treated.
- D. Interior Woodwork Items:
 - 1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine; prepare for paint finish.
 - 2. Door, Glazed Light, and Pocket Door Frames: birch; prepare for paint finish.
 - 3. Window Sills: Fir; prepare for opaque finish.
 - 4. Shapes and profiles as detailed.
 - 5. Loose Shelving: Birch plywood; prepare for paint finish.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

2.03 LUMBER MATERIALS

- A. Wood Species:
 - 1. Interior Wood: Any closed-grain hardwood listed in referenced woodworking standard.
 - 2. Exterior Wood: Western Red Cedar, American Mahogany, African Mahogany, Sapele Mahogany or Cypress.

2.04 SHEET MATERIALS

- A. Softwood Plywood : Any face species, veneer core; PS 1 Grade A-B; glue type as recommended for application.

2.05 FASTENINGS

- A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.
- B. Fasteners: Of size and type to suit application.

2.06 ACCESSORIES

- A. Lumber for Shimming, Blocking, and furring: Softwood lumber of any species.
- B. Primer: as specified in Section 09 9000.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

2.07 HARDWARE

- A. Hardware: As Specified in Section 06 4100 - Architectural Wood Casework.

2.08 WOOD TREATMENT

- A. Factory-Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.

2.09 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. Kerf backs or other wide, flat members, except members with ends exposed in finished work.
- C. Where required and noted, match size and profile of existing trim.
- D. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.10 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.

- C. Back prime woodwork items to be field finished, prior to installation.
- D. Prime all surfaces of (Front, Back, Sides and Ends) of exterior boards and trim prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 9113 and 09 9123.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch (1.6 mm).
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION

SECTION 06 4100
ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.
- D. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 09 9123 - Interior Painting: Site finishing of cabinet exterior.

1.03 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.
- C. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location, and schedule of finishes.
 - 1. Scale of Drawings: 1-1/2 inch to 1 foot (125 mm to 1 m), minimum.
- C. Product Data: Provide data for hardware accessories.
- D. Samples: Submit actual plastic laminate chips representing all manufacturer's standard finishes and textures for selection by Architect.
- E. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches (300 mm) square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.
 - 1. Obtain written approval from Architect prior to fabricating actual cabinets
- F. Samples: Submit actual sample items of proposed pulls, hinges, and shelf standards, demonstrating hardware design, quality, and finish.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
 - 1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.
- B. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture exposure and damage prior to installation.

1.07 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 CABINETS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Wood Cabinets:
 - 1. Exposed Surfaces: Closed Grain Hardwood Plywood or Solid Stock.
- C. Cabinets :
 - 1. Finish - Exposed Exterior Surfaces: Wood. Painted.
 - 2. Finish - Exposed Interior Surfaces: Wood. Painted.
 - 3. Finish - Semi-Exposed Surfaces: Wood. Painted.
 - 4. Finish - Concealed Surfaces: Manufacturer's option.
 - 5. Door and Drawer Front Retention Profiles: Raised Panel Construction for Doors and Solid Square Edged Drawer Fronts.
 - 6. Casework Construction Type: Type B - Face-frame.
 - 7. Adjustable Shelf Loading: 40 lbs. per sq. ft.
 - 8. Cabinet Doors and Drawer Fronts: as detailed.
- D. Countertop: Plastic Laminate.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

2.03 LUMBER MATERIALS

- A. Softwood Lumber: Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade II/Custom; average moisture content of 5-10 percent; species as indicated on drawings.
- B. Hardwood Lumber: Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade II/Custom; average moisture content of 5-10 percent; species as indicated on drawings.

2.04 PANEL MATERIALS

- A. Medium Density Fiberboard (MDF): ANSI A208.2; type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated; composed of wood fibers pressure bonded with interior grade adhesive to suit application; sanded faces; thickness as required.
 - 1. Use as backing for plastic laminate unless otherwise indicated.

2.05 LAMINATE MATERIALS

- A. Manufacturers:
 - 1. Formica Corporation: www.formica.com.
 - 2. Panolam Industries International, Inc; Nevamar: www.nevamar.com.
 - 3. Wilsonart, LLC: www.wilsonart.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications and as follows:
 - 1. Horizontal Surfaces: HGS, 0.048 inch (1.22 mm) nominal thickness, through color, color as selected, finish as indicated.
- C. Laminate Core Color: Same as decorative surface
- D. Color & Finish: as selected by architect from manufacturer's standard range.
- E. Exposed Edge Treatment: Square, substrate built up to a minimum of 1/2".

2.06 COUNTERTOPS

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

2.07 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; chrome-plated finish in concealed locations and chrome-plated finish in exposed locations.
- D. Concealed Joint Fasteners: Threaded steel.

2.08 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using surface mounted metal shelf standards and coordinated self rests, satin chrome finish, for nominal 1 inch (25 mm) spacing adjustments.
- C. Drawer and Door Pulls:
 - 1. Style: Hoosier Pull.
 - 2. Finish: Oil Rubbed Bronze.
- D. Cabinet Locks: Keyed cylinder where indicated on drawings, two keys per lock, master keyed, steel with chrome finish/bronze with satin finish.
- E. Door Catches: Magnetic, recessed in frame.
- F. Drawer Slides:
 - 1. Type: Standard extension.
 - 2. Static Load Capacity: Commercial grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.
 - 5. Manufacturers:
 - a. Accuride International, Inc: www.accuride.com.
 - b. Grass America Inc: www.grassusa.com.
 - c. Knappe & Vogt Manufacturing Company: www.knappeandvogt.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- G. Hinges: European style concealed type, 120°, steel with satin finish.

2.09 SITE FINISHING MATERIALS

- A. Finishing: Site finished as specified in Section 09 9123.

2.10 FABRICATION

- A. Cabinet Style: Reveal overlay on face frame.
- B. Cabinet Doors and Drawer Fronts: As indicated.
- C. Drawer Construction Technique: Dowel joints.
- D. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- E. Edging: Fit shelves, doors, and exposed edges with specified edging.
- F. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for scribing to walls and site cutting.
- G. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises.
 - 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
 - 2. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- H. Provide cutouts for inserts, outlet boxes, and fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal cut edges.

2.11 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. For opaque finishes, apply wood filler in exposed nail and screw indentations and sand smooth.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim for this purpose.
- E. Secure cabinets and counter bases to floor using appropriate angles and anchorages.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SECTION 07 1900
WATER REPELLENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water repellents applied to exterior horizontal stone surfaces.

1.02 RELATED REQUIREMENTS

- A. Section 04 0100 - Masonry Restoration.
- B. Section 04 4000 - Stonework.
- C. Section 07 9200 - Joint Sealants

1.03 ADMINISTRATIVE REQUIREMENTS

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention; cautionary procedures required during application.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section approved by manufacturer.

1.06 MOCK-UP

- A. Prepare a representative surface 48 inches in length using specified materials and preparation and application methods on surfaces identical to those to be coated; approved mock-up constitutes standard for workmanship.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

1.07 FIELD CONDITIONS

- A. Do not apply water repellent when ambient temperature is lower than 50 degrees F (10 degrees C) or higher than 100 degrees F (38 degrees C).

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Silane, Siloxane, Silane-Siloxane Blend, and Siliconate Water Repellents:
 - 1. BASF Construction Chemicals: www.buildingsystems.basf.com.
 - 2. PROSOCO, Inc: www.prosoco.com.
 - 3. Dayton Superior Corporation; www.daytonsuperior.com
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Water Repellent: Non-glossy, colorless, penetrating, water-vapor-permeable, non-yellowing sealer, that dries invisibly leaving appearance of substrate unchanged.
 - 1. Application: Horizontal surfaces.
 - 2. Number of Coats: As recommended by Manufacturer.
 - 3. Maintains dry appearance when wetted.
 - 4. Products: Water-based siloxane, silane, or blend that reacts chemically with concrete and masonry; minimum 20 percent nonvolatile content.
 - a. BASF Construction Chemicals; MasterProtect H200.
 - b. Dayton Superior Corporation; Conspec Silane 20 WB.

- c. PROSOCO, Inc; Sure Klean Weather Seal H40.
- d. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify joint sealants are installed and cured.
- C. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of water repellent.

3.02 PREPARATION

- A. Protection of Adjacent Work:
 - 1. Protect adjacent landscaping, property, and vehicles from drips and overspray.
 - 2. Protect adjacent surfaces not intended to receive water repellent.
- B. Prepare surfaces to be coated as recommended by water repellent manufacturer for best results.
- C. Do not start work until mortar and stone repair patching material substrate is cured a minimum of 60 days.
- D. Remove loose particles and foreign matter.
- E. Remove oil and foreign substances with a chemical solvent that will not affect water repellent.
- F. Scrub and rinse surfaces with water and let dry.
- G. Allow surfaces to dry completely to degree recommended by water repellent manufacturer before starting coating work.

3.03 APPLICATION

- A. Water repellent shall only be applied to Horizontal Surfaces at locations indicated in drawings.
- B. Water repellent coatings shall only be applied to Horizontal Stone Surfaces to provide additional protection from water. Applications in the Durant Depot include the stone wall caps and the water table running around the building. This application is not intended for all brick masonry on the building.
- C. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.
- D. Apply at rate recommended by manufacturer, continuously over entire surface.
- E. Apply two coats, minimum.
- F. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

END OF SECTION

SECTION 07 2126
BLOWN INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Ceiling: Loose insulation pneumatically placed .

1.02 REFERENCE STANDARDS

- A. ASTM C764 - Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation; 2011.
- B. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; 2006 (Reapproved 2011).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, limitations .
- C. Manufacturer's Installation Instructions: Indicate procedure for preparation and installation.
- D. Certificates: Certify that products of this section meet or exceed specified requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Blown Insulation:
 - 1. CertainTeed Corporation: www.certainteed.com.
 - 2. Johns Manville: www.jm.com.
 - 3. Owens Corning Insulating Systems,LLC; Product AttiCat: www.owenscorning.com
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Loose Fill Insulation: ASTM C764, glass fiber type, bulk for pneumatic placement.
 - 1. Total Thermal Resistance: 30.0

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.
- B. Verify that light fixtures have thermal cut-out device to restrict over-heating in soffit or ceiling spaces.
- C. Verify spaces are unobstructed to allow placement of insulation.

3.02 INSTALLATION

- A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.
- B. Place insulation pneumatically to completely fill joist spaces .
- C. Pour insulation to completely fill joist and rafter spaces .
- D. Place against and behind mechanical and electrical services within the plane of insulation.
- E. Completely fill intended spaces. Leave no gaps or voids.

3.03 CLEANING

- A. Remove loose insulation residue.

END OF SECTION

SECTION 07 3213
CLAY ROOF TILES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Clay roof tiles.
- B. Underlayment, including ice dam protection.
- C. Wood attachment members (battens, nailers, etc.).
- D. Metal roof flashing and counterflashing.
- E. Fasteners and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 02 2140 - Restoration and Renovation Techniques for cleaning of tiles.
- B. Section 06 1000 - Rough Carpentry: Material requirements for attachment members (battens, nailers, etc.).
- C. Section 07 6200 - Sheet Metal Flashing and Trim: Roof flashing.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.
- C. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.
- D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.
- E. ASTM C1167 - Standard Specification for Clay Roof Tiles; 2011.
- F. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.
- G. ASTM D3019 - Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non Fibered, Asbestos Fibered, and Non Asbestos Fibered; 2008.
- H. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).
- I. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2015.
- J. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.
- K. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on tile and underlayment, indicating material characteristics, installation instructions, and limitations and precautions.
- C. Shop Drawings: For metal flashings and counterflashings, indicate overall configurations and thicknesses, details at complex intersections, jointing methods and locations, and fastening details.
- D. Verification Samples: Set of tiles representing actual product in color, finish, and style, including special shapes and fittings.
- E. Manufacturer's Certificates: Certify that tiles supplied for the project meet or exceed specified requirements.
- F. Maintenance Materials: Furnish the following for City of Durant's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.

2. Extra Roof Tiles: Quantity equal to 5 percent of total installed. Existing tiles found in attic may count towards the percentage, including appropriate quantities for each color, size, and shape.

1.05 MOCK-UPS

- A. Provide a mock-up for evaluation of tile installation workmanship, including typical eave, rake, valley, and ridge detail.
 1. Minimum Mock-Up Size: 10 x 10 ft. Mock-Up to represent blended tile (existing and new) installation as well as a valley installation.
 2. Locate where directed by Belinda Stewart Architects, PA.
 3. Do not proceed with remaining work until workmanship has been approved by Belinda Stewart Architects, PA.
 4. Refinish mock-up area as required to produce acceptable work.
 5. Approved mock-up may be retained as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturer's unopened packaging, with labels intact, until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a 5 year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Clay Roofing Tiles:
 1. Design is based on Existing Historic Roof Tiles tiles manufactured by Ludowici Roof Tile..
 2. Other acceptable manufacturers:
 - a. Ludowici Roof Tile : www.ludowici.com.
 - b. MCA Tile : www.mca-tile.com.
 - c. Boral Roofing <http://www.boralamerica.com/roofing>.
 3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ROOF TILES

- A. Existing Clay Roof Tiles: Salvage and reuse intact and serviceable existing clay tiles wherever possible.
- B. Clay Roof Tiles:
 1. Match existing roof tiles exactly. New tiles must work with and interlock with the existing tiles
 2. Comply with requirements for ASTM C1167, Grade 1 tile; with nail holes made before firing.
 3. Profile: Match T-12 (field verify) design manufactured by Ludowici.
 4. Tile Size: to match existing exactly.
 5. Finish: to match existing.
 6. Color: To match existing.

2.03 SHEET MATERIALS

- A. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
 1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
 2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
 3. Fasteners: As specified by manufacturer and building code qualification report or approval, if any.

- B. Underlayment: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; minimum thickness of 40 mils (1 mm); with strippable release paper and slip-resistant embossed polyethylene sheet top surface.
 - 1. Underlayment shall be acceptable and approved by clay tile roofing manufacturer.
 - 2. Fur use at Eaves and Valleys.
- C. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; minimum thickness of 40 mils (1 mm); with strippable release paper and slip-resistant embossed polyethylene sheet top surface.

2.04 METAL FLASHING MATERIALS

- A. Provide metal roof flashings as indicated and as required for watertight roofing system, including eave edge, gable edge, ridge vent, open valley, and chimney flashing.
 - 1. Form flashings to profiles indicated, or as required to shed water and protect building from water damage.
 - 2. Form sections square, flat, and accurate to profile, in maximum possible lengths, free from distortion or other defects detrimental to function or appearance.
 - 3. Hem exposed edges of flashings minimum 1/4 inch (6 mm) on underside.
 - 4. Coat concealed surfaces of flashings with bituminous paint.
- B. Galvanized Steel Flashing: ASTM A653/A653M, with G90/Z275 zinc coating; 24 gage, 0.0239 inch (0.61 mm) minimum base metal thickness.
 - 1. Pre-coat with PVDF coating system, color as scheduled.
- C. Bituminous Paint: Asphaltic mastic, ASTM D4479/D4479M, Type I.

2.05 FASTENERS

- A. Underlayment Fasteners: Hot-dip galvanized steel roofing nails, 11 gage, 0.12 inch (3.05 mm) diameter, sharp pointed with barbed shanks, minimum 3/8 inch (9.5 mm) diameter head, and of length sufficient to penetrate 3/4 inch (19 mm) into solid substrate or completely through sheathing.
- B. Tile Fasteners: Stainless steel ring shank nails, 10 gage, 0.134 inch (3.40 mm) diameter, with minimum 3/8 inch (9.5 mm) diameter head, of sufficient length to penetrate 3/4 inch (19 mm) into solid substrate or completely through sheathing.
- C. Adhesive: Asphalt plastic roof cement conforming to ASTM D4586/D4586M, Type II, non-asbestos, heavy body mastic comprising asphalt and other mineral ingredients.
- D. Roofing Mastic: Cold process modified bitumen type conforming to ASTM D3019, type III.

2.06 ACCESSORIES

- A. Attachment Members:
 - 1. Material: Wood, pressure preservative treated; as specified in Section 06 1000.
 - 2. Sizes and Spacings: As indicated.
 - 3. Nailers: Nominal 2 inch (50 mm) thick members, height as required for specific conditions.
 - 4. Cant Strips: Beveled strips sized as indicated, nominal 48 inches (1220 mm) long and spaced nominal 1/2 inch (12.5 mm) apart at ends for drainage.
- B. Wind Locks: Formed copper or stainless steel wire clips designed to prevent wind uplift of lower tile edge; length and thickness as recommended by manufacturer for specific project conditions.
- C. Mortar:
 - 1. Cement: ASTM C91/C91M, Type M.
 - 2. Sand: ASTM C144, uniformly graded and free from organic materials.
 - 3. Mix: Premixed or site mixed, ASTM C270 for Type M mortar.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine structural roof deck for compliance with specified requirements. Verify that roof penetrations and roof openings are correctly installed in proper locations.
- B. Do not begin installation of tile roofing until substrates have been properly prepared. If substrate preparation is the responsibility of another installer, notify Belinda Stewart Architects, PA of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Broom clean deck surface prior to installation of underlayment or eave protection.
- B. Prepare roof deck surfaces using methods recommended by tile manufacturer for achieving best results under project conditions.
- C. Seal roof deck joints wider than 1/16 inch (1.5 mm) with deck tape.
- D. At areas where elastomeric membrane underlayment will be installed, fill knot holes and surface cracks with latex filler, or cover knot holes with sheet metal.
- E. Install eave edge and gable edge flashings tight with fascia, in accordance with SMACNA (ASMM) recommendations. Lap joints minimum 2 inches (50 mm) and seal with plastic cement.

3.03 INSTALLATION

- A. Install clay tile roofing system in accordance with manufacturers recommendations and NRCA (RM) applicable requirements.
- B. Eave Protection: Install from eave edge to minimum 2 ft (610 mm) up-slope beyond projected interior face of exterior wall.
 - 1. Install eave protection membrane in accordance with manufacturer's installation instructions for project substrate.
- C. Underlayment:
 - 1. Roof Slopes From 4/12 To 20/12: Install two layers of organic felt underlayment over entire roof area, perpendicular to roof slope, with ends and edges weather lapped a minimum of 4 inches (100 mm). Stagger end laps of each layer, and nail in place.
- D. Valley Protection Membrane: Install full width elastomeric membrane underlayment centered at valleys, in accordance with manufacturer's installation instructions for project substrate. Weather lap joints a minimum of 12 inches (305 mm).
- E. Metal Valley Flashings:
 - 1. Open Valleys: Install minimum 24 inch (610 mm) wide flashing over valley protection membrane, centered over valley and crimped to guide water; fasten to deck with cleats. Overlap end joints minimum 8 inches (200 mm), blind nailing upper end of each sheet; do not solder joints.
 - a. Lap underlayment over edges of flashing a minimum of 4 inches (100 mm).
 - 2. Closed Valleys: Install metal flashing by interleaving tiles with prepared metal flashing sheets of minimum 20 inch (500 mm) width. Extend each sheet of flashing a minimum of 2 inches (50 mm) above top of tile course to be applied over it, so flashing may be nailed to deck in upper corners of each sheet.
- F. Sheet Metal Flashing: Install flashing at other locations as indicated and as required by project conditions.
 - 1. Install flashing at all locations where clay roof tiles intersect other roofs, walls, parapets, chimneys, ventilators, and similar projections.
 - 2. Install drip edge flashing at eaves prior to installing underlayment.
 - 3. Install drip edge flashing on downslope roof edges after installation of underlayment.
- G. Attachment Members:
 - 1. Cants: Install cant strips at eaves on top of underlayment, spaced for drainage.

2. Nailers: Install nailers at ridge and hips, directly over underlayment. Protect with additional layer of underlayment before installing ridge and hip tiles and accessories.
 3. Rake Edge Nailers: Install nailers at gable ends, configured as indicated to support tile and provide weather protection to roof components.
 4. Counter Battens: Install counter battens over underlayment parallel to slope to allow for drainage.
 5. Battens: Install battens horizontally, fastening securely to counter battens.
- H. Clay Tile:
1. Install first row of tile at eaves with minimum projection of 1 inches (25 mm).
 2. Lay tile square with building lines and parallel with roof slope. Install filler, closure, and mitered pieces as required.
 3. Unless otherwise indicated or recommended by tile manufacturer, install tile with minimum of 3 inch (75 mm) headlaps.
 4. Stagger joints between courses.
 5. Miter tile at valleys to form straight edge using masonry saw.
 6. Taper tile at open valleys from 2 inch (50 mm) metal exposure at top, increasing exposure 1 inch (25 mm) for each 96 inches (2400 mm) of valley length.
 7. Nail tiles by driving nails to point where nail heads just clear surface of tile, so tiles hang on nails. Do not overdrive nails, putting pressure on underlying tile, and do not underdrive nails, putting strain on overlying tile.
 8. At valleys and other areas with metal flashing, use wire ties for tile support as required to avoid nailing in vulnerable areas.
 9. Cut and fit tiles neatly around vents, pipes, and other projections.
 10. Set ridge and hip tile in full bed of mortar. Strike flush with face of tile.
 11. Mortar fill open ends of tiles where cut at angle for open valleys.
 12. Install accessories in accordance with manufacturer's details and recommendations.

3.04 PROTECTION

- A. Minimize traffic over finished roof surface. Where walking on roof is absolutely necessary, wear soft-soled shoes and walk on butt of tiles to avoid breakage.
- B. Remove and replace damaged or broken tile before Date of Substantial Completion.

END OF SECTION

SECTION 07 5400
THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Adhered system with thermoplastic roofing membrane.
- B. Insulation, flat and tapered.
- C. Vapor retarder.
- D. Deck sheathing.
- E. Cover Board
- F. Flashings.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood Decking and nailers.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings, reglets,.

1.03 REFERENCE STANDARDS

- A. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.
- C. NRCA (RM) - The NRCA Roofing Manual; 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.
- C. Warranty: Submit Manufacturer's Sample Warranty as part of Submittal Package for review and approval by Architect.
- D. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and mechanical fastener layout.
- E. Samples for Verification: Submit two samples 6 x 6 inches (152 x 152 mm) in size illustrating insulation and membrane.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Manufacturer's Installation Instructions: Indicate membrane seaming precautions, special procedures, and perimeter conditions requiring special attention.
- H. Warranty Documentation:
 - 1. Submit manufacturer warranty and ensure that forms have been completed in City of Durant's name and registered with manufacturer.
 - 2. Submit installer's certification that installation complies with all warranty conditions for the waterproof membrane.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

- B. Installer Qualifications: Company specializing in performing the work of this section with at least three years of documented experience and approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- B. Store products in weather protected environment, clear of ground and moisture.
- C. Protect foam insulation from direct exposure to sunlight.

1.08 FIELD CONDITIONS

- A. Do not apply roofing membrane during unsuitable weather.
- B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.09 WARRANTY

- A. Installation Warranty. Roofing Contractor shall provide written guarantee to keep the roof free of leaks for a period of two (2) years beginning at the time of acceptance of the project by the owner.
- B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
 - 1. Warranty Term: 20 Year - No Dollar Limit (NDL)..
 - 2. For repair and replacement include costs of both material and labor in warranty.
 - 3. Exceptions NOT Permitted:
 - a. Damage due to roof traffic.
 - b. Damage due to wind speed greater than 56 mph (90 km/h) but less than 90 mph (145 km/h).

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Insulation:
 - 1. Carlisle SynTec; SecurShield Insulation: www.carlisle-syntec.com.
 - 2. GAF; EnergyGuard PolyIso Insulation: www.gaf.com.
 - 3. Owens Corning Corporation: www.ocbuildingspec.com.
 - 4. Duro-Last Roofing, Inc.: www.duro-last.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Membrane:
 - 1. Material: Polyvinyl chloride (PVC) complying with ASTM D4434/D4434M.
 - 2. Reinforcing: Both internal fabric and backing.
 - 3. Thickness: 0.060 inch (1.5 mm), minimum.
 - 4. Sheet Width: Factory fabricated into largest sheets possible.
 - 5. Color: White.
- B. Seaming Materials: As recommended by membrane manufacturer.
- C. Membrane Fasteners: As recommended and approved by membrane manufacturer.
- D. Vapor Retarder: Material approved by roof manufacturer ; compatible with roofing and insulation materials.
 - 1. Fire-retardant adhesive.
- E. Flexible Flashing Material: Same material as membrane.

2.03 DECK SHEATHING AND COVER BOARDS

- A. Deck Sheathing and Cover Board: Glass mat faced gypsum panels, ASTM C1177/C1177M, fire resistant type, 1/4 inch (6 mm) thick.
 - 1. Manufacturers:
 - a. Georgia-Pacific; DensDeck: www.densdeck.com.
 - b. National Gypsum Company; DEXcell Glass Mat Roof Board: www.nationalgypsum.com
 - c. National Gypsum Company; DEXcell FA Glass Mat Roof Board: www.nationalgypsum.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.04 INSULATION

- A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 1 and with the following characteristics:
 - 1. Compressive Strength: 16 psi (110 kPa).
 - 2. Tapered Board: Slope as indicated; minimum thickness 1 inch (254 mm); fabricate of fewest layers possible.
 - 3. Thermal Resistance: R-value of 5.6 LTTR.
 - 4. Board Edges: Square.
 - 5. Manufacturers:
 - a. Dow Chemical Co: www.dow.com.
 - b. GAF: www.gaf.com.
 - c. Duro-Last Roofing, Inc.: www.duro-last.com.
 - 6. Substitutions: See Section 01 6000 - Product Requirements.

2.05 ACCESSORIES

- A. Termination Bars: Manufacturer's Standard, maximum possible lengths per location, with pre-punched attachment fastener holes at 8" maximum on center.
- B. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches (150 mm) wide; self adhering.
- C. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
 - 1. Length as required for thickness of insulation material and penetration of deck substrate, with metal washers.
- D. Membrane Adhesive: As recommended by membrane manufacturer.
- E. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- F. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
- G. Insulation Adhesive: As recommended by insulation manufacturer.
- H. Strip Reglet Devices: Extruded plastic, maximum possible lengths per location, with attachment flanges.
- I. Sealants: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify deck surfaces are dry and free of snow or ice.

- E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and reglets are in place.

3.02 WOOD DECK PREPARATION

- A. Verify flatness and tightness of joints of wood decking. Fill knot holes with latex filler.
- B. Confirm dry deck by moisture meter with 12 percent moisture maximum.

3.03 INSTALLATION - GENERAL

- A. Perform work in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Do not apply roofing membrane during unsuitable weather.
- C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.
- D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- F. Coordinate this work with installation of associated counterflashings installed by other sections as the work of this section proceeds.

3.04 VAPOR RETARDER AND INSULATION - UNDER MEMBRANE

- A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
 - 1. Extend vapor retarder under cant strips and blocking to deck edge.
 - 2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.
- B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.
- C. Attachment of Insulation:
 - 1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions.
- D. Lay subsequent layers of insulation with joints staggered minimum 6 inch (150 mm) from joints of preceding layer.
- E. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.
- F. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.
- G. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.
- H. Do not apply more insulation than can be covered with membrane in same day.

3.05 MEMBRANE APPLICATION

- A. Install fully adhered membrane in accordance with Manufacturer's Instructions and Requirements.
- B. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- C. Shingle joints on sloped substrate in direction of drainage.
- D. Fully Adhered Application: Apply adhesive to substrate in accordance with manufacturer's recommendations.
- E. Overlap edges and ends and seal seams by contact adhesive, minimum 3 inches (75 mm). Seal permanently waterproof. Apply uniform bead of sealant to joint edge. Verify to meet manufacturer's recommendations.

- F. Mechanical Attachment: Apply membrane and mechanical attachment devices in accordance with manufacturer's instructions.
- G. At intersections with vertical surfaces:
 - 1. Extend membrane over cant strips and up a minimum of 4 inches (100 mm) onto vertical surfaces.
 - 2. Fully adhere flexible flashing over membrane and up to nailing strips.
- H. Around roof penetrations, seal flanges and flashings with flexible flashing. Provide stainless steel collar and sealant at top.
- I. Provide and install roof membrane vents if required by manufacturer. Quantity and spacing as required by the manufacturer.
- J. Coordinate installation of roof thru-wall scuppers and related flashings.

3.06 CLEANING

- A. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- B. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

- A. Protect installed roofing and flashings from construction operations.
- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, and sheet metal roofing.
- B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.
- B. Section 07 3213 - Clay Roof Tiles: Non-metallic flashings associated with clay roofing tiles.
- C. Section 07 5400 - Thermoplastic Membrane Roofing.
- D. Section 07 9200 - JOINT SEALANTS: Sealing non-lap joints between sheet metal fabrications and adjacent construction.
- E. Section 09 9113 - Exterior Painting: Field Painting.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2012.
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).
- D. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.
- E. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit two samples 4 x 4 inch (102 x 102 mm) in size illustrating metal finish color.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.
- C. Attend pre-installation meetings required by other sections where metal flashings are integral, required, or affected by work of this section.

1.07 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. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) (0.61 mm) thick base metal.
- B. 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 Belinda Stewart Architects, PA from manufacturer's standard colors.
- C. Copper: ASTM B370, cold rolled 16 oz/sq ft (24 gage) (0.0216 inch) (0.55 mm) thick; natural finish.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate cleats of same material as sheet, minimum 2 inches (51 mm) wide, interlocking with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.
- E. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- F. Fabricate corners from one piece with minimum 18 inch (450 mm) long legs; seam for rigidity, seal with sealant.
- G. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

2.03 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: Profile as indicated to exactly match existing.
- B. Downspouts: match exactly to existing original size and profile.
- C. Gutters and Downspouts: match existing size and profile indicated.
- D. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
 - 2. Gutter Supports: match existing.
 - 3. Downspout Supports: match existing.
 - 4. Fasteners: Use rivet types of same metal material and type resulting in smooth rivet heads at top and bottom (inside and outside) of gutter in areas of repair.
- E. Seal metal joints.

2.04 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Underlayment for metal Roofing: High Temperature SBS modified self-adhering membrane reinforced with non-woven fiberglass mat.
- C. Underlayment: Polyethylene, 40 mils. thick.
- D. Primer: Zinc chromate type.
- E. Concealed Sealants: Non-curing butyl sealant.
- F. Exposed Sealants: See Section 07 9200 - Joint Sealants.
- G. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not proceed with flashing work if substrates or affected work is not ready. Installation indicates acceptance of substrate conditions.
- B. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- C. 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. 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. Insert flashings into reglets to form tight fit; secure in place with lead wedges; pack remaining spaces with lead wool; seal flashings into reglets with sealant.
- B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.
- F. Secure gutters and downspouts in place using fasteners unless otherwise indicated.
 - 1. Match methods of existing anchoring of gutters, downspouts and downspout hubs.
- G. Slope gutters 1/4 inch per 10 feet (2.1 mm per m), minimum.
- H. Connect downspouts to downspout boots. Seal connection watertight.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 02 2140 - Restoration and Renovation Techniques.
- B. Section 08 5550 - Restoration of Historical Wood Windows: Perimeter Window Sealant.
- C. Section 08 7100 - DOOR HARDWARE: Setting exterior door thresholds in sealant.
- D. Section 09 3000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; 2014.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- D. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).
- E. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).
- F. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
 - 5. Substrates for which use of primer is required.
 - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.
 - 7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
 - 8. Sample product warranty.
 - 9. Certification by manufacturer indicating that product complies with specification requirements.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Samples for Verification: Where custom sealant color is specified, obtain directions from Belinda Stewart Architects, PA and submit at least two physical samples for verification of color of each required sealant.

- F. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
- D. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
1. Identification of testing agency.
 2. Name(s) of sealant manufacturers' field representatives who will be observing
 3. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
 - a. Substrate; if more than one type of substrate is involved in a single joint, provide two entries on form, for testing each sealant substrate side separately.
 - b. Test date.
 - c. Location on project.
 - d. Sealant used.
 - e. Stated movement capability of sealant.
 - f. Test method used.
 - g. Date of installation of field sample to be tested.
 - h. Date of test.
 - i. Copy of test method documents.
 - j. Age of sealant upon date of testing.
 - k. Test results, modeled after the sample form in the test method document.
 - l. Indicate use of photographic record of test.
- E. Field Adhesion Test Procedures:
1. Allow sealants to fully cure as recommended by manufacturer before testing.
 2. Have a copy of the test method document available during tests.
 3. Take photographs or make video records of each test, with joint identification provided in the photos/videos; for example, provide small erasable whiteboard positioned next to joint.
 4. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
 5. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
 6. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to City of Durant.
 7. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Belinda Stewart Architects, PA.
- F. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
1. Sample: At least 18 inch (457 mm) long.
 2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch (25 mm) by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.

3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.
- G. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.06 WARRANTY

- A. Correct defective work within a five year period after Date of Substantial Completion.
- B. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 2. Pecora Corporation: www.pecora.com.
 3. Tremco Global Sealants: www.tremcosealants.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on the drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 3. Do not seal the following types of joints.
 - a. Intentional weepholes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
- B. Exterior Joints: Use nonsag polyurethane sealant, Type 1, unless otherwise indicated.
- C. Interior Joints: Use nonsag acrylic latex sealant, Type 3, unless otherwise indicated.
- D. Interior Wet Areas: Bathrooms, restrooms, kitchens, food service areas, and food processing areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

2.03 JOINT SEALANTS - GENERAL

- A. Colors: As selected by Architect from Manufacturer's full range.

2.04 NONSAG JOINT SEALANTS

- A. Type 2 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 1. Movement Capability: Plus and minus 50 percent, minimum.

2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
- B. Type 1 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
 1. Movement Capability: Plus and minus 25 percent, minimum.
 2. Color: To be selected by Belinda Stewart Architects, PA from manufacturer's standard range.
 3. Manufacturers:
 - a. Pecora Corporation; DynaTrol I-XL General Purpose One Part Polyurethane Sealant: www.pecora.com.
 - b. Tremco Global Sealants; Vulkem 116 General Purpose One Part Polyurethane Sealant: www.tremcosealants.com.
 - c. BASF Construction Chemicals-Building Systems, Sonolastic NP1: www.buildingsystems.basf.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- C. Type 3 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
 1. Color: Standard colors matching finished surfaces, Type OP (opaque).
 2. Grade: ASTM C834; Grade - Minus 18 Degrees C.

2.05 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
 2. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.
- D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
 1. Notify Belinda Stewart Architects, PA of date and time that tests will be performed, at least 7 days in advance.
 2. Arrange for sealant manufacturer's technical representative to be present during tests.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- G. Nonsag Sealants: Tool surface slightly recessed, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

- A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.
- B. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.
- C. Repair destructive test location damage immediately after evaluation and recording of results.

END OF SECTION

SECTION 08 1433
STILE AND RAIL WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior wood doors, stile and rail design.
- B. Panels of wood and glass.

1.02 RELATED REQUIREMENTS

- A. Section 06 2000 - Finish Carpentry: Wood door frames.
- B. Section 08 7100 - DOOR HARDWARE.
- C. Section 09 9113 - Exterior Painting: Site finishing doors.
- D. Section 09 9123 - Interior Painting: Site finishing doors.

1.03 REFERENCE STANDARDS

- A. AWI (QCP) - Quality Certification Program; current edition at www.awiqcp.org.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate stile and rail core materials and construction; veneer species, type and characteristics.
- C. Specimen warranty.
- D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.
- E. Warranty, executed in City of Durant's name.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.
- C. Quality Certification:
 - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section.
 - 2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 - 3. Provide designated labels on shop drawings as required by certification program.
 - 4. Provide designated labels on installed products as required by certification program.
 - 5. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver, and store doors in accordance with quality standard specified.
- B. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

- A. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Stile and Rail Wood Doors:
 - 1. Eggers Industries: www.eggersindustries.com.
 - 2. Maiman Company: www.maiman.com.
 - 3. Marshfield DoorSystems, Inc: www.marshfielddoors.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DOOR TYPES

- A. Quality Standard: Custom Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Exterior Doors: 1-3/4 inches (44.45 mm) thick unless otherwise indicated; solid lumber construction; mortise and tenon joints; water repellent treated. Opaque finish where indicated on drawings.
- C. Interior Doors: 1-3/8 inches (34.93 mm) thick unless otherwise indicated; solid lumber construction; mortise and tenon joints. Transparent or opaque finish where indicated on drawings.
- D. Wood veneer facing with factory opaque finish where indicated on drawings.
- E. See Door Schedule and Door Types on Sheet A4.1.

2.03 DOOR AND PANEL FACINGS

- A. Materials for Opaque Finishes: Closed-grain wood veneer or other composite material.
- B. Adhesive: Type I - waterproof.

2.04 COMPONENTS

- A. Glazing: As specified in Section 08 8000.
- B. Panel or Glass Retention Molding: Wood of same species as door facing, molded stop applied one-side, mitered corners; prepared for countersink style tamper proof screws.

2.05 DOOR CONSTRUCTION

- A. Panels: Raised, solid wood.
 - 1. Match panels of existing doors.
- B. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.
- C. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- D. Cut and configure exterior door edge to receive recessed weatherstripping devices. Provide edge clearances in accordance with referenced quality standards.

2.06 FACTORY FINISHING

- A. Factory prime doors and field paint finish, colors as selected by Architect.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

- C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and AWI/AWMAC Quality Standards Requirements.
- B. Trim door width by cutting equally on both jamb edges.
- C. Trim door height by cutting bottom edges to a maximum of 3/4 inch (19mm).
- D. Machine cut for hardware.
- E. Coordinate installation of doors with installation of frames and hardware.
- F. Coordinate installation of glazing.

3.03 TOLERANCES

- A. Conform to specified quality standard for fit, clearance, and joinery tolerances.
- B. Maximum Diagonal Distortion (Warp): 1/8" (3mm) measured with straight edge or taut string, corner to corner, over an imaginary 36"x84" (915x2130mm) surface area.
- C. Maximum Vertical Distortion (Bow): 1/8" (3mm) measured with straight edge or taut string, top to bottom, over an imaginary 36"x84" (915x2130mm) surface area.
- D. Maximum Width Distortion (Cup): 1/8 inch (3mm) measured with straight edge or taut string, edge to edge, over an imaginary 36 x 84 inch (915 x 2130 mm) surface area.

3.04 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

3.05 SCHEDULE - SEE DRAWINGS (SHEET A4.1)

END OF SECTION

SECTION 08 5550
RESTORATION OF HISTORIC WOOD WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The restoration of existing historic wood windows utilizing as much of the existing wood window assembly as possible. Work Includes:
 - 1. Removal of existing sashes from window openings, including interior sash stops and parting stop.
 - 2. Temporary protection of existing openings during sash / frame restoration.
 - 3. Wood sash restoration, including removal of loose and flaking paint, lead paint abatement, removal and installation of new glazing putty, glazing (glass) replacement where required, finishing.
 - 4. Repair and restoration of wood components.
 - 5. Replication of new wood to match existing profiles.
 - 6. Reinstallation of restored / replicated sashes.
 - 7. Refurbishing of existing window hardware.
 - 8. Provision and installation of new window hardware.
 - 9. Restoration of window operation.
 - 10. Historic window reproduction/replication.
 - 11. Project specific conditions

1.02 RELATED SECTIONS

- A. Refer to other Divisions of these specifications to determine the type and extent of work therein affecting the work of this trade, whether or not such work is specifically mentioned in the Section.
- B. Section 02 2140 - Restoration and Renovation Techniques.
- C. Section 07 9200 - Joint Sealants
- D. Section 09 9113 - Exterior Painting
- E. Section 09 9123 - Interior Painting

1.03 REFERENCES

- A. All procedures as well as materials and installation not otherwise specified herein shall comply with reference standards listed below.
 - 1. Preservation Briefs #9, "The Repair of Historic Wooden Windows," John H. Myers, National Park Service, 1981.
 - 2. "Window Rehabilitation Guide for Historic Buildings," Historic Preservation Education.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. See Section 01 6000 - Product Requirements, Product Data and Samples.
- C. Product Data: Submit data for each of the restoration materials, components and hardware required.
- D. Samples: Wood species, Hardware and accessories.
- E. Shop Drawings: For each type of window required. Include information not fully detailed in manufacturer's standard Product Data and the following:
 - 1. Layout and installation details, including anchors.
 - 2. Building elevations at ¼ inch = 1 foot scale and typical window unit elevations at ¾ inch = 1 foot scale.
 - 3. Full-size section details of typical wood members, including reinforcement, profiles, joinery, and stiffeners.
 - 4. Hardware, including operators.
 - 5. Glazing details.

6. Accessories.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain wood window units through one source from a single manufacturer.
- B. Glazing Standards: Comply with recommendations of GANA's "Glazing Manual" and "Sealant Manual," unless more stringent requirements are indicated.
- C. Restoration/Reproduction Contractor Qualifications: Window repair/reproduction contractor shall be a domestic company, which has been in the window restoration business for a minimum of 5 years. Window repair/reproduction contractor must demonstrate the following:
 - 1. A history for successfully providing historic window restoration services, including installation of complete windows for a minimum of 10 historic, civic, commercial and / or institutional properties of similar size and scope to this project.
 - 2. That the company employs skilled full-time restoration personnel. Submit resumes of lead personnel, including their experience level, who will be responsible for the coordination of the restoration and installation work on this project.
 - 3. Within five (5) days after bid opening, submit qualifications and experience of all lead personnel scheduled for work on this project. List project manager, or foreman's name and experience relative to this project. All work shall be performed by persons whose qualifications have been submitted.

1.06 MOCK-UP

- A. A complete window restoration and/or reproduction mock-up will be required to demonstrate fabrication techniques, profiles, workmanship, restoration of hardware and accessories. If window types vary significantly in style, material, function, or hardware requirements, additional mockups may be required.
- B. Mockup to be performed only after all window restoration/reproduction components have been submitted and approved by architect. Only approved products shall be used in mockup.
- C. Mock-ups may be used as part of the final installation upon approval.

1.07 DELIVERY, STORAGE, & HANDLING

- A. Comply with the storage and delivery requirements of Section 01 6000 - Product Requirements.
- B. Store removed window components during restoration in a dry location, under cover, and protected from the weather.
- C. Historic windows and window components that are removed are to be cataloged and stored in such a way that original window assemblies (sashes, frame, trim, hardware) are kept grouped together and intact and ready to install in the same original window openings, unless otherwise noted or scheduled.
- D. Store new replacement components in a dry location, under cover, and protected from the weather.
- E. Provide and maintain weathertight covering during removal/restoration period. Contractor shall be responsible for damage to building and contents due to improper coverage and protection.

1.08 WARRANTY

- A. General Warranty: The contractor shall provide a one year general warranty for materials and workmanship for restored windows covering the following:
 - 1. Structural failures, including excessive deflection, loose joinery, water leakage, air infiltration, or condensation.
 - 2. Faulty operation of sash and hardware.
 - 3. Deterioration of finishes and other materials beyond normal weathering.
 - 4. Deterioration of structural repairs (wood putty, consolidation and dutchman repairs).
- B. Special Warranty for Historic Reproduction windows: Submit a written warranty, executed by wood window manufacturer, agreeing to repair or replace window components that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures, including excessive deflection, loose or deteriorated joinery, water leakage, air infiltration, or condensation.
 2. Faulty operation of sash and hardware.
 3. Deterioration of finishes and other materials beyond normal weathering.
- C. Exterior Window Finishes: The warranty period for exterior finishes including paint, sealant, glazing putty, etc, is five years and shall cover the following:
1. Excessive weathering, cracking, peeling, discoloration, fading, loss of adhesion, loss of watertightness or other similar failures.
- D. The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run Concurrent with, other warranties made by the Contractor under requirement of the Contract Documents.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available manufacturers: Subject to compliance with requirements. Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Replacement Sash/Wood components:
 - a. Re-View, 1235 Saline St, North Kansas City, MO 64116 816-741-2876, www.re-view.biz
 - b. Leeds Clark, 3010 Shady Grove Rd, Midlothian, TX 76065, 972-775-3843 www.leedsclark.com
 - c. or Architect Approved Equal.
 2. Wood Consolidant:
 - a. LiquidWood; Abatron, Inc. www.abatron.com
 - b. or Architect Approved Equal.
 3. Structural Adhesive Putty (Epoxy):
 - a. WoodEpox; Abatron, Inc. www.abatron.com
 - b. or Architect Approved Equal.
 4. Wood Preservative:
 - a. Tim-Bor Professional or Bora-Care; Abatron, Inc. www.abatron.com
 - b. or Architect Approved Equal.
 5. Replacement Window Weights:
 - a. Cast iron; SRS Hardware; www.srshardware.com.
 - b. or Architect Approved Equal.
 6. Glazing Putty & Accessories:
 - a. Sarco Type M or Dual Glaze; Sarco Putty Company; sarcoputty.com
 - b. or Architect Approved Equal.
 7. Sash Ropes:
 - a. #8 1/4" Samson Sash Cord; www.samsonrope.com
 - b. or Architect Approved Equal.
 8. Hardware:
 - a. Solid Forged Brass Pulleys, Sash Locks, Lifts; SRS Hardware; www.srshardware.com.
 - b. or Architect Approved Equal.
 9. Locking Sash bolt:
 - a. Yale P119 Sash Window Bolt; Yale Locks; www.yalelock.co.nz
 - b. or Architect Approved Equal.
 10. Weatherstripping:
 - a. Spring Bronze, 1-1/8" or 1" v-shaped; Pemko P51-17; ASSA ABLOY; Pemko.com
 - b. or Architect Approved Equal.
- B. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. General: Comply with NWWDA I.S. 2.
- B. New Reproduction Sashes:
 - 1. All new required sash components shall comply with AWI Section 1000, Premium Grade for new windows, matching existing joinery. Solid wood sash members shall be milled from Accoya, African Mahogany, Sapele, Old Growth or heart Cypress, or other architect approved equal lumber. Thickness shall be matched to existing examples, or as selected by architect, and be kiln dried to moisture content of 6- 12% at the time of fabrication and treated with a water repellent preservative in accordance with ANSI/NWWDA I.S.4. Sash corners shall be mortised and tenoned utilizing dovetail joinery, haunch joints or other joinery methods, and mechanically pinned.
 - 2. All profiles shall be Custom profiles to match existing.
 - 3. Sash lugs custom profile one piece, part of sash stile.
 - 4. Finish:
 - a. Exterior: Primed. Two finish coats factory applied in a custom color as defined by the architect. Sash edges to be left unpainted.
 - b. Interior: Primed. Two finish coats. Field Applied. Color as selected by architect.
- C. New Reproduction Frames:
 - 1. All new required framework and trim components shall comply with AWI Section 1000, Premium Grade for new windows, matching existing joinery. Solid wood frame members shall be milled from Accoya, African Mahogany, Sapele, Old Growth or heart Cypress, or other architect approved equal lumber. Thickness shall be matched to existing examples, or as selected by architect, and be kiln dried to moisture content of 6- 12% at the time of fabrication and treated with a water repellent preservative in accordance with ANSI/NWWDA I.S.4. Frame corners shall be mortised and tenoned or utilize other applicable joinery, and mechanically fastened or pinned.
 - 2. All profiles shall be Custom profiles to match existing.
 - 3. Wood for exterior brick mold trim: Specified wood, kiln dried to a maximum of moisture content of 12% back primed prior to installation.
 - 4. Interior trim: match profiles and thickness of original existing trim or as shown in drawings.
 - 5. Finish:
 - a. Exterior: Primed. Two finish coats factory applied in a custom color as defined by the architect.
 - b. Interior: Primed. Two finish coats. Field Applied. Color as selected by architect.
- D. Weather-stripping:
 - 1. 1-1/8" Spring bronze at each frame track to extend past end of sash 2" minimum.
 - 2. 1" V-shaped Spring bronze nailed at bottom of lower sash if required for effective seal.
 - 3. Fasten weather stripping with 7/8" Bronze nails nailed at 2" on center.
- E. True Divided Lites:
 - 1. Match existing interior profile with individual panes of glass with glazing stops.
- F. Interior Wood Moldings: Sash Stops, interior casing, stool, and apron.
 - 1. Match existing original historic profiles and species.

2.03 GLAZING

- A. Replacement glass for cracked, broken or missing panes to be 1/8" single pane clear float glass.

2.04 HARDWARE

- A. Restore and reuse original hardware where possible unless noted otherwise. Provide new hardware to match existing as closely as possible where existing is badly damaged, missing, or new hardware is required. Approval of hardware at mock up is basis of approval.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine opening before installation. Verify that opening is correct and sill plate is level. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Masonry surfaces shall be dry and free of construction debris. Consult with architect if excessive brick mortar degradation is present.
 - 2. Wood frame walls shall be dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (75 mm) of corner.
- B. Coordinate window installation with masonry, wall flashings, and other built-in components.

3.02 PAINT REMOVAL

- A. Remove loose and flaking paint from wood surfaces using techniques as described in Section 02 2140 - Restoration and Renovation Techniques. Complete paint removal not required except as noted below.
 - 1. It is assumed that historic exterior paint typically contains lead. Contractors are therefore required to take all necessary precautions and methods to limit employee exposure to lead-based paint and comply with OSHA standard number 1926.62 regarding lead.
 - 2. Strip and remove deteriorated, loose, or flaking paint and excessive layers of paint from existing wood sashes, trim, sill, and frame. Remove built up paint from joints and grooves. Remove all paint and glazing from glazing pockets of sash. Remove all paint from sash edges and capillary drips. Do not gouge wood with paint scrapers.
 - 3. Infrared paint removers or steamers allowed at approval of architect. No chemical stripping without prior approval of architect. Do not "Dip Strip" any window component.
 - 4. Rake out all existing caulk. Refer to Section 07 9200 - Joint Sealants.

3.03 FRAME RESTORATION

- A. Preparation: Remove all dirt and debris from frame. Remove all extraneous nails, staples, bolts, hooks, etc. from frame and trim. Remove paint as directed above.
- B. Wood Consolidant & Putty Repairs of Rotted Sills and Frame Components
 - 1. Test wood for moisture content and use solvents or low heat dryers as approved to achieve a 6% - 12% moisture content prior to restoration. High moisture contents will cause failure of paint, consolidants, and putty.
 - 2. Remove all paint, oils, grease, waxes, lubricants, dirt, and other contaminants that can prevent adhesion in the area of work.
 - 3. For wood deterioration less than 3/4" deep (when penetrated with an ice pick using moderate hand pressure): Brush apply wood consolidant onto clean wood surfaces by masking entire area surrounding sill. Drill 1/4" holes 3/4" deep two inches on center to allow wood consolidants to penetrate beneath the wood surface. Apply to end grain where possible for increased penetration. Spongy or rotted wood can remain to provide matrix for consolidant if proper moisture content is obtained.
 - 4. Follow manufacturers' instructions for mixing of components, application temperatures, and material handling.
 - 5. Apply heavy coat of wood consolidant and allow to soak into wood. Apply additional coats while previous coat is uncured to completely saturate the deteriorated areas of wood.
 - 6. Fill depressions, voids, gouges, and cracks with structural adhesive putty and sand to smooth surface. Apply using putty knife or similar tool. Roughen surface for better adherence. Shape to minimize sanding. Wet knife with alcohol or water to aid smoothing of surface and reducing sanding. Apply over consolidant when still tacky for best adhesion.
 - 7. Ensure exterior sill has proper slope to drain with no depressions to collect water. Ensure proper overlap and drip.
 - 8. Test all hardware mounting points for solid substrate and repair/consolidate as needed using methods and techniques defined in this section.
- C. Dutchmen Repairs

1. Where practicable, repair deteriorated, split, or missing wood with Dutchmen repairs. Missing sections, holes greater than 2" in diameter, or wood split or bowed beyond repair should be repaired with dutchmen or replaced with new components that match the original profile, grain orientation, and joinery methods exactly.
 2. Neatly cut out defective material and enough sound wood to bond Dutchman to sound substrate. Form a prismatic void in existing wood with square corners and edges. Cut Dutchman to exactly fit void, with exposed portion matching original profile of woodwork. Fabricate and install Dutchman with grain parallel to original wood grain direction. Dutchman species and grain to match existing as closely as possible to prevent differential movement.
 3. Secure Dutchman with waterproof adhesive and clamp or nail with stainless nails in place.
 4. Use a diagonal scarf joint for end-to-end joints where the end of a component is to be cut off and replaced with a Dutchman.
 5. Replace warped or bowed components in entirety where they compromise operation, strength, weathertightness, or otherwise affect performance.
- D. Tighten loose and open joints in frame using waterproof glue and stainless finishing nails properly countersunk. Fill all joints which cannot be closed without dismantling the window and fill all holes in wood with structural adhesive putty as outlined above.
- E. Fill all miscellaneous holes, cracks, and open joints in wood work with putty.
- F. Lightly sand surface smooth.
- G. Treat all unpainted exterior and concealed wood surfaces with wood preservative. Liberally apply two coats to all surfaces. Allow 24 hours between coats and 3 days prior to painting.
- H. Remove weight pocket door carefully and remove existing sash rope. Restore door as required using methods above. After operation of window is restored and painting is complete, reinstall door using 3/4" torx head screws. Utilize pilot holes and counter sink to prevent splitting wood or obstructing weather stripping. Do not paint over screw heads.

3.04 SASH RESTORATION

- A. Preparation:
1. Remove interior and parting stops to remove sashes. Cut paint lines to prevent wood tear out at stops. Label/catalog sashes for restoration to correct window frame.
 2. Remove all dirt and debris from sash. Remove all extraneous nails, staples, bolts, hooks, etc. Remove hardware for restoration. Remove paint as directed above. Do not gouge wood with scrapers.
 3. Carefully remove all glazing putty and glazing stops. Remove, catalog, and store unbroken glass for reinstallation in same window sash. Infrared paint removers or steamers allowed for glazing putty removal at approval of architect.
- B. Use Wood Consolidant and Structural Adhesive Putty on surfaces to repair rotten or deteriorated areas, checks, gouges, and cracks in original sash material as directed above for sash restoration. Test all hardware mounting points for solid substrate and repair/consolidate as needed utilizing methods and techniques above.
- C. Replace deteriorated components with wood species and grade to match existing as closely as possible to prevent differential movement. Provide dutchman repairs for structurally deteriorated or partially missing components. Provide joinery as required for strong, tight repair. Replacement mortise and tenon joints to match original joints exactly and to be fabricated to a high level of craftsmanship. Replace warped or bowed components in entirety where they compromise operation, strength, weathertightness, or otherwise affect the overall performance of the window.
- D. Tighten loose and open joints in sashes by disassembling sash and reassembling. Treat joints with wood consolidant. Square each sash, wedge as needed, and pin joints with stainless steel pins, pilot drilled and set into each joint tight. Do not glue sash joints.

- E. Where complete sash needs to be fabricated, use approved wood species and maintain existing dimensions, profiles, and sash construction, using same mortise and tenon design as the originals exactly. Sash lugs to be integral to styles.
- F. Replace broken glass panes with new glass as listed above.
- G. Sand surface without compromising the profile of the original window.

3.05 GLASS INSTALLATION AND GLAZING

- A. Apply cured linseed oil, wood consolidant, or primer paint to the glazing pocket of the sash to prevent wood from drawing oil out of glazing putty/sealant. Allow to dry.
- B. Install continuous bead of clear silicone sealant (as approved by architect) into glazing pocket of sash. Do not allow sealant to run out. Strike off excess sealant for clean appearance.
- C. Carefully set glass into sealant and install glazing points at regular intervals to secure glass.
- D. Install continuous bead of glazing putty along entire edge of glass pane.
- E. Strike off excess putty at a 45 degree angle using a putty knife. Provide clean neat work that is weathertight upon curing. Allow to fully cure before excessive movement of the sash or painting.
- F. Glazing putty to be struck in a consistent smooth manner tight to sash and glass and not extending past edges of interior muntin bar edges.

3.06 PAINTING

- A. Frame:
 - 1. Backprime all exterior trim.
 - 2. Prime and paint exterior of window frame and trim with two coats of paint.
 - 3. Interior of frame to be painted similarly unless scheduled for stain or other transparent finish.
- B. Sashes:
 - 1. Prime and paint exterior of window sash with two coats of paint. Do not paint edges of sash. Allow to cure fully before reinstallation in frame.
 - 2. Allow glazing putty to "skim" over or cure fully before painting. Extend paint over edge of putty slightly to provide weathertight seal over putty. Do not overpaint glass excessively. Provide clean and neat paint termination.
 - 3. Clean glass of all paint and glazing putty residue.
 - 4. Interior of sash to be painted similarly if not scheduled for stain or other transparent finish.

3.07 HARDWARE RESTORATION/REFURBISHMENT

- A. Refurbish existing hardware such as sash pulls, pole sockets, sash locks and keepers, pulleys, chains and reinstall. Provide matching hardware (match existing as close as possible) where existing hardware is missing.
 - 1. Carefully remove existing screws to avoid stripping. Utilize minimal amounts of penetrating lubricant if required.
 - 2. Clean hardware including screws by soaking in simmering water with baking soda, dish soap, or other gentle means of removing paint and grime. When paint has softened, submerge hardware into ice water and manually scrub paint off with gentle means.
 - 3. Install new sash rope or chain at each window sash and verify that existing windows are operational. Verify that knots are secure and will not hinder operation.
 - 4. Install new keyed sash bolt in meeting rail of sashes once window restoration is complete and all other hardware is installed. Consult with architect on location.

3.08 INSTALLATION OF RESTORED WINDOWS

- A. Where disassembly is required, install restored window frames and sashes level and plumb, without warp to rack of frames. Properly support, anchor, or secure window components.
- B. Install sealant at outer edges of frame using specified backer rod and polyurethane sealant in a color selected from the manufacturer's standard options by architect. Refer to Section 07 9200 - Joint Sealants.

- C. Install sashes in original window frames level and plumb. Install all hardware, ropes/chains, and window weights to allow for easy and balanced operation of the window. Sash locks to pull meeting rails tight to stop air movement.

3.09 WEATHERSTRIPPING

- A. Install new spring bronze weatherstripping at each track on the frame, extending 2" past end of sash minimum.
 - 1. Use bronze 3/4" nails at 2" O.C. Do not dimple/warp/puncture spring bronze by setting nails too deeply.
 - 2. Notch weatherstripping around pulley. Fold down and nail corner to prevent sash rope wearing on bronze.
 - 3. Piece together weatherstripping at weight pocket door to allow removal of door after installation of weatherstripping. Piecing to overlap for tight seal. Lap to prevent catching on sash bottom.
 - 4. Adjust spring bronze utilizing putty knife to have tight seal to window sash.
- B. If seal is not tight at meeting rail, install spring bronze on upper sash rail with unnailed portion to bottom.
- C. If seal is not tight at top or bottom of the window, install V-shaped spring bronze with opening to the outside.

3.10 ADJUSTING

- A. Adjust operation of sash to provide smooth and balanced lifting and closing. Lubricate pulley (light oil), tracks (wax) and adjust weights as required. Adjust hardware, stops, and weather stripping to provide weather-tight closure without binding.

3.11 CLEANING

- A. Clean exterior surfaces immediately after installation. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealants, dirt, and other substances.
- B. Clean glass of factory-glazed units immediately after installing windows. Wash and polish glass on both faces before Project Completion. Comply with manufacturer's recommendations for final cleaning and maintenance. Remove nonpermanent labels and markings from glass surfaces.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.12 PROTECTION

- A. Protect window units from damage or deterioration until the time of Project Completion.

3.13 PROJECT SPECIFIC CONDITIONS

- A. Previously restored windows (Type A) require some work to achieve a comparable final product to Type B windows. Ensure that the following has been achieved or completed with each previously restored window:
 - 1. Steel lintels have been restored to a well maintained condition including a rust inhibitive primer treatment and new paint.
 - 2. Window perimeter backer rod and sealant has been installed.
 - 3. Final coat of paint has been applied (windows primed already)
 - 4. Windows can be opened without difficulty.
 - 5. Architect approved weatherstripping has been installed correctly.
 - 6. Deteriorated wood has been repaired (holes filled, rotten areas corrected, joints tight).
 - 7. Hardware has been installed in a manner similar to Type B windows.
 - 8. Glazing putty is intact and correctly applied and painted (watertight at glass).
 - 9. Glass panes are intact (some panes have been broken since previous restoration).
 - 10. Sash bolt locks are installed.

- B. Unrestored Windows (Type B) have been boarded but not restored and include a variety of window styles including transom and double hung windows. Type B required full restoration as described above.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood doors.
- B. Thresholds.
- C. Weatherstripping, seals and door gaskets.

1.02 RELATED REQUIREMENTS

- A. Section 08 1433 - Stile and Rail Wood Doors.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. BHMA A156.2 - American National Standard for Bored and Preamsembled Locks & Latches; 2011.
- C. BHMA A156.3 - American National Standard for Exit Devices; 2014.
- D. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.
- E. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks; 2014.
- F. BHMA A156.6 - American National Standard for Architectural Door Trim; 2010.
- G. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; 2010.
- H. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.
- I. BHMA A156.21 - American National Standard for Thresholds; 2014.
- J. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012.
- K. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; 1993; also in WDHS-1/WDHS-5 Series, 1996.
- L. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware will be installed upon.
- B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
- D. Keying Schedule: Submit for approval of City of Durant.
- E. Samples: Provide the following prior to preparation of hardware schedule;
- F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- G. Keys: Deliver with identifying tags to City of Durant by security shipment direct from hardware supplier.

- H. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in City of Durant's name and registered with manufacturer.
- I. Maintenance Materials and Tools: Furnish the following for City of Durant's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Tools: One set of all special wrenches or tools applicable to each different or special hardware component, whether supplied by the hardware component manufacturer or not.
- J. Templates: Where required, furnish hardware templates to each fabricator of doors, frames, and other work to be factory-prepared for the installation of hardware.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware approved by manufacturer.
- C. Exit Doors: Ensure exit doors are openable at all times from the inside without the use of a key or any special knowledge or effort.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 PROJECT CONDITIONS:

- A. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing security and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
 - 1. Upon request, check the Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year warranty for door closers.
- C. Provide three year warranty for Exit Devices and Locksets
- D. All other Hardware, provide two year warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Allegion Brands, Ives, LCN, Schlage, Steelcraft, or Von Duprin: www.allegion.com/us.
- B. Assa Abloy Brands, Corbin Russwin, Curries, McKinney, Norton, Sargent, or Yale: www.assaabloydss.com.
- C. Hager Companies: www.hagerco.com.
- D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 GENERAL REQUIREMENTS

- A. Provide door hardware specified, or as required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Provide items of a single type of the same model by the same manufacturer.
- C. Provide products that comply with the following:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.

- D. Function: Lock and latch function descriptions as noted in Hardware Schedule in Drawings (Sheet A4.1).
- E. Finishes: Provide door hardware of the same finish unless otherwise indicated.
 - 1. Primary Finish: Satin oxidized bronze, oil rubbed, on bronze base metal, 613 (approx US10B).
 - 2. Secondary Finish: Satin chrome plated over nickel on brass or bronze, 626 (approx US26D).
 - a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.
- F. Fasteners:
 - 1. Mineral Core Wood Doors: Sex bolts.
 - 2. Concrete and Masonry Substrates: Stainless steel machine screws and lead expansion shields.

2.03 LOCKS AND LATCHES

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 - 1. Hardware Sets indicate locking functions required for each door.
 - 2. If no hardware set is indicated for a swinging door provide an office lockset.
 - 3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 - 4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.
 - 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Keyed in like-groups.
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.04 HINGES

- A. Hinges: Provide hinges on every swinging door.
 - 1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
 - 2. Provide ball-bearing hinges at all doors having closers.
 - 3. Provide hinges in the quantities indicated.
 - 4. Provide non-removable pins on exterior outswinging doors.
- B. Manufacturers - Hinges:
 - 1. Assa Abloy Brands; McKinney: www.assaabloydss.com.
 - 2. Hager Companies: www.hagerco.com.
 - 3. Stanley Black & Decker: www.stanleyblackanddecker.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.05 PUSH/PULLS

- A. Push/Pulls: Comply with BHMA A156.6.
 - 1. Provide push and pull on doors not specified to have lockset, latchset, exit device, or auxiliary lock.
 - 2. On solid doors, provide matching push plate and pull plate on opposite faces.
- B. Manufacturers - Push/Pulls:
 - 1. Assa Abloy Brands; McKinney: www.assaabloydss.com.
 - 2. Hager Companies: www.hagerco.com.
 - 3. Trimco, originally called Triangle Brass Manufacturing Co., Inc: www.trimcohardware.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.06 LOCKS AND LATCHES

- A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
 - 1. Hardware Sets indicate locking functions required for each door.
 - 2. If no hardware set is indicated for a swinging door provide an office lockset.
 - 3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
 - 4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
- B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin interchangeable core.
 - 1. Provide cams and/or tailpieces as required for locking devices required.
- C. Keying: Keyed in like-groups.
- D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.07 CYLINDRICAL LOCKSETS

- A. Locking Functions: As defined in BHMA A156.2, and as follows.
 - 1. Passage: No locking, always free entry and exit.
 - 2. Privacy: F76, emergency tool unlocks.
 - 3. Entry / Office: F81, key not required to lock, remains locked upon exit.
 - 4. Classroom: F84, key required to lock.
 - 5. Storeroom: F86, always-locked key required to lock, may not be unlocked.
- B. Manufacturers - Cylindrical Locksets:
 - 1. Assa Abloy Brands; Corbin Russwin, Sargent, or Yale: www.assaabloydss.com.
 - 2. Hager Companies: www.hagerco.com.
 - 3. Schlage, an Allegion brand: www.allegion.com/us.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.08 AUXILIARY LOCKS (DEADBOLTS)

- A. Locking Functions: As defined in BHMA A156.5, and as follows:
 - 1. Public Entry/Exit ("nightlatch"): E023, D012
 - 2. Deadbolt, Unoccupied: E015 or F17, deadbolt by key outside and turn inside.
- B. Manufacturers - Auxiliary Locks (Deadbolts): Same as other locks.

2.09 FLUSHBOLTS AND COORDINATORS

- A. Flushbolts: Lever extension bolts in leading edge of door, one bolt into floor, one bolt into top of frame.
 - 1. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
 - 2. Floor Bolts: Provide dustproof strike except at metal thresholds.
- B. Manual Flushbolts: Provide lever extensions for top bolt at over-size doors.
- C. Manufacturers - Flushbolts:
 - 1. Assa Abloy Brands; McKinney: www.assaabloydss.com.
 - 2. Hager Companies: www.hagerco.com.
 - 3. Ives, an Allegion brand: www.allegion.com/us.
 - 4. Trimco, originally called Triangle Brass Manufacturing Co., Inc: www.trimcohardware.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.10 CLOSERS

- A. Closers: Complying with BHMA A156.4.
 - 1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
 - 2. Provide a door closer on every exterior door.

3. At outswinging exterior doors, mount closer in inside of door.
- B. Manufacturers - Surface Mounted Closers:
 1. Assa Abloy Brands; Corbin Russwin, Norton, Rixson, Sargent, or Yale: www.assaabloydss.com.
 2. Hager Companies: www.hagerco.com.
 3. LCN, an Allegion brand: www.allegion.com/us.
 4. Substitutions: See Section 01 6000 - Product Requirements.

2.11 STOPS AND HOLDERS

- A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
 1. Provide wall stops, unless otherwise indicated.
 2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
 3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.
- B. Manufacturers - Overhead Holders/Stops:
 1. Assa Abloy Brands; Rixson or Sargent: www.assaabloydss.com.
 2. C. R. Laurence Co., Inc: www.crl-arch.com.
 3. Glynn-Johnson, an Allegion brand: www.allegion.com/us.
 4. Substitutions: See Section 01 6000 - Product Requirements.
- C. Manufacturers - Wall and Floor Stops/Holders:
 1. Assa Abloy Brands; McKinney: www.assaabloydss.com.
 2. C. R. Laurence Co., Inc: www.crl-arch.com.
 3. Hager Companies: www.hagerco.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.

2.12 GASKETING AND THRESHOLDS

- A. Gaskets: Complying with BHMA A156.22.
 1. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
 2. On each exterior door, provide door bottom sweep, unless otherwise indicated.
- B. Thresholds: Complying with BHMA A156.21.
 1. At each exterior door, provide a threshold unless otherwise indicated.
 2. Field cut threshold to frame for tight fit.
- C. Fasteners At Exterior Locations: Non-corroding.
- D. Manufacturers - Gasketing and Thresholds:
 1. Assa Abloy Brands; McKinney: www.assaabloydss.com.
 2. Hager Companies: www.hagerco.com.
 3. National Guard Products, Inc: www.ngpinc.com.
 4. Pemko Manufacturing Co: www.pemko.com.
 5. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Do not install surface mounted items until finishes applied to substrate are complete.

- D. Mounting heights for hardware from finished floor to center line of hardware item.
 - 1. For Wood Doors: Comply with DHI "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- E. Set exterior door thresholds with full-width bead of elastomeric sealant on each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.03 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01 4000.

3.04 ADJUSTING

- A. Adjust work under provisions of Section 01 7000.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION

- A. Protect finished Work under provisions of Section 01 7000.
- B. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE - SEE DRAWING SHEET A4.1.

END OF SECTION

SECTION 08 8300
MIRRORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass mirrors.
 - 1. Annealed float glass.

1.02 RELATED REQUIREMENTS

- A. Section 06 2000 - Finish Carpentry: Wood mirror frames.

1.03 REFERENCE STANDARDS

- A. ASTM C1036 - Standard Specification for Flat Glass; 2011.
- B. GANA (TIPS) - Mirrors: Handle with Extreme Care (Tips for the Professional on the Care and Handling of Mirrors); 2011.

1.04 FIELD CONDITIONS

- A. Do not install mirrors when ambient temperature is less than 50 degrees F (10 degrees C).

1.05 WARRANTY

- A. Provide five year manufacturer warranty for reflective coating on mirrors and replacement of same.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Mirror Design Criteria: Select materials and/or provide supports as required to limit mirror material deflection to 1/200, or to the flexure limit of glass, with full recovery of glazing materials, whichever is less.
- B. Mirror Glass: Clear, annealed float glass; ASTM C1036, with copper and silver coatings, and protective overcoating.
 - 1. Size: As noted on drawings.

2.02 ACCESSORIES

- A. Mirror Attachment Accessories: Stainless steel J-profile channels.
- B. Miscellaneous Accessories: Provide anchoring and attachment accessories as required for complete installation
- C. The use of adhesive for attachment to wall will not be permitted.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that openings for mirrored glazing are correctly sized and within tolerance.
- B. Verify that surfaces of mirror frames or recesses are clean, free of obstructions, and ready for installation of mirrors.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.

3.03 INSTALLATION

- A. Install mirrors in accordance with GANA (TIPS) and manufacturers recommendations.
- B. Set mirrors plumb and level, and free of optical distortion.
- C. Set mirrors with edge clearance free of surrounding construction including countertops or backsplashes.
- D. Installation in Frames:

1. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.
2. Place setting blocks at 1/4 points with edge block no more than 6 inches (150 mm) from corners.
3. Rest mirrors on setting blocks and push against tape to ensure full contact at perimeter of mirror.
4. Install removable stops, insert spacer shims between mirrors, and apply stops at 24 inch (600 mm) on center and at 1/4 inch (6 mm) below sight line.
5. Fill gaps between mirror and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.
6. Trim protruding tape edge.

3.04 CLEANING

- A. Remove wet glazing materials from finish surfaces.
- B. Remove labels after work is complete.
- C. Clean mirrors and adjacent surfaces.

3.05 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste.

END OF SECTION

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Gypsum wallboard.
- B. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood blocking, framing, and execution requirements.

1.03 REFERENCE STANDARDS

- A. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2012.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- D. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.
- E. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
- F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.
- G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
- 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; 2015.
- 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; 2014.
- J. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.
- K. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
- L. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
- M. GA-216 - Application and Finishing of Gypsum Board; 2013.
- N. ICC (IBC) - International Building Code; 2015.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on gypsum board, accessories, and joint finishing system.
- C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- D. Samples: Submit two samples of gypsum board finished with proposed texture application, 12 by 12 inches (300 by 300 mm) in size, illustrating finish color and texture.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 3 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

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

2.02 METAL FRAMING MATERIALS

- A. Non-Loadbearing 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 flat or formed webs with knurled faces.
 2. Runners: U shaped, sized to match studs.
- B. 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. Manufacturers - Gypsum-Based Board:
1. American Gypsum Company: www.americangypsum.com.
 2. CertainTeed Corporation: www.certainteed.com.
 3. Georgia-Pacific Gypsum: www.gpgypsum.com.
 4. National Gypsum Company: www.nationalgypsum.com.
 5. USG Corporation: www.usg.com.
 6. Substitutions: See Section 01 6000 - Product Requirements.
- B. 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. Thickness:
 - a. Vertical Surfaces: 5/8 inch (16 mm).
 - b. Ceilings: 5/8 inch (16 mm).
- C. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C1396/C1396M; sizes to minimum joints in place; ends square cut.
1. Application: Vertical surfaces behind thinset tile, except in wet areas.
 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 3. Type: Regular, in locations indicated.
 4. Regular Board Thickness: 5/8 inch (16 mm).
 5. Edges: Tapered.
 6. Products:
 - a. American Gypsum Company; M-Bloc.
 - b. Georgia-Pacific Gypsum; ToughRock Mold-Guard Gypsum Board.
 - c. National Gypsum Company; Gold Bond XP Gypsum Board.
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

- A. Finishing Accessories: ASTM C1047, galvanized steel, rolled zinc, or rigid plastic, unless noted otherwise.
1. Types: As detailed or required for finished appearance.
 2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.

- B. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 - 1. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
 - 2. Ready-mixed vinyl-based joint compound.
- C. 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.
 - 1. Screws for Attachment to Wood Members: Length as required to meet current Building Code Requirements.
- D. 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.
- E. No nails permitted for use in the installation of Gypsum Board.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.
- B. 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.
- C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- D. Blocking: Install wood blocking for support of:
 - 1. Framed openings.
 - 2. Wall mounted cabinets.
 - 3. Plumbing fixtures.
 - 4. Toilet accessories.
 - 5. Wall mounted door hardware.

3.03 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.
 - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Installation on Wood Framing: For non-rated assemblies, install as follows:
 - 1. Single-Layer Applications: Screw attachment.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.05 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
- 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).

3.06 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

END OF SECTION

SECTION 09 3000

TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tile for floor applications.
- B. Tile for wall applications.
- C. Cementitious backer board as tile substrate.
- D. Stone thresholds.
- E. Ceramic accessories.
- F. Ceramic trim.
- G. Non-ceramic trim.

1.02 RELATED REQUIREMENTS

- A. Section 06 6200 - Finish Carpentry.
- B. Section 07 9200 - JOINT SEALANTS: Sealing joints between tile work and adjacent construction and fixtures.
- C. Section 09 2116 - Gypsum Board Assemblies: Tile backer board.

1.03 REFERENCE STANDARDS

- A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2013.1.
- B. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2012 (Revised).
- C. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2010 (Revised).
- D. ANSI A118.9-SystemDeleted - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (Reaffirmed 2010).
- E. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-set Ceramic Tile and Dimension Stone Installation; 2014.
- F. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2013.1.
- G. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2015.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Samples: Submit (2 Each) specified tile type selection boxes to Architect for selection and verification of type and color.
- E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.
- F. Maintenance Materials: Furnish the following for City of Durant's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Tile: 2 percent of each size, color, and surface finish combination, but not less than 1 case of each type.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of and ANSI A108/A118/A136.1 and TCNA (HB) on site.
- B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.
- C. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience.

1.06 MOCK-UP

- A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.
- B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
 - 1. Approved mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

- A. Do not install solvent-based products in an unventilated environment.
- B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

- A. Manufacturers: All products by the same manufacturer.
 - 1. American Olean Corporation: www.americanolean.com.
 - 2. Dal-Tile Corporation: www.daltile.com.
 - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. TILE TYPE 1 - Floor Tile: Ceramic Mosaic Tile : ANSI A137.1, and as follows:
 - 1. Moisture Absorption: 0 to 0.5 percent.
 - 2. Size and Shape: 1 inch square (25 mm square).
 - 3. Edges: Cushioned.
 - 4. Surface Finish: Unglazed.
 - 5. Color(s): To be selected by Belinda Stewart Architects, PA from manufacturer's standard range.
 - 6. Pattern: 2 color system, pattern as shown in drawings, to be selected from manufacturer's standard range by Belinda Stewart Architects, PA.
 - 7. Trim Units: Provide and install matching trim units for inside and outside corners.
- C. TILE TYPE 2 - Floor/Wall Base Tile: Ceramic Mosaic Tile: ANSI A137.1, and as follows:
 - 1. Moisture Absorption: 3.0-7.0 percent
 - 2. Size and Shape: 1" x 1" square, coved base tile.
 - 3. Edges: Cushioned
 - 4. Surface Finish: Unglazed
 - 5. Pattern: As indicated in drawings. 1 color total as selected from manufacturer's standard range.
 - 6. Trim Units: Provide and install matching trim units for inside and outside corners.

2.02 TRIM AND ACCESSORIES

- A. Ceramic Accessories: same color and finish as adjacent field tile, same manufacturer as tile.
- B. Ceramic Trim: Matching cove base ceramic shapes in sizes coordinated with field tile.
 - 1. Applications:
 - a. Floor to Wall Joints: Cove base.
 - 2. Manufacturers: Same as for tile.

- C. Thresholds: Marble, white or gray, honed finish; 2 inches (51 mm) wide by full width of wall or frame opening; 1/2 inch thick (12.7 mm thick); beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.
 - 1. Applications:
 - a. At doorways where tile terminates.

2.03 SETTING MATERIALS

- A. Provide setting materials made by the same manufacturer as grout.
- B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or ANSI A118.15.
 - 1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
 - 2. Products:
 - a. ARDEX Engineered Cements; ARDEX X 77 MICROTEC: www.ardexamericas.com.
 - b. AVM Industries, Inc; Thin-Set 780: www.avmindustries.com.
 - c. LATICRETE International, Inc; LATICRETE 254 Platinum: www.laticrete.com.
 - d. Merkrete, by Parex USA, Inc; Merkrete 720 Marble Pro: www.merkrete.com.
 - e. ProSpec, an Oldcastle brand; Permalastic System: www.prospec.com.
 - f. Substitutions: See Section 01 6000 - Product Requirements.
- C. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water.
 - 1. Products:
 - a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com.
 - b. Merkrete, by Parex USA, Inc.; Merkrete Underlay C: www.merkrete.com.
 - c. Proflex Products, Inc; MSI - Mud Set Installation: www.proflex.us.
 - d. Substitutions: See Section 01 6000 - Product Requirements.

2.04 GROUTS

- A. Manufacturers:
 - 1. ARDEX Engineered Cements; _____: www.ardexamericas.com.
 - 2. Bostik Inc: www.bostik-us.com.
 - 3. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com.
 - 4. Merkrete, by Parex USA, Inc: www.merkrete.com.
- B. Standard Grout: ANSI A118.6 standard cement grout.
 - 1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
 - 3. Color(s): As selected by Belinda Stewart Architects, PA from manufacturer's full line.

2.05 ACCESSORY MATERIALS

- A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
 - 1. Thickness: 20 mils (0.5 mm), maximum.
 - 2. Crack Resistance: No failure at 1/16 inch (1.6 mm) gap, minimum.
 - 3. Products:
 - a. LATICRETE International, Inc; LATICRETE Blue 92 Anti-Fracture Membrane: www.laticrete.com.
 - b. Merkrete, by Parex USA, Inc.; Merkrete Fracture Guard 5000: www.merkrete.com.
 - c. Proflex Products, Inc; Maxxim Sim-40: www.proflex.us.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- B. Mesh Tape: 2 inch (50 mm) wide self-adhesive fiberglass mesh tape.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Protect surrounding work from damage.
- B. Vacuum clean surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

- A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.13, manufacturer's instructions, and TCNA (HB) recommendations.
- B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
- E. Form internal angles square and external angles bullnosed.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Keep control and expansion joints free of mortar, grout, and adhesive.
- H. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
- I. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
- J. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.
 - 1. Use uncoupling membrane under all tile unless other underlayment is indicated.

3.05 INSTALLATION - FLOORS - MORTAR BED METHODS

- A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F111, with cleavage membrane, unless otherwise indicated.
- B. Cleavage Membrane: Lap edges and ends.
- C. Mortar Bed Thickness: 5/8 inch (15.9 mm), unless otherwise indicated.

3.06 CLEANING

- A. Clean tile and grout surfaces.

3.07 PROTECTION

- A. Do not permit traffic over finished floor surface for 4 days after installation.

SECTION 09 6500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient tile flooring.
- B. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2014).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Selection Samples: Submit manufacturer's complete set of color samples for Belinda Stewart Architects, PA's initial selection.
- D. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- E. Maintenance Materials: Furnish the following for City of Durant's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Flooring Material: Quantity equivalent to 5% of each type and color.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protect roll materials from damage by storing on end.
- B. Store all materials in a manner to protect from moisture, deformation, and damage.

1.05 FIELD CONDITIONS

- A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

PART 2 PRODUCTS

2.01 TILE FLOORING

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness.
 - 1. Manufacturers:
 - a. Armstrong World Industries, Inc: www.armstrong.com.
 - b. Johnsonite, a Tarkett Company: www.johnsonite.com.
 - c. Mannington Mills, Inc: www.mannington.com.
 - d. Substitutions: See Section 01 6000 - Product Requirements.
 - 2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
 - 3. Size: 12 by 12 inch (305 by 305 mm).
 - 4. Thickness: 0.125 inch (3.2 mm).
 - 5. Color & Pattern: 2 color checkerboard pattern @ 45 degree angle, colors as selected by Architect from manufacturer's standard range.

2.02 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
- C. Moldings, Transition and Edge Strips: Same material as flooring.

1. Color as selected by Architect.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
 1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- C. Prohibit traffic until filler is fully cured.
- D. Clean substrate.
- E. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Fit joints and butt seams tightly.
- D. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams at 45° to building lines, install in 2 color checkerboard pattern, colors as selected by architect.
- C. Apply final finish coats according to manufacturer's recommendations (Product and Application Method). Minimum of 2 coats.

3.05 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean, seal, and wax in accordance with manufacturer's written instructions.

3.06 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.
- B. Once construction and cleaning is complete, apply (2) coats wax to all VCT surfaces.

3.07 SCHEDULE

- A. Refer to Finish schedule in the Drawings.

END OF SECTION

SECTION 09 9113
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Materials for backpriming woodwork.
- D. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Exposed surfaces of steel lintels and ledge angles.
- E. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Marble, granite, slate, and other natural stones.
 - 6. Floors, unless specifically indicated.
 - 7. Brick, glass unit masonry, architectural concrete, cast stone, integrally colored plaster and stucco.
 - 8. Glass.
 - 9. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

- A. Section 02 2140 - Restoration and Renovation Techniques.
- B. Section 06 2000 - Finish Carpentry.
- C. Section 08 5550 - Restoration of Historical Wood Windows.
- D. Section 09 9123 - Interior Painting.

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- C. SSPC-SP 1 - Solvent Cleaning; 2015.
- D. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.05 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.

- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, discuss sheen options with Belinda Stewart Architects, PA before preparing samples, to eliminate sheens definitely not required.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- E. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- F. Maintenance Materials: Furnish the following for City of Durant's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years documented experience.

1.07 MOCK-UP

- A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.
- B. Provide panel, 5 feet long by 5 feet wide, illustrating paint color, texture, and finish.
- C. Provide door and frame assembly illustrating paint color, texture, and finish.
- D. Locate where directed by Architect.
- E. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.09 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. Minimum Application Temperatures for Latex Paints: 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
 - 1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Belinda Stewart Architects, PA is obtained using the specified procedures for substitutions.
 - 2. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.
- B. Paints:
 - 1. Benjamin Moore & Co: www.benjaminmoore.com.
 - 2. PPG Architectural Finishes, Inc: www.ppgaf.com.
 - 3. Pratt & Lambert Paints: www.prattandlambert.com.
 - 4. Sherwin-Williams Company: www.sherwin-williams.com.
 - 5. Farrell-Calhoun, Inc.: www.farrellcalhoun.com.
- C. Substitutions: See Section 01 6000 - Product Requirements.

2.02 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. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 - 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Belinda Stewart Architects, PA from the manufacturer's full line.
- C. Colors: To be selected from manufacturer's full range of available colors.
 - 1. Selection to be made by Belinda Stewart Architects, PA after award of contract.
 - 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to City of Durant.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including primed wood and primed metal.
 - 1. Two top coats and one coat primer.
- B. Paint WE-OP-3L - Wood, Opaque, Latex, 3 Coat:
 - 1. One coat of latex primer sealer.
 - 2. Semi-gloss: Two coats of latex enamel.
- C. Paint ME-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
 - 1. One coat of alkyd primer.
 - 2. Semi-gloss: Two coats of alkyd enamel.
- D. Paint MgE-OP-3A - Galvanized Metals, Alkyd, 3 Coat:
 - 1. One coat galvanize primer.
 - 2. Semi-gloss: Two coats of alkyd enamel.
- E. Paint MaE-OP-3A - Aluminum and Copper, Unprimed, Alkyd, 3 Coat:

1. One coat etching primer.
2. Semi-gloss: Two coats of alkyd enamel.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

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. Test shop-applied primer for compatibility with subsequent cover materials.
- E. 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. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

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. Copper: Remove contamination by steam, high pressure water, or solvent washing.
- H. Galvanized Surfaces:
 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
- I. Ferrous Metal:
 1. Solvent clean according to SSPC-SP1.
 2. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- J. 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 calking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- K. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with tinted primer.
- L. 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.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.
- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 09 9123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Materials for backpriming woodwork.
- D. Scope: Finish interior surfaces exposed to view, unless fully factory-finished in areas of work and as noted in drawings.
- E. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Floors, unless specifically indicated.
 - 6. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
 - 7. Glass.

1.02 RELATED REQUIREMENTS

- A. Section 02 2140 - Restoration and Renovation Techniques.
- B. Section 08 5550 - Restoration of Historical Wood Windows.
- C. Section 09 9113 - Exterior Painting.

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- D. SSPC-SP 1 - Solvent Cleaning; 2015.
- E. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.05 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. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, discuss sheen options with Belinda Stewart Architects, PA before preparing samples, to eliminate sheens definitely not required.

3. Allow 30 days for approval process, after receipt of complete samples by Belinda Stewart Architects, PA.
- D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- E. Maintenance Materials: Furnish the following for Louisville Methodist Church's use in maintenance of project.
 1. See Section 01 6000 - Product Requirements, for additional provisions.
 2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
 3. Label each container with color in addition to the manufacturer's label.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years documented experience.

1.07 MOCK-UP

- A. Provide area of wall approximately 5 feet by 5 feet for application of colors for representation.
- B. Provide door and frame assembly illustrating paint color, texture, and finish.
- C. Locate where directed by Architect.
- D. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.09 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 materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F (3 degrees C) above the dew point; or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F (10 degrees C) for interiors unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F (18 degrees C) for interior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
- B. Paints:

1. Glidden Professional, a product of PPG Architectural Coatings: www.gliddenprofessional.com.
 2. Benjamin Moore & Co: www.benjaminmoore.com.
 3. Sherwin-Williams Company: www.sherwin-williams.com.
 4. Farrell-Calhoun: www.farrellcalhoun.com.
- C. Primer Sealers: Same manufacturer as top coats.
- D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended 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. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Belinda Stewart Architects, PA from the manufacturer's full line.
- C. Colors: To be selected from manufacturer's full range of available colors.
1. Selection to be made by Belinda Stewart Architects, PA after award of contract.
 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to City of Durant.
 3. Extend colors to surface edges; colors may change at any edge as directed by Belinda Stewart Architects, PA.

2.03 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, concrete masonry units, brick, wood, plaster, uncoated steel, shop primed steel, and galvanized steel.
1. Two top coats and one coat primer.
 2. Top Coat(s): High Performance Architectural Interior Latex.
- B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
1. Medium duty applications include doors, door frames, railings, handrails, guardrails, and balustrades.
 2. Two top coats and one coat primer.
 3. Top Coat(s): High Performance Architectural Interior Latex.
- C. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
1. One coat of latex primer sealer.
 2. Eggshell: Two coats of latex enamel.
- D. Paint GI-OP-3L - Gypsum Board/Plaster, Latex, 3 Coat:
1. One coat of alkyd primer sealer.
 2. Eggshell: Two coats of latex enamel.

2.04 PRIMERS

- A. Primers: Provide primer as recommended by manufacturer of top coats.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

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 Belinda Stewart Architects, PA of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Plaster and Stucco: 12 percent.
 - 3. Masonry, Concrete, and Concrete Masonry Units : 12 percent.
 - 4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

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 or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- H. Galvanized Surfaces:
- I. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.
- J. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- K. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions.
- B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 09 9220
PLASTER SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The extent of plastering work is noted and shown on the drawings and generally includes the following:
- B. Interior Plaster Repair and Restoration Work.
- C. Decorative Plaster and Trim Repairs and Restoration.
- D. Plaster accessories.

1.02 RELATED SECTIONS

- A. Section 02 2140 - Restoration and Renovation Techniques
- B. Section 09 9123 - Interior Painting

1.03 REFERENCE STANDARDS

- A. PCA EB049 - Portland Cement Plaster/Stucco Manual; Portland Cement Association; 2003.
- B. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- C. National Park Services - Preservation Brief #21 "Repairing Historic Flat Plaster Walls and Ceilings."

1.04 QUALITY ASSURANCE

- A. General: Comply with applicable requirements of ANSI A 42.1 "Specifications for Gypsum Plastering" and A 42.2 "Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior".
- B. Interior Plaster Restoration Specialist: Plaster repairs and restoration work must be performed by a firm demonstrating successful experience in not less than 5 similar projects, employing skilled craftsmen for execution of the work and with minimum 5 years experience with plaster restoration work.
 - 1. The restoration contractor must supply proof of work on this type of project by submitting a list of pertinent projects the applicator has worked on which includes the scope of work, the budget for the scope of work and contact information (E-mail and Phone Numbers) for the Owner and Architect for each project.
- C. Allowable Tolerances: For float surfaces, do not exceed 1/4" in 8'-0" for bow or warp of surface, and for plumb or level.
 - 1. Where working to existing surfaces, match surface exactly or provide for feather edge transition area. Stucco patches shall meet original without visible joint when viewed from 2'-0" distance. Match profiles of column, capitals, and other features as applicable.
- D. Industry Standard: Comply with the recommendations of the "Plasterer's Manual", by the Portland Cement Assoc., except where more stringent requirements are indicated.
- E. Submittals: Provide detailed written description of materials and installation procedures recommended by restoration specialist for approval prior to preparation of samples.
- F. Interior Sample/Mock-Up Plaster Repair: Prior to proceeding with plaster work, perform a sample work area demonstrating typical plaster restoration and repair work using submitted and approved materials. Provide sample area for each surface texture where work is required. Demonstrate the proposed texture and workmanship to blend with adjacent plaster wall surfaces. Obtain approval from Architect and MDAH of sample area prior to proceeding with plaster work. Retain approved sample area as standard for judging completed work.
 - 1. Perform Mock-Up in a manner that demonstrates the Step-by-Step Process for the application of the various products and components for the Plaster System.

1.05 SUBMITTALS

- A. Provide detailed written description of materials and installation procedures recommended by plaster restoration specialist for approval prior to the preparation of sample areas and mock-ups.
- B. Provide product data for all proposed materials.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver all plaster and materials to site in sealed containers, packages and bundles bearing brand name and identification of manufacturer. Store all materials in a dry, well ventilated space, under cover and off the ground.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Installer must examine surfaces to receive plaster and shall notify Contractor of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
 - 1. Starting plaster work constitutes acceptance of substrate conditions.
- B. Protect contiguous work from moisture deteriorations and soiling which might result from resulting operations. Provide temporary covering and whatever other provisions may be necessary to minimize harmful spattering of plaster on other work.
- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydration of plaster. Begin ventilation immediately after plaster is applied and continue until it sets.

PART 2 PRODUCTS

2.01 PLASTERING MATERIALS

- A. General: Except as otherwise indicated, provide standard products recommended by the manufacturer for the application indicated, complying with ANSI A42.1 and A42.2 as applicable, and provide either neat or ready-mixed (where applicable) at installer's option. Where more than one choice of plastering material is indicated, selection is installer's option.
- B. Gypsum Plaster Materials:
 - 1. Base Coat Plaster: Wood fiber gypsum. Provide fibered plaster for scratch coat on metal lath.
 - 2. Finish Coat Plaster: Gypsum gauging plaster.
 - 3. Finishing Lime: Type is installer's option.
 - 4. Texture: Product(s) suitable for interior wall and ceiling surfaces to match surface texture of adjacent existing plaster surfaces.
 - a. Texture materials and surface shall be included in and approved as part of the overall plaster repair and restoration mock-up sample panels.
- C. Miscellaneous Materials and Plastering Accessories:
 - 1. Provide fasteners, galvanized self-furring diamond mesh lath and accessories as required to obtain sound and solid surfaces for interior patching and repairs
 - 2. Metal Rib Lath: USG or approved equal galvanized 4-mesh z-rib lath for tie-on work on flat surfaces, self-furring for attachment to masonry substrates.
 - 3. Expanded Self-Furred Diamond Mesh Lath. 2.5 lbs per Square Yard. Galvanized.
 - 4. Fasteners: Galvanized steel, of type and length suitable for adequate penetration of the substrate, equipped with 1/4" furring device except where used with self-furring lath or reinforcement.
 - 5. Plastering Accessories: Provide zinc alloy accessories including corner beads, drips, stops, control joints and other accessories equal to those shown on the drawings.
 - 6. Lathing Channel: USG or approved equal, roll-formed, galvanized steel ceiling channel attachment.
 - 7. Plaster Bonding Agent: Apply appropriate bonding agent to existing substrate surface following Manufacturer's application instructions.
 - 8. Adhesive: Use appropriate adhesive for bonding areas where plaster has delaminated.

- a. Refer to Detail in drawing.

PART 3 EXECUTION

3.01 PREPARATION FOR PLASTERING

- A. Refer to Section 02 2140 - Restoration and Renovation Techniques for minor plaster patching and restoration work.
- B. Clean plaster bases and substrates to be plastered, removing loose materials, coating and other substances which might impair the work. Scarf edges of existing plaster to receive new plaster and apply approved bonding agent.
- C. Apply self-furring metal lath on masonry surfaces indicated for direct plastering. Nail 1'-0" o.c. both directions. Overlap and tie to existing lath (if any) minimum 6" overlap.
- D. Install lath and furring channels for suspended plaster ceilings and beam surfaces.
- E. When required, install diamond mesh lath to substrate areas to receive plaster repairs. Stretch and fasten to substrate in accordance with industry standards and manufacturer's instructions, using self-furring type fasteners.
- F. Where plaster is required over open frame construction (without solid sheathing), install stretched "line wire" supports 6" o.c. at right angles to framing, and under metal lath. Comply with industry standards for installation.
- G. Install corner reinforcement at external corners of exterior work, except where metal plastering beads or other metal accessories are indicated.
- H. Install diagonal strips of metal lath at corners of openings in plaster where base is not metal lath or reinforcement and control or expansion joints do not extend to corners.
- I. Install temporary grounds and screeds as necessary to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.
- J. Plastering Accessories: Install plastering accessories, anchored to substrates 8" o.c. along each flange. Miter corners and spline joints to form tight joints without offsets. Shim and level units true to line, with a tolerance of 1/8" in 10'-0".
- K. Install metal casing beads where shown and at the following locations:
 - 1. Where plaster abuts other finish, and termination is not lapped by other finish. Leave 3/8" wide pocket for sealant on exterior work, 1/4" wide for interior work unless indicated otherwise.
 - 2. Where plaster abuts exterior window and door frames, and leave 3/8" wide pocket for sealant on exterior work, 1/4" wide for interior work.
- L. Surface Conditioning: Immediately before application of plaster which is to be bonded to existing plaster or masonry, except where bonding agent is to be used, dampen the surfaces sufficiently to obtain optimum plaster suction.
- M. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.
- N. Moist cure finish coat for minimum period of 48 hours.

END OF SECTION

SECTION 09 9600
HIGH-PERFORMANCE COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. High performance coatings.
- B. Surface preparation.

1.02 RELATED REQUIREMENTS

- A. Section 09 9123 - Interior Painting: Requirements for mechanical and electrical equipment surfaces.

1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.
- C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide complete list of all 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 coating system(s) product is to be used in; include description of each system.
 - 4. Manufacturer's installation instructions.
 - 5. If proposal of substitutions is allowed under submittal procedures, explanation of all substitutions proposed.
- C. Samples: Submit two samples 8 by 8 inch (203 by 203 mm) in size illustrating colors available for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Maintenance Materials: Furnish the following for City of Durant's use in maintenance of project.
 - 1. Extra Coating Materials: 1 gallon (4 liters) of each type and color.
 - 2. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

- C. Coating Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- B. Do not install materials when temperature is below 55 degrees F (13 degrees C) or above 90 degrees F (32 degrees C).
- C. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.
- D. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.
- E. Restrict traffic from area where coating is being applied or is curing.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for bond to substrate.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide high performance coating products from the same manufacturer to the greatest extent possible.
- B. High-Performance Coatings:
 - 1. PPG Paints: www.ppgpaints.com/sle.
 - 2. Sherwin-Williams Company: www.protective.sherwin-williams.com/industries.
 - 3. Substitutions: Section 01 6000 - Product Requirements.

2.02 TOP COAT MATERIALS

- A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.
- B. Latex Coating (Epoxy Paint):
 - 1. Number of Coats: Two.
 - 2. Top Coat(s): Latex, Interior, High Performance Architectural.
 - a. Sheen: Semi-Gloss.
 - b. Products:
 - 1) PPG Paints; Pitt-Glaze WB1 Pre-Catalyzed Water-Borne Acrylic Epoxy, 16-310 Series: www.ppgpaints.com/sle.
 - 2) Sherwin-Williams; Pro Industrial Pre-Catalyzed Waterbased Epoxy; MPI #139, 141: www.protective.sherwin-williams.com.
 - 3) Or Architect Approved Equal.
 - 4) Substitutions: Section 01 6000 - Product Requirements.
- C. Shellac: Pure, white type.

2.03 PRIMERS

- A. Primers: Provide primers as recommended by manufacturer.

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of coated surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Do not begin application of coatings until substrates have been properly prepared.
- C. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.
- D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- E. If substrate preparation is the responsibility of another installer, notify Belinda Stewart Architects, PA of unsatisfactory preparation before proceeding.
- 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:
- G. Proceed with coating application only after unacceptable conditions have been corrected.
 - 1. Commencing coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION

- A. Clean surfaces of loose foreign matter.
- B. Remove substances that would bleed through finished coatings. If unremovable, seal surface with shellac.
- C. Remove finish hardware, fixture covers, and accessories and store.
- D. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

3.03 PRIMING

- A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

3.04 COATING APPLICATION

- A. Apply coatings in accordance with manufacturer's written instructions, to thicknesses specified and recommendations in "MPI Architectural Painting and Specification Manual".
- B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

3.06 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. Clean surfaces immediately of overspray, splatter, and excess material.
- C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.07 PROTECTION

- A. Protect finished work from damage.

END OF SECTION

SECTION 10 1400
SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Room and door signs.

1.02 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
 - 1. When room numbers to appear on signs differ from those on the drawings, include the drawing room number on schedule.
 - 2. When content of signs is indicated to be determined later, request such information from City of Durant through Belinda Stewart Architects, PA at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
- D. Samples--Flat Signs: Submit one sample 1, of size similar to that required for project, illustrating sign style, colors, graphics, font, text size, and method of attachment.
- E. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips indicating manufacturer's standard range.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Flat Signs:
 - 1. Best Sign Systems, Inc: www.bestsigns.com.
 - 2. InPro Corporation; Aspen : www.inprocorp.com.
 - 3. Mohawk Sign Systems, Inc: www.mohawksign.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: All signs are required to comply with ADA Standards for Accessible Design and ANSI/ICC A 117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room and Door Signs:
 - 1. Sign Type: Flat signs, signage media without frames, with engraved panel media as specified.
 - 2. Color: As selected by Architect from manufacturer's standard range.

3. Size: 6" x 9" (50mm x 75mm).
4. Edges: Square.
5. Corners: Square.
6. Mounting Type: Tamper-Proof Screws.
7. Provide "tactile" signage, with letters raised minimum 1/32 inch (0.8 mm) and Grade II braille.
8. Character Height: 1 inch (25 mm).
 - a. Font: Helvetica or comparable sans serif font.
 - b. Character Case: Upper and Lower case.
 - c. Character Color: As selected by Architect from Full Range.
9. Sign Height: 3 inches (75 mm), unless otherwise indicated.
10. Tactile characters/symbols shall be raised 1/32" from sign plate face. Signs shall be of one-piece construction, contrasting colors, unless otherwise indicated.
 - a. Text shall be accompanied by Grade II Braille.
11. Rooms requiring Signage:
 - a. Office Doors: Identify with room names and numbers to be determined later, not those shown on the drawings; in addition, provide "window" section for replaceable occupant name. (5) Total.
 - b. Rest Rooms: Identify with pictogram for UNISEX restroom with ADA Symbol, and braille. (3) Total
12. Location: Locate on wall at latch side of door with centerline of sign at 60" (1525mm) above finished floor, with closest edge 2" off door frame or door trim, and in accordance with ADA requirements. Notify architect of any conflicts with location prior to installation.
 - a. If no location is indicated, obtain mounting location from Architect prior to installation.

2.03 ACCESSORIES

- A. Flat Sign Screws: Non-corroding, tamper-proof screws.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE, AND PROTECTION

- A. Signage shall be packaged and stored to protect from damage or deterioration during shipment, handling, storage, and installation. Products shall remain in original packaging until removal is necessary.
- B. Store products in a dry, indoor location.

3.02 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs where specified.
- D. Protect from damage until Substantial Completion; repair or replace damage items.

END OF SECTION

SECTION 10 2800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Accessories for toilet rooms.
- B. Grab bars.

1.02 RELATED REQUIREMENTS

- A. Section 06 6100 - ROUGH CARPENTRY: Concealed supports for accessories, including in wall framing and plates and above ceiling framing.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement to receive anchor attachments.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Toilet Accessories:
 - 1. Design based on products listed below as manufactured by Bobrick Washroom Equipment, Inc; www.bobrick.com.
 - 2. Other Acceptable Manufacturers:
 - a. American Specialties, Inc: www.americanspecialties.com.
 - b. Bradley Corporation: www.bradleycorp.com.
 - 3. Substitutions: Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
- B. Keys: Provide 2 keys for each accessory to City of Durant; master key all lockable accessories.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.
- E. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof.
- F. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.03 FINISHES

- A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 TOILET ACCESSORIES

- A. Toilet Paper Dispenser: Owner Provided, Contractor Installed.

- B. Paper Towel Dispenser: Owner Provided, Contractor Installed.
- C. Soap Dispenser: Owner Provided, Contractor Installed.
- D. Grab Bars: Stainless steel, nonslip grasping surface finish.
 - 1. Standard Duty Grab Bars:
 - a. Push/Pull Point Load: 250 pound-force (1112 N), minimum.
 - b. Dimensions: 1-1/4 inch (32 mm) outside diameter, minimum 0.05 inch (1.3 mm) wall thickness, concealed flange mounting, 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
 - c. Length and Configuration: As indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.
- D. See Section 06 1000 for installation of blocking, reinforcing plates, and concealed anchors in walls.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
 - 1. See Drawings.

3.04 PROTECTION

- A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

SECTION 10 4400
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

1.03 REFERENCE STANDARDS

- A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.
- B. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide extinguisher operational features, extinguisher ratings and classifications, color and finish, anchorage details, and installation instructions.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 FIELD CONDITIONS

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fire Extinguishers and Accessories:
 - 1. JL Industries, Inc: www.jlindustries.com.
 - 2. Larsen's Manufacturing Co: www.larsensmfg.com.
 - 3. Potter-Roemer: www.potterroemer.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL for the purpose specified and indicated.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gage.
 - 1. Class: A:B:C, with minimum of 2A.
 - 2. Size: 10 pound (4.54 kg).
 - 3. Finish: Baked polyester powder coat, Red color.

2.03 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, galvanized and enamel finished.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install Fire Extinguishers and Brackets at location indicated on drawings.
- C. Review with and obtain approval for final mounting locations with Fire Marshal and Architect.

- D. Secure rigidly in place.
- E. Place extinguishers and accessories on wall brackets.

END OF SECTION

SECTION 22 0000 - PLUMBING

PART 1 - GENERAL

1.01 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.
- B. Division 07 Thermal and Moisture Protection.
- C. Division 09 - Finishes.
- D. Division 23 – Heating, Ventilating and Air-Conditioning (HVAC)
- E. Division 26 - Electrical.

1.02 WORK INCLUDED

- A. Provide all materials, equipment, fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction for the installation of complete plumbing systems in accordance with the Contract Drawings and specifications and in conformance with the applicable codes and governing authorities.
- B. The plumbing systems include, but are not limited to, all sections within Divisions 22 and as follow:
 - 1. Plumbing systems, piping and equipment.

1.03 REFERENCE STANDARDS, CODES AND FEES

- A. Local codes.
- B. International Building Codes – Building Code, Gas Code, Mechanical Code and Plumbing Code.
- C. State Codes.
- D. AGA - American Gas Association.
- E. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers.
- F. ANSI - American National Standards Institute.
- G. ASME - American Society of Mechanical Engineers.
- H. NEMA - National Electrical Manufacturer's Association.
- I. NFPA - National Fire Protection Association.
- J. UL - Underwriters Laboratories, Inc.
- K. NEC - National Electrical Code.
- L. OSHA - Occupational Safety and Health Act.
- M. Standards Compliance: When materials or equipment must conform to the standards of

organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), and Underwriters Laboratories (UL), proof of such conformance shall be submitted for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified.

- N. Mechanical Contractor shall pay all fees for required licenses, permits and inspections required for completion of this work. These include building permits, health department permits and water and sewer tap permits.

1.04 UTILITY CONNECTIONS AND CHARGES

- A. Contractor shall extend the water services from the existing water service as required. Coordinate all work with the existing piping locations and include all charges in the Contract Cost. The Contractor shall confirm, prior to bidding, the location and sizes of the connections.

1.05 QUALITY ASSURANCE

- A. All equipment, materials and accessories shall be new and free from defects. Where a UL standard, AGA approval, AWWA standard, FM listing or ASME requirement is established, equipment shall be so approved and labeled or stamped.
- B. Products Criteria:
1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products. Items of equipment shall essentially duplicate equipment that has been in satisfactory use at least two years prior to bid opening. Provide list of users upon request.
 2. Equipment having less than a two year use record, which in the opinion of the Engineer, provides significant benefits to the Owner such as improved energy efficiency, will be acceptable if it is a product of a manufacturer who has been regularly engaged in the manufacture of that specific type of product which has been used in similar applications for a period of two years. The Architect/Engineer reserves the right to require the Contractor to submit evidence to this effect for his approval.
 3. Equipment Service: Products shall be supported by a service organization which maintains an adequate inventory of repair parts and is located, in the opinion of the Architect/Engineer, reasonably close to the site.
 4. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
 5. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume complete responsibility for the final assembled product.
 6. Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.
- C. Supply all equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with all applicable national, state and local codes.
- D. Manufacturer's Recommendations: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished for record to the

Architect/Engineer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations may be cause for rejection of the material.

- E. In addition to all requirements specified hereinafter, each material and equipment item shall have all features as standard with its manufacturer and/or required for the complete operational system.
- F. Capacities, ratings, sizes and other requirements not specified hereinafter shall be as scheduled or otherwise indicated on the Drawings.
- G. Should the Trade Contractor at any time discover a discrepancy in the Drawings or with respect to a variance of code requirements, he shall notify the Architect/Engineer for clarification and shall not proceed with the work affected until clarification has been made.

1.06 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 01 6000 – Submittal Procedures.
- B. Operating and Maintenance Manuals:
 - 1. Before requesting acceptance of work, furnish the number of printed and hardback bound sets required.
 - 2. Equipment and systems.
 - a. Complete description of equipment and systems and basic operating features
 - b. Manufacturer's name, model number, service manual, spare parts list and descriptive literature for all components.
 - 3. Maintenance instructions.
 - 4. Listing of possible breakdown and repairs.
 - 5. Instruction for starting and operation.
- C. Record prints at job completion to indicate actual construction.

1.07 JOB CONDITIONS

- A. The Contractor shall examine not only the plans and specifications for this Division but also the plans and specifications for General Construction, HVAC and Electrical, and shall coordinate his work accordingly to avoid conflict.
 - 1. Report in writing, conditions which will prevent proper provision of this work.
 - 2. Installed work which interferes with architectural or any other work, or which deviates from Drawings and specifications without prior approval, shall be altered by DIVISION 22 - PLUMBING, without cost to Owner, to clear such interferences, or to comply with the Drawings and specifications. Interferences or discrepancies which may be discovered or anticipated shall be reported promptly. Architect/Engineer shall have privilege of making minor changes without additional cost, provided that such changes are made before commencing work on items involved.

B. Continuity of Services and Connections to Existing Work:

1. At no additional cost to Owner, provide all necessary temporary connections and temporary facilities to accomplish the required continuity of services and existing operations.
2. Arrange all work to interfere as little as possible with the normal existing operations. Do not interrupt any existing utility or other service or existing operation at any time without Owner's prior approval. After each interruption has been made, make all necessary connections and alterations, and restore services and avoid interferences with normal existing operations as quickly as possible.
3. Install new work and connect to existing work with minimum interference to existing facilities and maintain water and air tightness when applicable.
4. Temporary shutdowns of existing services:
 - a. At no additional charges.
 - b. At times not to interfere with normal operation of existing facilities.
 - c. Only with written consent of Owner.
5. Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work.
6. Connect new work to existing work in neat and satisfactory high quality workmanship manner.
7. Restore existing disturbed work to original or better condition.

- C. Existing Utilities: Locate and protect existing utilities and other underground work in manner which will ensure that no damage or service interruption will result.

1.08 ACCURACY OF DATA AND DRAWINGS

- A. Drawings are generally diagrammatic, and where not dimensioned or detailed, indicate approximate locations of work. Examine carefully existing site existing systems and all other Contract Drawings, and install work to conform as nearly as possible to locations and arrangements indicated, with only such minor adjustments as necessary to coordinate mechanical work with other work, and to avoid interferences therewith. All piping offsets, rises and fittings are not necessarily shown; however, provide these as required by the conditions involved.
- B. Building and Structure Dimensions: Take these from Architectural and Structural Drawings, and from actual measurements of each existing building and each existing structure involved.

1.09 COORDINATION

- A. Carefully examine the architectural, electrical, heating and air-conditioning, plumbing, and other related drawings and specifications; and coordinate this work with that of others to avoid delay. The Contractor shall be responsible for ascertaining that the work he installs does not interfere with the work of other trades. If work is installed that does interfere, correct at no cost to the Owner. Preoccupation of space by any trade does not give the right of priority to the space.
- B. In general, permanent openings or knockout panels are provided to permit only future service or replacement of system components, not the entire assembly. Each Contractor shall coordinate his equipment delivery with construction progress so that installation may be made in an orderly manner.

- C. The structural design is based on installed locations of the equipment only. Any necessary shoring or other protection necessary for moving heavy equipment to installed location is the responsibility of the Contractor. Take extra precautions in using any existing structure for hoisting or temporary support.
- D. Wherever piping, conduits, or other items are to run in the same general direction, elevation or location, coordinate for the proper allocation of the space position. If necessary, consult the Architect/Engineer, whose decision shall be final.
- E. Where work is to be concealed or installed above ceilings, maintain adequate clearance to allow for access, repairs and removal of all devices. The Contractor shall be responsible for protecting his installation from being blocked off by others. Should a conflict occur, bring the matter to the attention of the other trades for correction.
- F. Coordinate setting of sleeves, anchor bolts and inserts as required to accommodate equipment before concrete is set and masonry is placed.

1.10 TRANSPORTATION AND HANDLING

- A. Pay all transportation and handling charges. Immediately report any damage to equipment received to the carrier so that job progress will not be delayed.
- B. All items received by the Contractor shall be left in their original containers, or as shipped, where possible, until installed in final locations.
- C. All items shall be protected from the elements. If stored outside, provide blocking to raise the base of each item well above ground and/or water levels.
- D. Provide additional protection for items subject to damage, where necessary, so that when installed, the items will be in new condition.

1.11 CUTTING AND PATCHING

- A. Execute cutting, fitting and patching of work required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill timed work.
 - 3. Remove defective work.
 - 4. Remove work not complying with the requirements of the Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Where work is cut for any reason, restore cut and damaged areas with new materials meeting requirements of the Contract Documents.
- B. In addition to the requirements above and upon written instructions of the Architect/Engineer, provide cutting, fitting and patching to:
 - 1. Uncover work to provide observation of covered work.
 - 2. Remove samples of installed materials for testing.

- C. Do not endanger work by cutting or altering work or any part of it.
- D. Prior to cutting that affects structural safety of project, submit written notice to Architect/Engineer requesting consent to proceed with cutting, including:
 - 1. Identification of project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Affect on other work and on structural integrity of project.
 - 5. Description of proposed work. Designate scope of cutting and patching, trades to execute work, products proposed to be used and extent of refinishing.
 - 6. Alternatives to cutting and patching.
 - 7. Designation of party responsible for cost of cutting and patching.
- E. Prior to cutting and patching done on the instruction of the Architect/Engineer, submit cost estimate.
- F. Should conditions of work or schedule indicate the need for change of materials or methods, submit written recommendations to the Architect/Engineer, including conditions indicating the need for change, recommendations for alternative materials or methods, submittals as required for substitution of materials, and cost estimate for changing materials or methods.
- G. Submit written notice designating time work will be uncovered to provide for observation.
- H. Costs caused by ill timed or defective work and work not complying with requirements of the contract documents, including costs of additional services of Architect/Engineer, shall be borne by the party responsible for the ill timed, defective, or non-complying work.

1.12 INSTRUCTION TO OWNER/OPERATING PERSONNEL

- A. The Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation and maintenance, including pertinent safety requirements of the equipment or system specified. The instruction will be for such length of time as is necessary to thoroughly familiarize the Owner's representative with the operation of the equipment. Each instructor shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given after the equipment or system has been accepted for regular operation. When significant changes or modifications in the equipment or system are made under the terms of the Contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

PART 2 - PRODUCTS

2.01 MATERIALS, SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Manufacturers or Trade Names:
 - 1. The use of manufacturer's names and catalog numbers in these specifications or on the Drawings indicates the type, size, rating, capacity, design, quality or kind of materials required, and a closed specification is not intended, and similar and equal products of any

reputable manufacturer which will satisfactorily perform the required functions will be acceptable, unless otherwise indicated by the words NO SUBSTITUTES, or unless otherwise specifically stated. The Architect/Engineer reserves the right to reject all materials which he deems not equal to those specified, or which he decides will not satisfactorily perform the required functions.

2. Any manufacturer providing equipment for this project shall provide a written guarantee to the Contractor stipulating that any parts used in the equipment so provided will be readily available for a minimum of ten years from date of shipment from the factory. The Contractor shall, in turn, provide the Owner with these guarantees in the brochures submitted covering all the equipment used.

B. Substitution of Materials and Equipment:

1. To receive consideration, requests for substitutions must be accomplished by documentary proof of equality or difference in price and delivery.
2. Substitution of manufacturer other than those named on the Drawings and in the specifications may be approved for the following reasons only:
 - a. The equipment proposed for substitution is equal to or superior to the equipment named in construction, efficiency and utility.
 - b. Due to conditions beyond the Contractor's control, equipment named cannot be delivered in time to complete work in proper sequence to the work of other trades. The Architect/Engineer will make final judgment to this condition.
 - c. In case of a difference in price, the Owner shall receive all benefit of the cost involved in any substitution.
3. All substitutions shall be in strict accordance with Section 01 6000.

C. Deviations Required by Substitution:

1. Where the Contractor proposes to use an item of equipment other than that specified which requires any redesign of mechanical, structural, electrical or architectural layout, all such redesign and all new Drawings and detailing required therefor shall be prepared by the Contractor at no additional cost. All such redesign will require prior approval.
2. Where approved deviations in equipment or material require a different quantity and arrangement of piping, ductwork, wiring, conduit or equipment from that specified or indicated on the Drawings, the Contractor shall furnish and perform any such additional work at no additional cost. All additional work on equipment shall be prior approved.

2.02 NAME PLATE IDENTIFICATION

- A. 4-inch by 2-inch (minimum) size engraved and laminated plastic nameplate or black lamoid sheet with white lettering.

2.03 PIPE IDENTIFICATION

- A. Brady B-500 or equal self-sticking vinyl cloth markers and pipe marker arrows.

PART 3 - EXECUTION

3.01 FIELD TESTS

- A. All piping shall be free of leaks, and test gauges shall show no loss of pressure for at least 30 minutes after source of test pressure has been cut off, or as noted. Pipes may be tested in sections as the work progresses. Repair and retest all sections failing to pass tests, as required to obtain approval of tests. No caulking, welding or brazing will be permitted on threaded pipe or fittings to stop leaks. Replace with new material all cracked or otherwise defective pipe and fittings of all types, as approved. Furnish suitable testing equipment, give all applicable authorities ample advance notice of all proposed tests and readiness of work for inspections, and advance notice of all proposed tests and readiness of work for inspections, and conduct each test in their presence, as approved. Do not conceal or insulate piping and do not conceal ductwork until all inspections have been made and all required tests have been approved by all applicable authorities. Submit results for review.
- B. Provide required labor, material, equipment and connections.
- C. Test all piping, EXCEPT as otherwise specified below, as follows: hydrostatic test, at 150 percent of normal operating pressure of piping involved, or 100 psi, whichever is higher, AFTER removing all air from piping involved in test.
 - 1. Water piping: 150 psi hydrostatic with no discernable pressure loss for 8 hours.
 - 2. Soil, waste, and vent piping: Standard water test, by filling piping with water up to top of vent stack or highest point of piping test section involved, but no section tested with less than a ten foot head with no pressure loss for at least 30 minutes.
 - 3. Test all equipment in accordance with sections specified hereinafter.

3.02 ADJUSTING AND CLEANING

- A. Flush or blow all welding slag, pipe joint compound, loose scale and other debris from pipework before connecting equipment thereto.
- B. After systems have been tested and before any field painting is commenced, clean up all work thoroughly. Remove all foreign matter which has accumulated in ducts, casings, enclosures, fixtures and equipment. Clean and polish all valves, plates and other surfaces that are not to be painted, so that they present a new and acceptable appearance.
- C. Put systems in operation, test all fixtures and other equipment, remedy all leaks and defects, and make all necessary adjustments.
- D. Strainers and Dirt Pockets: Clean out each of these; remove each strainer screen for cleaning.

3.03 INSTALLATION

- A. Areas in which equipment and piping is to be installed may have limiting dimensions. Install all plumbing work within these areas as indicated, with ample unobstructed access space around each piece of equipment to facilitate proper installation, operation and maintenance of equipment, and to allow ample space for plumbing, electrical and other equipment indicated to be installed therein. Minor revisions in layout may be made subject to approval, but major changes in layout to accommodate proposed equipment which differs substantially from specified equipment in size and arrangement may not be considered or will be subjected to the approval of the Architect. Install each equipment item in accordance with its manufacturer's recommendations, and as indicated on the Drawings, and/or specified. If the Drawings and/or specifications conflict with the

manufacturer's recommendations, report this to the Architect/Engineer for his decision before proceeding with the work involved.

- B. Equipment NOT furnished by PLUMBING section but requiring plumbing connections from other sections and others furnishing this equipment: Determine exact mechanical connection requirements therefor; locations and arrangements of connections indicated for this equipment are APPROXIMATE ONLY.
- C. Generally, install pipework as follows unless otherwise indicated.
 - 1. Finished areas: Conceal pipework within pipe chases, above suspended ceiling and within other building construction and other finished areas, unless otherwise indicated.
 - 2. Unfinished areas: Install aboveground pipework exposed in areas where pipe chases or suspended ceilings are not indicated or concealing is otherwise impracticable, in mechanical and electrical equipment rooms, manufacturing areas, warehouse, or storage areas and other unfinished areas.
 - 3. All Areas: Install pipework parallel or at right angles with beams, walls, ceilings and other building lines, in straight lines between required direction changes, with vertical runs plumb. Install exposed pipework as close as practicable to walls, columns, ceilings and overhead construction, and to provide maximum headroom and minimum interference with usable building space.

3.04 REMOVAL AND RELOCATION OF EXISTING WORK

- A. Disconnect, remove or relocate material, equipment, piping and other work noted and required by removal or changes in existing construction.
- B. Provide new material and equipment related for relocated equipment.
- C. Do not leave long dead end branches. Cap or plug as close to active line as possible.

3.05 CUTTING AND PATCHING

- A. Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of new products.
- C. Provide shoring, bracing and support required to maintain structural integrity of the project.
- D. Provide protection for other portions of the project.
- E. Provide protection from the elements.
- F. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- G. Execute cutting and demolition by methods that prevent damage to other work and provide proper surfaces to receive installation of repairs and new work.
- H. Refinish the entire surfaces where cutting and patching work occurs to provide an even, continuous surface to the nearest intersections. Where assemblies are damaged by cutting and patching, refinish entire assemblies.

3.06 PAINTING

- A. All equipment shall be factory prime coated and painted, however, the following may be shop prime coated and made ready for painting:
 - 1. Structural supports and frames.
- B. Uncoated hangers, supports, rods and inserts shall be prime coated.
- C. Exposed, uninsulated black steel piping, pipe supports and pipe braces shall be prime-coated.
- D. Marred surfaces of prime coated or factory painted surfaces shall be painted and/or primed to match adjacent coat.

3.07 IDENTIFICATION

- A. Identify piping with Brady B-500 or equal self-sticking vinyl cloth pipe markers and pipe marker arrows, each sized as recommended by marker manufacturer for outside diameter of pipe (including pipe insulation) labeled therewith. Marker background colors shall conform to OSHA and ANSI pipe identification standards. Each pipe marker shall be lettered to indicate the material contained in the pipeline involved, and arrows shall indicate direction of material flow in the pipelines. Install appropriate pipe markers, each with a marker arrow adjacent thereto, on all above ground pipelines on 20-foot maximum centers, with at least one marker and arrow in each vertical run between floor and ceiling.
- B. Equipment: Label each major plumbing equipment item (such as water heater, pump, etc.) with nameplate engraved with equipment designation and number, and securely attached to equipment.

END OF SECTION 22 0000

SECTION 22 0500 COMMON WORK RESULTS FOR PLUMBING

PART 1 – GENERAL

1.01 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.
- B. Section 22 1000 - Plumbing Piping.
- C. Section 22 3000 – Plumbing Equipment.
- D. Section 22 4000 - Plumbing Fixtures and Trim.
- E. Section 23 0000 – Heating, Ventilating and Air Conditioning (HVAC).

1.02 WORK INCLUDED

- A. The work required under this section includes all labor, materials, equipment, etc. for installation of plumbing specialties included as part of the building plumbing system including the following:
 - 1. Valves for domestic water systems.
 - 2. Cleanouts.

1.03 SUBMITTALS

- A. Submit manufacturer's literature on all products in accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 VALVES FOR DOMESTIC WATER SYSTEMS

- A. General:
 - 1. Provide valves of same manufacturer throughout where practical. Acceptable Manufacturers are Crane, Watts, Apollo, Nibco or approved equal.
 - 2. Above ground cutoff valves shall be gate or ball type.
 - 3. Cutoff stops for fixtures are specified in Section 22 4000.
- B. Provide valves with manufacturer's name and pressure rating clearly marked on outside of body.
- C. Provide valves suitable to connect to adjoining piping as specified for pipe joints. Use pipe size valves.

- D. Drain Valves: Tee or wheel handle brass compression faucet with 1/2-inch NPT male inlet and 3/4-inch male hose-threaded outlet except where larger drain valves are indicated or required, or where drain valve outlets are connected to pipework, drain valves shall be as specified for cut-off valves.
- E. Valves 2-inches and smaller shall be equal to Nibco T-585-70, full port ball type with bronze body, chrome plated ball and bronze threaded ends, 600 psi WOG or Nibco S-585-70 in copper lines.
- F. Globe valves 3-inches and smaller shall be equal to Nibco T-211-B bronze body, bronze disc and stem, threaded bonnet, threaded ends, 200 psi WOG, or Nibco S-111-B in copper lines.

2.02 CLEANOUTS

- A. Cleanouts shall consist of a coated cast iron body with threaded top with spigot or no-hub connection and gasketed bronze closure plug with countersunk slot. Head shall be adjustable in height; provide non-skid covers for floor cleanouts. Provide thread shield to protect adjustment threads from concrete as required.
- B. Interior cleanout cover shall be nickel bronze with round recessed top, wall cleanout covers shall be chrome plated, and exterior cleanout covers shall be cast iron, vandal proof secured.
- C. Cleanouts shall be Jay R. Smith, Wade, Josam or Zurn.

2.03 MISCELLANEOUS

- A. Water hammer arresters shall be constructed of a stainless steel or copper shell, stainless steel or elastomer bellows, with precharge of air, nitrogen or argon. Arresters shall conform to ASSE Standard 1010, and shall be Zurn Shoktrol, Josam Absorbotron, Wade Shokstop or Precision Plumbing Products Shock Arrestor. Sizing shall be according to PDI standards.
- B. Trap primers shall have bronze body and integral vacuum breaker with pressure drop activation of priming mechanism. Units shall comply with ANSI/ASSE Standard 1018.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Valves:
 - 1. Provide valves suitable to connect to adjoining piping as specified for pipe joints.
 - 2. Install valves upright or horizontal, as recommended by manufacturer.
 - 3. Provide valves line size, unless indicated otherwise.
 - 4. Install ball valves for shut-off and isolating service, to isolate equipment, parts of systems or vertical risers.

B. Cleanouts:

1. Cleanouts shall be installed in horizontal runs at spacing of no more than 75-feet. Install cleanouts at the base of every soil and waste stack and at each 90 degree change in direction. Install cleanouts which are not easily accessible up through floor or wall and provide applicable covers. Install cleanouts to allow at least 18-inches for rodding.
2. Install accessible cleanouts in floors, above floors, in walls, for all sanitary and downspout stacks and at other locations as indicated and as required to facilitate cleaning out of piping, same size as piping for 4-inches and smaller piping, and 4-inch size for 5-inches and larger piping.
3. Set wall cleanout plugs not more than two inches behind finished walls.

C. Miscellaneous:

1. Water hammer arresters shall be sized to actual pipe size and installed as near the shock source as practical. Install to allow unobstructed path from shock source to arrester.
2. Trap primers shall be provided for all floor drains. Install trap primer valves and accessories per manufacturer's instructions. Trap primers shall be installed in accessible locations. Provide Distribution Units as required.

3.02 FIELD QUALITY CONTROL

- A. Check all valves for packing, and replace leaking packing.
- B. Check all valves for lubricant, and service valves which do not operate smoothly with suitable lubricant before placing in operation.

END OF SECTION 22 0500

SECTION 22 0529 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 – GENERAL

1.01 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.
- B. DIVISION 07 - Thermal and Moisture Protection.
- C. Section 22 1000 – Plumbing Piping.
- D. Section 23 0529 - Hangers and Supports for HVAC Piping and Equipment.

1.02 DESCRIPTION OF WORK

- A. The work included in this section is for providing all labor, equipment and materials for installation of hangers and sleeves for plumbing piping systems.

1.03 REFERENCES

- A. MSS - Manufacturers Standardization Society, SP-58 and SP-69.

1.04 SUBMITTALS

- A. Submittals shall be in strict accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 HANGERS

- A. Suspended Horizontal Pipes: Split malleable iron ring or steel clevis with properly sized steel hanger rod.
- B. Pipes on Vertical Surfaces: Split ring extension type.
- C. Copper Tubing: Copper plated.
- D. Hanger Rods: Steel threaded both ends or continuous threaded.
- E. Trapeze Hangers: Double hanger rod with 2-inch x 3/16-inch steel angles and steel U-clamp.
- F. Wall Support: Cast iron hook for pipe sizes to 3-inches; welded steel bracket and steel U-clamp for pipe sizes 4-inches and above.

- G. Vertical Support: Steel riser clamp.
- H. Inserts: Malleable iron suitable for lateral adjustment and sized to suit hanger rods.

2.02 SLEEVES

- A. Through Concrete Construction: Schedule 40 black steel pipe.
- B. Through Slabs: Schedule 40 galvanized steel pipe.
- C. Other: Sheet metal or plastic.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General:
 - 1. Securely attach hangers, supports and devices to building and other structures with anchors suitable for types of construction involved. Where special types of hangers and supports are indicated, provide these accordingly.
 - 2. Secure each clevis hanger to its hanger rod with a supporting nut under and a locknut above the hanger.
 - 3. Place hangers or other supports at or sufficiently near elbows, tees, risers, valves and other items to provide adequate pipework support. Locate hanger within one foot of each horizontal elbow.
 - 4. Support horizontal piping as follows:

Nominal Pipe Size (inches)	Distance Between Supports (feet)	Hanger Rod Diameter (inches)
1/2 - 1-1/2	8	3/8
2 - 2-1/2	8	3/8
3 - 4	10	1/2

- 5. Use only hangers which are vertically adjustable.
- 6. Support horizontal piping near each hub or joint.
- 7. Where several pipes can be installed in parallel and at same elevation, use multiple or trapeze hangers.

3.02 SLEEVE INSTALLATION

- A. General:
 - 1. Provide these for pipes passing through concrete construction, masonry construction, walls and other building construction, except as otherwise specified

below.

2. Smoothly cut and ream steel pipe sleeve ends.
3. Where each pipe above floor inside of buildings passes through wall into ground, completely caulk space between pipe and wall sleeve with suitable resilient non-hardening sealant to prevent water leakage into building.
4. Omit sleeves for fixture supplies and where pipes pass through slabs on ground.
5. In new construction, sleeves shall be cast-in-place or built-in-place as construction progresses.
6. Pipe insulation shall be continuous through horizontal sleeves.
7. Firestop all openings around pipes which penetrate rated walls and floors, except slabs on grade, with approved U. L. Listed Fire Stopping System materials, rated with U. L. Listed Fire Stopping System rated for the floor and wall requirements.

END OF SECTION 22 0529

SECTION 22 0700 – PLUMBING INSULATION

PART 1 – GENERAL

1.01 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.
- B. Section 22 0529 - Hangers and Supports for Plumbing Piping and Equipment.
- C. Section 22 1000 – Plumbing Piping
- D. Section 23 0000 – Heating, Ventilating, and Air-Conditioning.

1.02 WORK INCLUDED

- A. This section includes the requirements for labor, materials, equipment, etc. to provide the following:
 - 1. Insulation for plumbing piping systems.
 - 2. Insulation coatings.

1.03 REFERENCE STANDARDS

- A. Published specifications, standards, tests or recommended methods of trade, industry or governmental organizations apply to work in this section where cited below.
 - 1. ASTM E84-87 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. NFPA 255P-84 - Test Methods Surface Burning - Building Materials.
 - 3. UL 723-83 - Test for Surface Burning characteristics of Building Materials.
 - 4. ASTM C 534-82 - Test for Surface Burning Characteristics of Building Material.
 - 5. ASTM C547-77 - Mineral Fiber Preformed Pipe Insulation.

1.04 SUBMITTALS

- A. Submit manufacturer's literature and samples if requested, of proposed materials in accordance with Section 01 6000.

1.05 PRODUCT DELIVERY AND STORAGE

- A. Deliver materials in manufacturer's original, unopened containers and rolls with labels intact and legible.
- B. Store materials in a dry, protected area.

- C. Remove all wet and damaged materials from the construction site immediately upon discovery.
- D. Deliver, store, protect and handle products in accordance with manufacturer's recommendations and Section 01 6000.

1.06 CERTIFICATION

- A. Pipe insulation for above grade, inside building to be certified by manufacturer as having fire hazard classification rating, when tested in accordance with ASTM E 84, NFPA 255P and UL 723, not exceeding the following. "Insulation" shall consist of insulating material, jacket, mastic and adhesive, either as a "system" or as an individual component when used separately.
 - 1. Fiberglass insulation: Flame spread of 25, and smoke development of 50.
 - 2. PVC fitting covers located in ceiling spaces or equipment rooms used for return air plenums: Flame spread 25 and smoke development of 50.

1.07 BASIC REQUIREMENTS

- A. Thermal resistance "R" values used herein are expressed in units of "Hour degrees F square foot/Btu per inch of thickness" on a flat surface at a mean temperature of 75 degrees F, unless specifically noted.
- B. Increase the insulation thickness by 1/2-inch on all piping outside the building.

PART 2 - PRODUCTS

2.01 FIBERGLASS FOR PIPE

- A. Provide minimum 4 pound density 850 degrees F snap-on type glass fiber with ASJ-SSL factory applied jacket reinforced with vapor barrier. Fittings shall be insulated with snap-on preformed insulation with a molded PVC jacket cover.
 - 1. Domestic cold water: 1/2-inch thick.
 - 2. Domestic hot water: 1-inch thick on pipe sizes up to 2 1/2-inch; 1-1/2-inch thick on pipe sizes 2-1/2-inch and larger. Buried: Closed cell foam rubber, 3/8-inch thick, suitable for underground use.

2.02 MATERIALS FOR FITTINGS AND SPECIAL COVERINGS

- A. One piece PVC Insulated Fitting Covers:
 - 1. Provide factory pre-molded one-piece PVC insulated fitting covers, insulation and necessary installation materials for all pipe fittings in fiberglass insulated piping systems.
- B. For flexible tubular elastomeric pipe and fittings insulation when exposed-to-view inside

building or in equipment rooms, finish with two coats of fire retardant, self-extinguishing highly flexible vinyl lacquer type coating.

- C. For flexible tubular elastomeric pipe and fitting insulation when exposed-to-the-weather outside of building, cover with two 1/16-inch applications of factory-mixed fibrated cutback vapor barrier asphalt, having one wrapping of woven glass fabric embedded in first coat. Finish shall match surrounding surfaces using non-bleed color coat.

2.03 ACCEPTABLE MANUFACTURERS

- A. Insulation shall be as manufactured by Owens Corning, Johns Manville, Armstrong, or approved equal.
- B. Substitutions: Shall be made only in accordance with Section 01 6000.

PART 3 - EXECUTION

3.01 GENERAL

- A. Do not install piping insulation until the piping has been tested and found free of all leaks.
- B. Install covering on surfaces that are clean and dry. Keep covering dry when installed and before and during application of any finish, unless such finish specifically requires a wetted surface for application.
- C. Use adhesives, cements and mastics that are compatible with materials applied and do not attack materials in either wet or dry state. Use no staples.
- D. Install insulation using professional insulators who have adequate experience and ability.
- E. Install all insulation so it has a well tailored appearance.
- F. Install all insulation products in strict accordance with manufacturer's instruction.
- G. Stop all pipe insulation at fire walls. Pack opening between pipe and sleeve with fire resistive rope or approved substitute.
- H. Apply insulation continuously through hangers, sleeves, openings and around fittings, valves and unions.
- I. Insulate all water piping except buried cold water.

3.02 INSTALLATION OF PIPE COVERINGS

- A. Apply flexible tubular elastomeric insulation to pipe and fittings with all joints tightly fitted and sealed with adhesive and tape. Longitudinally split insulation is not acceptable without specific approval in writing by the Architect/Engineer.

B. Apply One-Piece PVC Insulated Fitting Covers As Follows:

1. General: Ends of preformed insulation to be tucked snugly into throat of fitting and edges adjacent to pipe covering tufted and tucked in fully insulating pipe fitting. Secure one-piece PVC fitting cover with stainless steel tacks and by taping ends to adjacent pipe covering.

END OF SECTION 22 0700

SECTION 22 1000 - PLUMBING PIPING

PART 1 – GENERAL

1.01 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.
- B. Section 22 0500 – Common Work Results for Plumbing.
- C. Section 22 4000 - Plumbing Fixtures and Trim
- D. Section 23 0000 – Heating, Ventilating, and Air Conditioning (HVAC).

1.02 WORK INCLUDED

- A. The work required under this section includes all materials, equipment, labor, etc. for a complete installation of plumbing piping inside the building to 5-feet outside the building, or as required, including but not limited to the following:
 - 1. Sanitary drainage and vent system piping.
 - 2. Hot and cold domestic water system piping.

1.03 REFERENCES

- A. International Plumbing Code.
- B. ASTM A120 - Pipe, Steel, Black and Hot-Dipped Zinc-Coated, (Galvanized) Welded and Seamless, For Ordinary Uses.
- C. ASTM B88 - Seamless Copper Water Tube.
- D. ASTM D2665 - PVC Plastic Drain, Waste, and Vent Pipe and Fittings.
- E. ASTM D1785 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Schedules 40, 80 and 120.
- F. ASTM D3034 - Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Pipe Fittings.
- G. ASTM D2855 - Making Solvent-Cement Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

1.04 SUBMITTALS

- A. Submit manufacturer's literature on all piping products and accessories in accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 SANITARY WASTE AND VENT PIPING

- A. Soil, Waste and Vent Inside Building: Schedule 40 PVC with solvent weld joints.
- B. Soil and Waste Outside Building: ASTM D3034 PVC.

2.02 DOMESTIC WATER PIPING

- A. Domestic Water Inside Building, Above Grade: 3-inch and smaller shall be ASTM B88, Type "L" copper, hard temper. 4-inch and larger shall be ASTM B88, Type "K" copper, hard temper.
- B. Domestic Water Inside Building, Below Grade: 2-inch and smaller, ASTM B88, Type "K", soft temper. 2-1/2-inch and larger, ASTM B88, Type "K", hard temper.

2.03 JOINTS, COUPLINGS AND FITTINGS

- A. Soil, Waste and Vent Inside Building: Schedule 40 PVC-DWV, ASTM D-2855 using solvent cement ASTM D-2564.
- B. Soil and Waste Outside Building: PVC, solvent weld; if over 4-inches use bell and flexible elastomeric rings.
- C. Domestic Water Under Slabs-On-Grade: Wrought copper, brazed with AWS-BCUP-5 (14.5-15 percent silver) where specifically permitted by Architect.
- D. Domestic Water Inside Building Above Grade: Wrought copper, 95/5 tin/antimony solder.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine work of other trades and verify that such work is complete enough to allow each phase of this installation to properly begin.

3.2 COORDINATION

- A. All piping shall be routed to conserve building space, be coordinated with items installed by other trades and not interfere with access to or operation of the facility.
- B. Coordinate installation of hangers, supports, and piping with other trades.
- C. Lay out work to avoid structural elements.
- D. If discrepancy occurs immediately notify Architect. Do not proceed with installation until discrepancies have been resolved.

3.03 PIPING

- A. Install piping concealed unless otherwise specifically approved by Architect.
- B. Provide uniform pitch of 1/8-inch per foot for horizontal waste and soil piping within building unless noted otherwise on Drawings. Pitch bends for proper drainage.
- C. Water piping shall be size indicated on plans. In the event no size is shown, provide size as required by the Plumbing Code.
- D. Install vent piping with each bend 45 degrees minimum from horizontal where structural conditions will permit.
- E. Install piping with a minimum number of joints and bends.
- F. Do not allow copper piping to make direct contact with concrete or dissimilar metals.
- G. Where piping penetrates floors or walls, accurately place non-metallic sleeves of proper sizes to accommodate pipe and insulation. After installation, completely seal all penetrations.
- H. Provide clearance for insulation and for access to valves, drains and unions.
- I. Install piping to allow for expansion and contraction without stressing pipe or equipment connected.
- J. Make solvent weld joints in PVC piping in accordance with ASTM D2855.
- K. All pipe shall be cut square. Ream pipe and tube ends and remove burrs. Clean the ends of pipes to remove oil, grease and oxides.

END OF SECTION 22 1000

SECTION 22 3000 – PLUMBING EQUIPMENT

PART 1 - GENERAL

1.01 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.
- B. Section 23 0000 - General Mechanical Requirements
- C. Section 22 1000 - Plumbing Piping
- D. Section 22 0500 – Common Work Results for Plumbing
- E. Section 22 4000 - Plumbing Fixtures
- F. Division 26 - Electrical

1.02 SCOPE OF WORK

- A. Provide all labor, equipment, material, etc. necessary for installation of plumbing equipment including domestic water heaters and related equipment.

1.03 REFERENCES

- A. A.S.M.E. Code Sections where referenced or applicable.

1.4 SUBMITTALS

- A. Submit product data in accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 ELECTRIC WATER HEATERS

- A. Full rated capacity operation on the electrical supply characteristics indicated on the Electrical Drawings. Water heater shall have the UL seal of certification. Water heater(s) shall be approved-listed and constructed in accordance with UL Sanitation (NSF5). Water heater shall meet or exceed the energy factor requirements of ASHRAE.
- B. Each heater shall be complete with:
 - 1. Tank(s) shall have a coating of high temperature porcelain enamel and have drain valve. Tank shall be insulated with minimum of 2-1/2" of rigid polyurethane foam insulation.
 - 2. Water heater(s) shall be factory equipped with an CSA/ASME rated temperature and pressure relief valve.

3. Multiple heating elements.
4. Anode rods for cathodic protection.
5. Water heater shall be provided with internal power circuit fusing, control circuit fusing, magnetic contactors, 120 volt control circuit transformer and surface mounted thermostat or immersion thermostat(s) with manual reset high limit control.
6. If any one or more of the following limitations are exceeded, each heater involved shall be designed, constructed, stamped, and installed in accordance with Section IV of the ASME Boiler Code:
 - a. 120 gallons storage capacity.
 - b. 58 KW heating capacity.
 - c. 200 degrees Fahrenheit operating temperature.
7. Water heater(s) shall be covered by a manufacturer's three year warranty against tank leaks.

2.02 ACCESSORIES

- A. Provide an ASME labeled self-closing temperature and pressure relief valve with relieving capacity not less than heater input.

2.03 DRAIN PAN

- A. Provide a drain pan under heater fabricated of 20 gauge galvanized steel, 6-inches deep and 6-inches larger than heater plan view dimensions on side, front, and back, with hemmed edges and soldered joints. Provide overflow drain from the pan to the exterior of the building.

2.04 THERMAL EXPANSION TANK (Domestic Water)

- A. Pre-charged hydropneumatic steel expansion tank, constructed in accordance with Section VIII of ASME Boiler and Pressure Code, with all welds conforming to ASME Section IX. Tank must be stamped with a maximum working pressure of 125 psi, and a maximum working temperature of 200 degrees F. All internal wetted parts must comply with FDA regulations and approvals. An internal butyl diaphragm will be used to isolate air from water. Amtrol or approved equal AST series sized as shown on plans.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install heater and accessories as indicated on the drawings and according to manufacturer's recommendations.
- B. Pipe relief valve outlet to discharge down vertically 6-inches above floor; if a drain pan is indicated for heaters arrange pipe to discharge into drain pan.

- C. Electrical wiring shall be done by the Electrical Section.

3.02 TESTING

- A. Test heater and accessories and after testing, replace parts or make proper adjustments to the materials and equipment to insure the proper functioning of the entire system.

END OF SECTION 22 3000

SECTION 22 4000 - PLUMBING FIXTURES AND TRIM

PART 1 - GENERAL

1.01 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.
- B. Section 22 1000 – Plumbing Piping.
- C. Section 22 0500 – Common Work Results for Plumbing.

1.02 WORK INCLUDED

- A. The work specified in this section includes providing all labor, materials, equipment and services for plumbing fixtures, associated trim and fittings necessary to make a complete installation from wall or floor connections to rough piping and certain accessories.

1.03 REFERENCES

- A. IPC - International Plumbing Code.

1.04 SUBMITTALS

- A. Submittals shall include manufacturer's data sheets and dimensional information on all fixtures and accessories and shall be in accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 GENERAL NOTES

- A. All exposed metal trim (except stainless steel) shall be chrome plated, polished, unless otherwise noted.
- B. All seats, stems, barrels, sleeves, washers or other working parts which are subject to wear in all faucets shall be removable and renewable without removing or altering the faucet bodies or disturbing the building construction.
- C. Traps shall be semi-cast brass adjustable type with cleanout and tubing waste to wall, sizes as specified.
- D. Provide a chrome plated metal pipe escutcheon with fastening devices where each exposed uninsulated pipe passes through each finished wall surface and each finished ceiling surface. Provide a rod escutcheon where each hanger rod passes through each finished ceiling surface. Escutcheons are not required in unfinished areas.
- E. Stainless steel fixtures shall have machine ground finish.

- F. Provide fixtures, in complete working order, as described below and on the Drawings.

2.02 FIXTURES

A. L-1: Lavatory:

1. American Standard 0355.012 Lucerne wall mounted lavatory, vitreous china, with over flow and 4-inch faucet centers, drilled for concealed arm carrier.
2. Moen 8425 polished chrome cast brass faucet body with integral shanks, quarter turn ceramic disc cartridges and a 4-inch long integral cast spout, chromomite Omni A-400 laminar flow 0.5 gpm, single long lever handle, 1-1/4-inch grid strainer and with ASSE1070 mixing valve.
3. Brass Craft 1-1/2-inch x 1-1/2-inch, 17 gauge brass p-trap with tubular wall bend.
4. Brass Craft chrome-plated supplies with stops.
5. American Standard wall hanger.
6. Provide insulated trap and pipe wrap equal to McGuire ProWrap.

B. WC-1: Water Closet:

1. American Standard Cadet Elongated 2462.016 vitreous china pressure assisted 1.6 gallon siphon jet flush, elongated rim, with close coupled tank, bolt caps; chrome riser supply, with wheel handle cut-off. Water closet shall have bacteria, mold and mildew resistant surface, fully glazed minimum 2-1/8" trapway, and 15" bowl rim height.
2. Church 295 NSSC elongated check hinges solid plastic seat.

C. WC-2: Water Closet (ADA Compliant):

1. American Standard Cadet Right Height 2467.016 vitreous china pressure assisted 1.6 gallon siphon jet flush, elongated rim, with close coupled tank, bolt caps; chrome riser supply, with wheel handle cut-off. Water closet shall have bacteria, mold and mildew resistant surface, fully glazed minimum 2-1/8" trapway, and 16-1/2" bowl rim height.
2. Church 295 NSSC elongated check hinges solid plastic seat

D. S-1: Stainless Steel Sink (Double Compartment):

1. Elkay DLR - 252210 double compartment, single ledge, 18 gauge 304 stainless steel sink, satin finish, fully undercoated, three faucet holes on 4-inch center, 10-inch deep bowl.
2. Elkay LKD 2423 polished chrome-plated 9 7/8"-inch brass deck faucet with high swing spout, metal wing handles. ADA designed.

3. Elkay LK 99 strainer and chrome-plated 1-1/2-inch tailpiece.
 4. McGuire 8912 1-1/2-inch x 1-1/2-inch, 17 gauge brass p-trap with tubular wall bend.
 5. McGuire 171 1/2-inch x 1/2-inch chrome-plated supplies with stops.
- E. SS-1: Mop Service Basin (24 x 24-inch):
1. Mustee Durastone Model 63M mop service basin, 24 x 24-inch x 10-inch; tiling flange on wall side (as job requires); splash catcher panel, 20 gauge, type 304 stainless steel. Drain shall be cast brass with stainless steel strainer, cast integral with 3-inch drain size. Receptor composed of molded stone ground smooth. Stainless steel cap of one piece 20 gauge, type 302 stainless steel on two sides.
 2. Delta T829n rough chrome plated finish, sink fitting with vacuum breaker, adjustable top brace, 3/4-inch hose thread on spout with bucket hook inlets 8-inches on center, chrome finish.

PART 3 - EXECUTION

3.01 GENERAL

- A. Verify all dimension by field measurements. Verify that all plumbing fixtures are installed in accordance with related codes, regulations and reference standards.
- B. Verify location of rough-in for potable water and waste piping.
- C. Examine walls, floors and millwork for conditions suitable for fixture installation.

3.02 PLUMBING FIXTURE INSTALLATION

- A. Connect all tubing outlet fixture traps to waste stacks with the proper length IPS pipe or copper tubing nipples and approved compression ring type all brass waste connectors, with the compression nuts in ALL cases projecting outside of the finished walls. Connect all IPS threaded outlet fixture traps to waste stacks with the proper length IPS pipe nipples.
- B. Attach all fixtures securely to the building structure with suitable hanging and supporting devices. Install wall hung fixtures on fixture carriers. Rigidly support water supplies behind or within wall construction.
- C. Set fixtures with approved non-hardening setting compound, bowl rings or proper gaskets, as applicable. Putty or other hard setting compound will not be permitted. Seal all cracks between fixtures and wall and floor with suitable non-hardening setting compound, Dap or equal.
- D. Protect all fixtures until the work is accepted. All fixtures which are marred or damaged shall be replaced with new fixtures as approved.

3.03 TESTING AND CLEANING

- A. After plumbing system has been tested and before any field painting is commenced, clean up all plumbing work thoroughly. Remove all foreign matter which has accumulated in all fixtures, equipment and enclosures. Remove all stickers, stains and tarnish from fixtures, and trim, and clean and polish all valves, plates and other surfaces that are not to be painted so that they present a new and acceptable appearance.
- B. Inspect each unit for damage. Replace damaged fixtures.
- C. Test fixtures to demonstrate operation. Replace malfunctioning units and retest.

END OF SECTION 22 4000

SECTION 23 0000 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

PART 1 – GENERAL

1.01 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.
- B. Division 5 - Metals.
- C. Division 7 – Thermal and Moisture Protection.
- D. Division 9 - Finishes.
- E. Division 22 - Plumbing.
- F. Division 26 - Electrical.

1.02 WORK INCLUDED

- A. Provide all materials, equipment, fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction for the installation of complete mechanical systems in accordance with the Contract Drawings and specifications and in conformance with the applicable codes and governing authorities.
- B. The mechanical systems include, but are not limited to, all sections within Division 23, and as follows:
 - 1. Heating, ventilating, and air conditioning systems and equipment.
 - 2.

1.03 REFERENCE STANDARDS, CODES AND FEES

- A. Local codes.
- B. International Building Codes - Building Code, Gas Code, Mechanical Code and Plumbing Code.
- C. State Codes.
- D. AGA - American Gas Association.
- E. ASHRAE - American Society of Heating, Refrigerating and Air Conditioning Engineers.
- F. AABC - Associated Air Balance Council.
- G. ADC - Air Diffusion Council.

- H. IEEE - Institute of Electrical Electronic Engineers.
- I. ANSI - American National Standards Institute.
- J. ASME - American Society of Mechanical Engineers.
- K. NEMA - National Electrical Manufacturer's Association.
- L. NFPA - National Fire Protection Association.
- M. ARI - Air-Conditioning and Refrigeration Institute.
- N. UL - Underwriters Laboratories, Inc.
- O. NEC - National Electrical Code.
- P. OSHA - Occupational Safety and Health Act.
- Q. SMACNA - Sheet Metal and Air Conditioning Contractors National Association, Inc.
- R. Standards Compliance: When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), and Underwriters Laboratories (UL), proof of such conformance shall be submitted for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified.
- S. Mechanical Contractor shall pay all fees for required licenses, permits and inspections required for completion of this work. These include any required building permits and health department permits not covered by the general contractor.

1.04 UTILITY CONNECTIONS AND CHARGES

- A. The Contractor shall make all arrangements with local utility companies for services as shown or required.

1.5 QUALITY ASSURANCE

- A. All equipment, materials and accessories shall be new and free from defects. Where a UL standard, AGA approval, AWWA standard, FM listing or ASME requirement is established, equipment shall be so approved and labeled or stamped.
- B. Products Criteria:
 - 1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products. Items of equipment shall essentially duplicate equipment that has been in satisfactory use at least two years prior to bid opening. Provide list of users upon request.
 - 2. Equipment having less than a two year use record, which in the opinion of the

Engineer, provides significant benefits to the Owner such as improved energy efficiency, will be acceptable if it is a product of a manufacturer who has been regularly engaged in the manufacture of that specific type of product which has been used in similar applications for a period of two years. The Architect/Engineer reserves the right to require the Contractor to submit evidence to this effect for his approval.

3. Equipment Service: Products shall be supported by a service organization which maintains an adequate inventory of repair parts and is located, in the opinion of the Architect/Engineer, reasonably close to the site.
 4. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
 5. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume complete responsibility for the final assembled product.
 - 6 Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.
- C. Supply all equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with all applicable national, state and local codes.
- D. Manufacturer's Recommendations: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished for record to the Architect/Engineer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations may be cause for rejection of the material.
- E. When included, reflected ceiling plan drawings shall govern over mechanical and electrical drawings for location of ceiling-installed elements.
- F. In addition to all requirements specified hereinafter, each material and equipment item shall have all features as standard with its manufacturer and/or required for the complete operational system.
- G. Capacities, ratings, sizes and other requirements not specified hereinafter shall be as scheduled or otherwise indicated on the Drawings.
- H. Should the Trade Contractor at any time discover a discrepancy in the Drawings or with respect to a variance of code requirements, he shall:
1. Notify the Architect/Engineer for clarification and shall not proceed with the work affected until clarification has been made.

1.06 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 01 6000 – Submittal Procedures and in accordance with the following:
 - 1. Submit shop drawings, manufacturers data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section, and have them approved before procurement, fabrication or delivery of the items to the job site. Partial submittals will not be acceptable and will be returned without review. All equipment, material, and manufacturer's literature shall be submitted for approval at one time and in a tabulated binder.
 - 2. The submittal shall include summary cover sheet(s) and manufacturer's literature under each tab of the submittal binder which together clearly indicate compliance or deviation from the specifications and Drawings.
 - 3. Submission material and all shop drawings shall be marked with the appropriate identification relating the equipment to the Drawings. Mark and reference each item on the submittal summary sheet and the manufacturer's literature to the appropriate paragraph number in the specifications. Manufacturer's standard catalogs will not be accepted.
 - 4. Failure to comply with the above for a complete and clear submittal may result in resubmittal.
- B. Operating and Maintenance Manuals:
 - 1. Before requesting acceptance of work, furnish the number of printed and hardback bound sets required.
 - 2. Equipment and systems.
 - a. Complete description of equipment and systems and basic operating features
 - b. Manufacturer's name, model number, service manual, spare parts list and descriptive literature for all components.
 - 3. Maintenance instructions.
 - 4. Listing of possible breakdown and repairs.
 - 5. Instruction for starting and operation.
 - 6. Detailed and simplified one line, color coded wiring diagrams.
- C. Record prints at job completion to indicate actual construction.

1.07 JOB CONDITIONS

- A. The Contractor shall examine not only the plans and specifications for this Division but also the plans and specifications for General Construction, Structural and Electrical, and

shall coordinate his work accordingly to avoid conflict.

1. Report in writing, conditions which will prevent proper provision of this work.
2. Installed work which interferes with architectural or any other work, or which deviates from Drawings and specifications without prior approval, shall be altered by DIVISION 23 – HVAC Contractor, without cost to Owner, to clear such interferences, or to comply with the Drawings and specifications. Interferences or discrepancies which may be discovered or anticipated shall be reported promptly. Architect/Engineer shall have privilege of making minor changes without additional cost, provided that such changes are made before commencing work on items involved.

B. Continuity of Services and Connections to Existing Work:

1. At no additional cost to Owner, provide all necessary temporary connections and temporary facilities to accomplish the required continuity of services and existing operations.
2. Arrange all work to interfere as little as possible with the normal existing operations. Do not interrupt any existing utility or other service or existing operation at any time without Owner's prior approval. After each interruption has been made, make all necessary connections and alterations, and restore services and avoid interferences with normal existing operations as quickly as possible.
3. Install new work and connect to existing work with minimum interference to existing facilities and maintain water and air tightness when applicable.
4. Temporary shutdowns of existing services
 - a. At no additional charges.
 - b. At times not to interfere with normal operation of existing facilities.
 - c. Only with written consent of Owner.
5. Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work.
6. Connect new work to existing work in neat and satisfactory high quality workmanship manner.
7. Restore existing disturbed work to original or better conditions.

C. Existing Utilities: Locate and protect existing utilities and other underground work in manner which will ensure that no damage or service interruption will result.

1.08 ACCURACY OF DATA AND DRAWINGS

- A. Drawings are generally diagrammatic, and where not dimensioned or detailed, indicate approximate locations of work. Examine carefully existing buildings and structures, existing systems and all other Contract Drawings, and install work to conform as nearly as possible to locations and arrangements indicated, with only such minor adjustments as

necessary to coordinate mechanical work with other work, and to avoid interferences therewith. All piping and ductwork, offsets, rises and fittings are not necessarily shown; however, provide these as required by the conditions involved.

- B. Building and Structure Dimensions: Take these from Architectural Drawings, and from actual measurements of each existing building and each existing structure involved.

1.09 COORDINATION

- A. Carefully examine the architectural, electrical, heating and air-conditioning, plumbing, structural and site plan drawings and specifications; and coordinate this work with that of others to avoid delay. The Contractor shall be responsible for ascertaining that the work he installs does not interfere with the work of other trades. If work is installed that does interfere, correct at no cost to the Owner. Preoccupation of space by any trade does not give the right of priority to the space.
- B. In general, permanent openings or knockout panels are provided to permit only future service or replacement of system components, not the entire assembly. Each Contractor shall coordinate his equipment delivery with construction progress so that installation may be made in an orderly manner.
- C. Any necessary shoring or other protection necessary for moving heavy equipment to installed location is the responsibility of the Contractor. Take extra precautions in using any existing structure for hoisting or temporary support.
- D. Wherever piping, conduits, ducts or other items are to run in the same general direction, elevation or location, coordinate for the proper allocation of the space position. If necessary, consult the Architect/Engineer, whose decision shall be final.
- E. Wherever work will be concealed or installed above ceilings, maintain adequate clearance to allow for access, repairs and removal of all devices. The Contractor shall be responsible for protecting his installation from being blocked off by others. Should a conflict occur, bring the matter to the attention of the other trades for correction.
- F. Coordinate setting of sleeves, anchor bolts and inserts as required to accommodate equipment before concrete is set and masonry is placed.

1.10 TRANSPORTATION AND HANDLING

- A. Pay all transportation and handling charges. Immediately report any damage to equipment received to the carrier so that job progress will not be delayed.
- B. All items received by the Contractor shall be left in their original containers, or as shipped, where possible, until installed in final locations.
- C. All items shall be protected from the elements. If stored outside, provide blocking to raise the base of each item well above ground and/or water levels.
- D. Provide additional protection for items subject to damage, where necessary, so that when installed, the items will be in new condition.

- E. Supply electrical items that might be damaged by condensation with heated air in an enclosed area until placed into service.

1.11 CUTTING AND PATCHING

- A. Execute cutting, fitting and patching of work required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill timed work.
 - 3. Remove defective work.
 - 4. Remove work not complying with the requirements of the Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Where work is cut for any reason, restore cut and damaged areas with new materials meeting requirements of the Contract Documents.
- B. In addition to the requirements above and upon written instructions of the Architect/Engineer, provide cutting, fitting and patching to:
 - 1. Uncover work to provide observation of covered work.
 - 2. Remove samples of installed materials for testing.
- C. Do not endanger work by cutting or altering work or any part of it.
- D. Prior to cutting that affects structural safety of project, submit written notice to Architect/Engineer requesting consent to proceed with cutting, including:
 - 1. Identification of project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Affect on other work and on structural integrity of project.
 - 5. Description of proposed work. Designate scope of cutting and patching, trades to execute work, products proposed to be used and extent of refinishing.
 - 6. Alternatives to cutting and patching.
 - 7. Designation of party responsible for cost of cutting and patching.
- E. Prior to cutting and patching done on the instruction of the Architect/Engineer, submit cost estimate.
- F. Should conditions of work or schedule indicate the need for change of materials or

methods, submit written recommendations to the Architect/Engineer, including conditions indicating the need for change, recommendations for alternative materials or methods, submittals as required for substitution of materials, and cost estimate for changing materials or methods.

- G. Submit written notice designating time work will be uncovered to provide for observation.
- H. Costs caused by ill timed or defective work and work not complying with requirements of the contract documents, including costs of additional services of Architect/Engineer, shall be borne by the party responsible for the ill timed, defective, or non-complying work.

1.12 INSTRUCTION TO OWNER/OPERATING PERSONNEL

- A. The Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation and maintenance, including pertinent safety requirements of the equipment or system specified. The instruction will be for such length of time as is necessary to thoroughly familiarize the Owner's representative with the operation of the equipment. Each instructor shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given after the equipment or system has been accepted for regular operation. When significant changes or modifications in the equipment or system are made under the terms of the Contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

PART 2 - PRODUCTS

2.01 MATERIALS, SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Manufacturers or Trade Names:
 - 1. The use of manufacturer's names and catalog numbers in these specifications or on the Drawings indicates the type, size, rating, capacity, design, quality or kind of materials required, and a closed specification is not intended, and similar and equal products of any reputable manufacturer which will satisfactorily perform the required functions will be acceptable, unless otherwise indicated by the words NO SUBSTITUTES, or unless otherwise specifically stated. The Architect/Engineer reserves the right to reject all materials which he deems not equal to those specified, or which he decides will not satisfactorily perform the required functions.
 - 2. Any manufacturer providing equipment for this project shall provide a written guarantee to the Contractor stipulating that any parts used in the equipment so provided will be readily available for a minimum of ten years from date of shipment from the factory. The Contractor shall, in turn, provide the Owner with these guarantees in the brochures submitted covering all the equipment used.
- B. Substitution of Materials and Equipment:
 - 1. To receive consideration, requests for substitutions must be accomplished by documentary proof of equality or difference in price and delivery.

2. Substitution of manufacturer other than those named on the Drawings and in the specifications may be approved for the following reasons only.
 - a. The equipment proposed for substitution is equal to or superior to the equipment named in construction, efficiency and utility.
 - b. Due to conditions beyond the Contractor's control, equipment named cannot be delivered in time to complete work in proper sequence to the work of other trades. The Architect/Engineer will make the final judgement to this condition.
 - c. In case of a difference in price, the Owner shall receive all benefit of the cost involved in any substitution.
 3. All substitutions shall be in strict accordance with Section 012500.
- C. Deviations Required by Substitution:
1. Where the Contractor proposes to use an item of equipment other than that specified which requires any redesign of mechanical, structural, electrical or architectural layout, all such redesign and all new Drawings and detailing required therefor shall be prepared by the Contractor at no additional cost. All such redesign will require prior approval.
 2. Where approved deviations in equipment or material require a different quantity and arrangement of piping, ductwork, wiring, conduit or equipment from that specified or indicated on the Drawings, the Contractor shall furnish and perform any such additional work at no additional cost. All additional work on equipment shall be prior approved.

PART 3 - EXECUTION

3.01 FIELD TESTS

- A. All piping shall be free of leaks, and test gauges shall show no loss of pressure for at least 30 minutes after source of test pressure has been cut off, or as noted. Pipes may be tested in sections as the work progresses. Repair and retest all sections failing to pass tests, as required to obtain approval of tests. No caulking, welding or brazing will be permitted on threaded pipe or fittings to stop leaks. Replace with new material all cracked or otherwise defective pipe and fittings of all types, as approved. Furnish suitable testing equipment, give all applicable authorities ample advance notice of all proposed tests and readiness of work for inspections, and advance notice of all proposed tests and readiness of work for inspections, and conduct each test in their presence, as approved. Do not conceal or insulate piping and do not conceal ductwork until all inspections have been made and all required tests have been approved by all applicable authorities. Submit results for review.
- B. Provide required labor, material, equipment and connections.
- C. Test all piping, EXCEPT as otherwise specified below, as follows: hydrostatic test, at 150 percent of normal operating pressure of piping involved, or 100 psi, whichever is higher, AFTER removing all air from piping involved in test.

1. Test all equipment in accordance with sections specified hereinafter.
- D. Test all ductwork in accordance with leakage test method recommended in latest edition of SMACNA "HVAC Duct Construction Standards - Metal and Flexible". After remedying audible leaks, total leakage on system shall not exceed one percent of system total design air flow rate.

3.02 ADJUSTING AND CLEANING

- A. Flush or blow all welding slag, pipe joint compound, loose scale and other debris from pipework before connecting equipment thereto.
- B. After systems have been tested and before any field painting is commenced, clean all work thoroughly. Remove all foreign matter which has accumulated in ducts, casings, enclosures, fixtures and equipment. Clean and polish all valves, plates and other surfaces that are not to be painted, so that they present a new and acceptable appearance.
- C. Put systems in operation, test all equipment, remedy all leaks and defects, make all necessary adjustments. Adjust all air flows to indicated and/or required quantities, and adjust all controls and other items as required to balance system and provide uniform air flows and uniform temperatures in air conditioned areas. Demonstrate that all controls and mechanical equipment function satisfactorily, as specified, as indicated and as approved.
- D. After systems have been tested and before putting any part of or the entire system in operation for Owner's beneficial use, insure that all necessary adjustments have been made.
 1. Bearings and other items requiring lubrication, except factory permanently lubricated type: lubricate each of these as recommended by its manufacturer; this includes lubricated type plug valves.
 2. Filters: Replace each disposable ("throw-away") filter with a new clean filter (except blanket roll and high efficiency type). Clean each cleanable filter. NOTE: All filters shall be in place during testing and adjusting.
 3. Motor load tests: Make an ammeter check of actual running current of each motor in mechanical system under operating conditions. Correct all motors which are found to be overloaded, as approved.

3.03 INSTALLATION

- A. Equipment rooms and other areas in which equipment is to be installed have limiting dimensions. Install all mechanical work within these areas substantially as indicated, with ample unobstructed access space around each piece of equipment to facilitate proper installation, operation and maintenance of equipment, and to allow ample space for plumbing, electrical and other equipment indicated to be installed therein. Minor revisions in layout may be made subject to approval, but major changes in layout to accommodate proposed equipment which differs substantially from specified equipment in size and arrangement may not be considered or will be subjected to the provisions of paragraph 2.1 C. hereinbefore. Each bidder shall determine before bidding that equipment upon which he proposes to base his bid will conform to these requirements. Install each equipment item in accordance with its manufacturer's recommendations, and as indicated on the Drawings, and/or specified. If the Drawings and/or specifications conflict with the manufacturer's recommendations, report this to the Architect/Engineer for his decision before proceeding with the work involved.
- B. Equipment NOT furnished by MECHANICAL section but requiring mechanical connections from other sections and others furnishing this equipment: Determine exact mechanical connection requirements therefor; locations and arrangements of connections indicated for this equipment are APPROXIMATE ONLY.
- C. Generally, install pipework and ductwork as follows unless otherwise indicated.
 - 1. Finished areas: Conceal pipework and ductwork within pipe chases, above suspended ceiling and within other building construction and other finished areas, unless otherwise indicated.
 - 2. Unfinished areas: Install aboveground pipework and ductwork exposed in areas where pipe chases or suspended ceilings are not indicated or concealing is otherwise impracticable, in mechanical and electrical equipment rooms, manufacturing areas, warehouse, or storage areas and other unfinished areas.
 - 3. All Areas: Install pipework and ductwork parallel or at right angles with beams, walls, ceilings and other building lines, in straight lines between required direction changes, with vertical runs plumb. Install exposed pipework and ductwork as close as practicable to walls, columns, ceilings and overhead construction, and to provide maximum headroom and minimum interference with usable building space.

3.04 CUTTING AND PATCHING

- A. Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching and excavating and backfilling.
- B. After uncovering work, inspect conditions affecting installation of new products.
- C. Provide shoring, bracing and support required to maintain structural integrity of the project.
- D. Provide protection for other portions of the project.

- E. Provide protection from the elements.
- F. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
- G. Execute cutting and demolition by methods that prevent damage to other work and provide proper surfaces to receive installation of repairs and new work.
- H. Refinish the entire surfaces where cutting and patching work occurs to provide an even, continuous surface to the nearest intersections. Where assemblies are damaged by cutting and patching, refinish entire assemblies.

3.05 PAINTING

- A. All equipment shall be factory prime coated and painted, however, the following may be shop prime coated and made ready for painting:
 - 1. Structural supports and frames.
- B. Uncoated hangers, supports, rods and inserts shall be prime coated.
- C. Exposed, uninsulated black steel piping, pipe supports and pipe braces shall be prime-coated.
- D. Marred surfaces of prime coated or factory painted surfaces shall be painted and/or primed to match adjacent coat.

END OF SECTION 23 0000

SECTION 23 0500 – COMMON WORK RESULTS FOR HVAC

PART 1 – GENERAL

1.01 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.
- B. Section 23 0000 – Heating, Ventilating, and Air-Conditioning (HVAC).
- C. Division 26 - Electrical.

1.02 DESCRIPTION OF WORK

- A. Provide all equipment, labor, materials, etc. required to make a complete working installation of the heating, ventilating and air conditioning (HVAC) system as shown on the Drawings or as specified.
- B. Basic materials for support, access and serviceability of heating, ventilating, air conditioning, and plumbing systems. Angle iron, pipe, metal framing systems or other suitable steel auxiliary supports shall be provided as required for the mechanical work. The following are included in this section:
 - 1. Sleeves.
 - 2. Escutcheons and Flashings.
 - 3. Identification of Mechanical Equipment and Materials.

1.03 REFERENCES

- A. Clean Air Act.
- B. Refrigeration Service Engineers Society.
- C. RMA - Rubber Manufacturer's Association.
- D. NEMA - National Electrical Manufacturer's Association.
- E. ASME - American Society of Mechanical Engineers.

1.04 SUBMITTALS

- A. Submit shop drawings and product data in strict accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 ELECTRICAL CHARACTERISTICS, MOTORS, CONTROLS AND WIRING

- A. Electrical Characteristics: Refer to electrical section for electrical characteristics of motors specified or scheduled under the Mechanical Section.
- B. Motor Sizes: Motor horsepower specified in Mechanical Section and/or indicated on mechanical drawings are approximate, and are not intended to limit motor sizes. Each motor shall comply with NEMA Standard and be of proper size to operate continuously at full load and full speed without causing noise, vibration or temperature rise in excess of its rating.
- C. Motor Starters and Other Electrical Control Devices: Generally, motor starters for equipment motors shall be furnished by DIVISION 26 - ELECTRICAL; however, this DIVISION shall furnish only those motor starters which may be specified hereinafter in this DIVISION. Also, this DIVISION shall furnish all electrical control devices required for the Mechanical system, unless otherwise specified.
- D. Installation of electrical devices, EXCEPT those factory mounted on equipment electrical control devices which require electrical connections only, shall be installed by DIVISION 26 - ELECTRICAL; electrical control devices which require piping, linkage, or other mechanical connections in addition to electrical connections, shall be installed by this Section, ready for electrical connections. Electric wiring: All electric wiring required to operate the mechanical systems, except wiring which is factory installed on equipment, shall be done by DIVISION 26 - ELECTRICAL, in accordance with approved wiring diagrams which shall be furnished by this section.
- E. Install name plates with full data on all motors, starters and disconnect switches.

2.02 SLEEVES

- A. Sleeves, Duct:
 - 1. Duct sleeves through walls and partitions shall be 10 gauge galvanized iron where fire dampers occur and otherwise be 16 gauge galvanized iron. Install angle iron stiffeners as required to prevent bending.

2.03 ESCUTCHEONS AND FLASHINGS

- A. Escutcheons shall be chrome plated metal with fastening devices.
- B. Steel Flashing: Shall be 26 gauge galvanized steel.

2.04 IDENTIFICATION OF MECHANICAL EQUIPMENT AND MATERIALS

- A. Name Plate Identification:
 - 1. 4-inch x 2-inch minimum size engraved and laminated plastic nameplate or black lamicoid sheet with white lettering.

B. Pipe Identification:

1. Brady B-946 Setons' Weather-Code.
2. Identification shall be in accordance with ANSI-A13.1.

2.05 MISCELLANEOUS STEEL

- A. ASTM A-36 Structural Steel.

PART 3 - EXECUTION

3.01 SLEEVES

- A. Sleeves through concrete construction, except slabs, shall be flush with finished concrete surface. Smooth cut and ream steel pipe sleeves ends. Where each pipe above floor inside of building passes through wall into ground, completely caulk space between pipe and wall sleeve with suitable resilient non-hardening sealant to prevent water leakage into building.
- B. Clearance for Insulation: Pipe insulation shall be continuous through horizontal sleeves. All pipe insulation shall be continuous through hangers. Pipe shields or saddles shall be used with all piping insulated with fiberglass insulation or any type insulation subject to crushing by the hanger or other means of support. Wood blocking or rigid fiberglass blocking shall be installed between the pipe being supported and the pipe hanger to support the pipe and protect the insulation and vapor barrier from being damaged. Pipe shields shall fit neatly around the insulation and shall not protrude out from the pipe insulation.

3.02 ESCUTCHEONS AND FLASHINGS

- A. Provide a pipe escutcheon where each exposed, uninsulated pipe passes through a finished wall or ceiling surface. Provide a rod escutcheon where each hanger rod passes through a finished ceiling surface. Escutcheons are not required in unfinished areas.
- B. Provide a weatherproof flashing at each location where a pipe and where a duct passes through a roof or through an outside wall.
- C. Flash and counterflash where mechanical equipment passes through weather or water proofed walls, floors and roofs.

3.03 IDENTIFICATION OF MECHANICAL EQUIPMENT AND MATERIALS

- A. Identify piping with pipe markers and directional arrows, each sized as recommended by marker manufacturer for outside diameter of pipe (including pipe insulation) labeled therewith. Marker background colors shall conform to OSHA and ANSI pipe identification standards. Each pipe marker shall be lettered to indicate the material contained in the pipeline involved, and arrows shall indicate direction of material flow in

the pipelines. Install appropriate pipe markers, each with a marker arrow adjacent thereto, on all above ground pipelines on 20 foot maximum centers, with at least one marker and arrow in each vertical run between floor and ceiling. Provide pipe markers and arrows on each side of partitions and floor slabs. Pipe markers shall be located where readily visible and on lower quadrants of overhead pipes.

- B. Equipment: Label each major mechanical equipment item (such as RTU, fan, condensing units, etc.) with nameplate engraved with equipment designation and number, and securely attached to equipment.

3.04 REFRIGERANT RECOVERY

- A. All work on refrigerant systems shall employ service techniques that prevent release of refrigerants to the atmosphere.

END OF SECTION 23 0500

SECTION 23 0510 - HVAC, BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 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.
- B. Section 23 0000 – HEATING, VENTILATING AND AIR CONDITIONING
- C. Section 23 0700 - HVAC INSULATION.
- D. Section 23 8126 – SPLIT SYSTEM AIR CONDITIONERS
- E. Section 23 3000 - AIR DISTRIBUTION.

1.02 WORK INCLUDED

- A. The work required under this section includes providing all material, equipment, labor, etc. for the following:
 - 1. Pipe and pipe fittings.

1.03 SUBMITTALS

- A. Submit product data in accordance with Section 01 6000.
- B. Submittals shall include manufacturer's data sheets showing pressure and temperature rating.

PART 2 - PRODUCTS

2.01 PIPE AND PIPE FITTINGS

- A. Condensate Drain Piping: Schedule 40 Type 1 rigid PVC pipe and Schedule 40 Type 1 molded PVC socket fittings, and solvent welded joints, conforming to ASTM Standards D1785, D2466, and D2855 respectively.

2.02 VALVES, STRAINERS AND FITTINGS

- A. Unions: For steel pipe, 150 pound black malleable iron brass-to-iron seat ground joint type; for copper tubing, all-brass ground joint or compression type.

PART 3 - EXECUTION

3.01 PIPE AND PIPE FITTINGS

- A. Install piping with ample flexibility to permit free expansion and contraction of pipework without putting any stress on the pipework, supports and equipment which could cause damage or breakage. Branch connections to mains, risers and laterals shall be swing type, except where length and arrangement of branch will provide sufficient flexibility. Remove loose scale and dirt from pipes and fittings before installing them. Install valves at locations indicated and/or specified below, each accessible and where practicable operable by personnel standing on floor.
- B. Bending: Soft copper tubing may be bent in long radius turns; do not bend any other pipe, unless otherwise indicated or otherwise approved.
- C. Reaming: After cutting, ream pipe ends to full pipe inside diameter.
- D. Soldered and Silver Joints: Completely fill joint spaces with solder or silver brazing alloy, as applicable, without overheating or oxidizing pipe; use suitable non-corrosive flux on soft soldered joints.
- E. Threaded Joints: Use suitable non-hardening pipe joint compound on male threads only, or use Teflon pipe joint tape.
- F. Welded Joints: Turns and offsets of 15 degrees and less may be mitered; use welding elbows at all other turns, except where bent turns are indicated or approved; at each branch connection, use welding tee or "Weldolets: or butt weld saddled-end branch directly to main without branch end extending into inside of main; length of each job-fabricated reducer shall be not less than diameter of its larger end; use extra heavy threaded couplings or "Threadolets" where female threaded openings are required in pipes for gauges, thermometers, air vent valves and similar devices.
- G. Pitch Piping as Follows: AC drain piping, at least 1-inch in 20-feet to outlet ends.
- H. AC Drain Lines: Make each turn of over 45 degrees with tees or crosses having accessible removable threaded cleanout plugs arranged so that entire line can be cleaned out.

END OF SECTION 23 0510

SECTION 23 0529 - HANGERS AND SUPPORTS FOR HVAC EQUIPMENT

PART 1 - GENERAL

1.01 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.
- B. DIVISION 22 - PLUMBING.
- C. DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC).

1.02 DESCRIPTION OF WORK

- A. The work included in this section includes all labor, material, equipment, etc. for the complete installation of the following:
 - 1. Duct hangers and supports
 - 2. Pipe hangers and supports

1.03 REFERENCES

- A. Duct Hangers: SMACNA (Sheet Metal and Air Condition Contractor's National Association) Duct Manuals.
- B. AISC (American Iron and Steel Construction): Manual for Steel Construction.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instruction in accordance with Sections 01 6000 and 23 0000.

PART 2 - PRODUCTS

2.01 HANGER RODS

- A. Provide steel hanger rods, threaded both ends, threaded on end, or continuous threaded, suitable in size for suspended weights.

2.02 DUCT HANGERS AND SUPPORTS

- A. Hangers: Galvanized steel band iron or rolled angle and 3/8-inch rods.
- B. Wall Supports: Galvanized steel band iron or fabricated angle bracket.

2.03 PIPE HANGERS, SUPPORTS AND CLAMPS

- A. All hangers for piping shall be provided with a means of vertical adjustment.
- B. Hangers for suspended horizontal pipes shall be split malleable iron ring, steel clevis or other suitable standard adjustable type. Hangers or supports for pipes on walls, columns and other vertical surfaces shall be split ring extension type. Hangers for copper tubing shall be copper plated. Perforated strap or band iron will not be permitted.
 - 1. Copper tubing: Adjustable copper tubing hanger.
 - 2. Multiple or trapeze hangers: steel channels with welded spacers and hanger rods.

PART 3 - EXECUTION

3.01 DUCTWORK HANGERS AND SUPPORTS (GENERAL INFORMATION)

- A. Ductwork shall be supported independent of all connections and sleeves by hangers and/or supports.
- B. Hanging, installation, construction and support of all ductwork throughout shall be in accordance with "SMACNA" duct construction and installation procedures, unless otherwise noted. Ducts shall have hangers (minimum) at each joint and/or brace.
- C. All hangers and/or supports shall be of standard weight galvanized material or as specified for each use. Include inserts for ducts supported from concrete construction.
- D. Perforated strap hangers are not approved nor permitted.
- E. Provide galvanized steel overhead hanger straps or adjustable steel rods, securely supported from inserts or bolted to steel construction. Hangers shall not be fastened to wood construction unless approved by the Architect/Engineer. Use 1-inch x 1/8-inch galvanized steel strap at 8-feet on center for maximum 60-inch ducts size and 1/1/2-inch x 1/8-inch galvanized steel band hangers at 5-feet on center for ducts greater than 60-inch in size.
- F. Where ductwork is above suspended ceilings, provide "trapeze" type hangers (made of steel angles) at underside of all ducts wider than 24-inch for support of ceiling construction. Provide 1/4-inch diameter holes at 12-inch on center "trapeze hangers" for support wires of ceiling system. Trapeze hangers to be formed by 1/4-inch rods or larger and 1-1/4: angle iron or larger under ducts, placed not over 4-feet apart.
- G. Ductwork hung close to walls shall be supported by bracket type supports or from brackets with suspension hangers, arranged to position ducts away from walls and in center of sleeves, securely bolted to masonry walls or steel construction. Hangers and supports within 7-feet of floor must be free of sharp edges, corners or projections.
- H. Hangers and supports shall be arranged to permit free, unrestrained and noiseless expansion and contraction of ductwork and must be adjustable.
- I. Hangers and/or supports, in contact with non-ferrous ductwork shall be of the same

construction as duct or plated with same metal as ducts, or covered with same metal as ducts and securely fastened in place.

- J. Hangers supporting ductwork covered with insulation that has an exterior vapor barrier shall bear on an exterior steel collar, over covering. Hangers and rods shall not penetrate insulation.
- K. Vertical risers and other duct runs where the method of support is not specified shall be supported at floors and secured to floor by 1/8-inch x 1-1/2-inch angle iron bars designed to meet field conditions and installed to allow duct expansion.
- L. Provide additional hangers at corners and/or as required for stable suspension or support.

3.02 LOW VELOCITY DUCT HANGERS AND SUPPORTS

- A. Hanger Minimum Sizes:
 - 1. Up to 30-inches wide: 1-inch x 16 gauge at 10-foot spacing.
 - 2. 31-inches to 48-inches wide: 1-1/2-inch x 16 gauge at 8-foot spacing.
- B. Horizontal Duct on Wall Supports Minimum Sizes:
 - 1. Up to 18-inches wide: 1-1/2-inch x 16 gauge or 1-inch x 1-inch x 1/8-inch at 8-foot spacing.
 - 2. 19-inches to 40-inches wide: 1-1/2-inch x 1-1/2-inch x 1/8-inch at 4-foot spacing.
- C. Vertical Duct on Wall Supports Minimum Sizes At 12-foot spacing:
 - 1. Up to 24-inches wide: 1-1/2-inch x 16 gauge.
 - 2. 25-inches to 36-inches wide: 1-inch x 1-inch x 1/8-inch.

3.03 PIPE HANGERS AND SUPPORTS

- A. Place hangers or other supports within 2-feet or sufficiently near elbows, tees, risers, valves and other items to provide adequate pipework support.
- B. Secure each hanger to its hanger rod with supporting nuts under and/or locknut above the hanger; also provide the necessary diameter supporting rod as recommended by the manufacturer for the service involved and that matches the hanger involved. Support horizontal steel pipe and copper tubing as follows except as otherwise indicated:

COPPER TUBING

<u>NOM. PIPE SIZE</u>	<u>MAX SPAN FT</u>
3/8 - 3/4 inch	5
1 inch	6
1-1/4 inch	7
1-1/2 - 2 inch	8

- C. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

3.03 PRIMING

- A. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipes shafts and suspended ceiling spaces are not considered exposed.

3.04 FLASHING

- A. Flash and counterflash where mechanical equipment passes through weather or waterproofed walls, floors and roofs.

END OF SECTION 23 0529

SECTION 23 0700 - HVAC INSULATION

PART 1 - GENERAL

1.01 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.
- B. Section 07 - Thermal and Moisture Protection.
- C. Section 23 0000 - Heating, Ventilating, and Air-Conditioning (HVAC).
- D. Section 23 0500 – Common Work Results for HVAC.
- E. Section 23 3000 - HVAC Air Distribution.

1.02 WORK INCLUDED

- A. The work in this section includes providing all materials, equipment, fabrication, installation and tests for insulation of the following items:
 - 1. Ductwork.
 - 2. Piping.
 - 2. Equipment.
- B. Certain equipment and/or systems to be factory insulated by manufacturer. Factory insulation materials shall be as specified in applicable sections of these specifications.

1.03 REFERENCES AND STANDARDS

- A. Insulation thickness, where specified, shall be equal to or greater than the guidelines presented in ASHRAE Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings.
- B. Insulation shall be designed and installed in accordance with the Commercial and Industrial Insulation Standards of the Midwest Insulation Contractor's Association, Third Edition.

1.04 SUBMITTALS

- A. Submit all product data in accordance with Section 01 6000.
- B. Submit manufacturers catalog product literature on all insulation components, data showing compliance with flame spread and smoke development rating, manufacturer's recommended installation data and material safety data sheets.

1.05 MATERIAL REQUIREMENTS

A. Fire Hazard Rating:

1. Insulation for ductwork, pipe and equipment located within the building shall have a fire hazard rating, certified by material manufacturer to be tested in accordance with U.L. 723 NFPA 255, and ASTM E84, not exceeding the following. "Insulation" includes insulating material, jacket, PVC fittings, vapor barrier, mastic, adhesive, tape and cloth; collectively as a system or individually.
 - a. Flame spread of 25 and smoke development of 50 for all ductwork and for any insulation located in a ceiling plenum or a room used for a return plenum.
 - b. Flame spread of 25 and smoke development of 200 for other pipe and equipment insulation within building.
 - c. Insulation exposed to the weather shall be certified to be self-extinguishing in accordance with ASTM D1692.
2. Chemicals used in order to treat materials shall not be water soluble or affected by water and humidity.

B. Basic Requirements:

1. All insulation materials shall be delivered and stored in manufacturer's container free from dirt, water, chemical and mechanical damage.
2. "R" - Values used herein are expressed in units of "Hour-degrees F - square feet, Btu per inch thickness" at an ambient temperature of 75 degrees F, unless otherwise noted.
3. Provide factory premolded or shop or site mitered insulation for pipe fittings and valves, unless otherwise noted. Fitting insulation to be the same thickness and material as is specified for adjoining pipe.

PART 2 - PRODUCTS

2.01 DUCTWORK INSULATION

A. Fiberglass Blanket:

1. Provide minimum 1 pound per cubic foot density, flexible, factory reinforced foil-faced Kraft vapor barrier glass fiber blanket "system" type insulation. Insulation to conform strictly to fire-resistive qualities hereinbefore specified. Provide insulation for following:
 - a. Unlined supply, return, exhaust, and outside air ducts - 2-inches thick.

B. Fiberglass Board:

1. Provide minimum 3 pound per cubic foot density semi-rigid, factory reinforced foil faced Kraft vapor barrier glass fiber board "system" type insulation, having a minimum "R" value of 4.34. Insulation to conform strictly to fire-resistive qualities hereinbefore specified. Provide insulation for following:

- a. Ducts within equipment rooms - 1-1/2-inches thick.
- b. Apparatus casing - 1-1/2inches thick.
- c. Ducts outside exposed to weather - 2 inches thick.
- d. Outside air intake plenums and ductwork and connections to mixing plenums of heating and ventilating units - 1-1/2-inches thick.

C. Acoustical Insulation:

1. Acoustical duct lining shall be 1-inch thick, inorganic glass fiber material, with a minimum density of 1.5 pcf, and be suitably coated to prevent erosion. See drawings for location of lined duct runs. The material shall be Owens-Corning Fiberglass "Aeroflex" Ductliner, Johns-Manville "Micro-Lite" Ductliner, or Gustin-Bacon "Ultra liner."

2.02 SPECIAL COVERINGS

- A. For externally insulated sheet metal air conditioning ducts when above grade exposed-to-the-weather outside building, cover duct insulation with gray hypalon mastic reinforced with nylon or glass cloths, Foster Monolar.

2.03 AC DRAIN PIPING (EXCEPT PVC)

- A. Armstrong Armaflex II foamed plastic piping type; adhesive, Armstrong No. 520; and finish, white Armstrong Finish (vinyl lacquer) or equivalent product by Aeroflex, Nomaco Insulation, or other approved manufacturer.
- B. Insulation thickness, unless otherwise indicated: 3/8-inch.

2.04 REFRIGERANT PIPING

- A. Armstrong Armaflex II foamed plastic piping type; adhesive, Armstrong No. 520; and finish, white Armstrong Finish (vinyl lacquer) or equivalent product by Aeroflex, Nomaco Insulation, or other approved manufacturer.
- B. Insulation thickness, unless otherwise indicated: 1/2-inch.

PART 3 - EXECUTION

3.01 GENERAL

- A. Ductwork and Equipment:
 1. The complete systems shall have been tested and found free of all leaks prior to installation of any insulation on that system. All surfaces shall be clean and dry prior to covering with insulation.
 2. All insulation shall be installed in strict accordance with manufacturer's recommendations.
 3. No insulation shall be cut where a hanger is located. Insulation shall be installed such that specified thickness is preserved at every hanger, sleeve or

penetration of a wall, floor or roof.

4. Stop all duct coverings, including jacket and insulation, at fire dampered penetrations of walls, floors above grade and roofs. "Fan-out" or extend jacketed insulation at least 2 inches beyond angle frames of fire dampers and secure to structure. Maintain vapor barrier. Install covering over damper access panel so as to be readily removable and identifiable.
5. Lap insulation jacket minimum of 1-1/2-inches at circumferential and longitudinal joints. Install longitudinal jacket laps concealed from normal view. Do not leave any visible mechanical fasteners, such as staples and/or bands on any service except within equipment rooms. Cover all staples with 3-inch wide vapor barrier tape or white vapor barrier coating Foster 30-35.
6. Cover all joints, rips, tears, punctures, disc heads, staples or breaks in vapor barrier jacket with 4-inch wide woven glass fabric tape embedded in gray or white vapor barrier fire resistant coating. All hangers, supports, anchors or other projections that are secured to cold surfaces shall be insulated and vapor sealed to prevent condensation.
7. Adhere flexible elastomeric sheet insulation to sheet metal ducts or equipment by compression fit method and full coverage of air drying contact adhesive. Seal butt joints with same adhesive. Apply same insulation and adhesive on standing metal seams for full height coverage as on duct or equipment surface.

3.02 DUCTWORK

- A. Apply jacketed blanket type glass fiber covering to ducts pulled snug but not so tight as to compress corners more than 1/4-inch. Use insulation having 2-inch tab, or cut insulation long enough to allow for "peel-off" of insulation from jacket to effect a minimum overlap tab of insulation 2-inches. Staple lap with flare type staples on 2-inch centers. Cover standing seams, stiffeners, and braces with same insulation blanket, using 2-inch jacket lap and staple lap as hereinbefore outlined.
1. For duct 24-inches or wider, mechanically fasten insulation to duct bottom, using weld pins or nylon "stick-clip" base plates having, self-locking tin-coated metal or nylon discs, locating fasteners on not over 12-inch centers laterally and longitudinally.
- B. Apply jacketed board type glass fiber covering to ducts using weld pins or nylon "stick-clip" base plates having self-locking tin-coated metal or nylon discs; locate fasteners on not over 12-inch centers laterally and longitudinally. If insulation is grooved to fit around corners, in order to eliminate as many joints as possible, pin as required to hold insulation tight to duct, especially on bottom of duct.

3.03 PIPING INSULATION

- A. AC system cold surfaces subject to sweating shall be insulated with suitable materials, whether specified hereinafter or not.
- B. Apply insulation in accordance with its manufacturer's recommendations, and generally as specified below.

- C. Protective saddles: Provide between each hanger and insulation a 20 gauge galvanized steel protective saddle at least 12-inches long and extending up to pipe horizontal centerline.

END OF SECTION 23 0700

SECTION 23 3000 - AIR DISTRIBUTION

PART 1 – GENERAL

1.01 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.
- B. Division 07 - Thermal and Moisture Protection.
- C. Section 23 0000 – Heating, Ventilating and Air Conditioning (HVAC).
- D. Section 23 0500 – Common Work Results for HVAC.
- E. Section 23 0700 - HVAC Insulation.
- F. Division 26 - Electrical.

1.02 WORK INCLUDED

- A. Contractor shall provide all materials, equipment and installation for the following:
 - 1. Ductwork consisting of supply, return, OSA, exhaust as indicated and/or required including: Mains; branches; fittings; plenums; manual dampers; turning vanes; air extractors; hangers and supports; and related sheet metal.
 - 2. Air Distribution Equipment Including: Supply, return and exhaust air devices; dampers and related accessories.
 - 3. Filters

1.03 SUBMITTALS

- A. Submit all shop drawings and product data in accordance with Section 01 6000.

PART 2 - PRODUCTS

2.01 DUCTWORK, DAMPERS AND RELATED SHEET METAL WORK

- A. Ductwork Classification for this project:
 - 1. Low pressure ductwork: Unless otherwise indicated, this shall be limited to systems or sections of systems operating at static pressures of 2-inches of water or less, above or below atmospheric pressure.
- B. Materials:
 - 1. Sheet steel: Galvanized sheet, coating class 1.25, conforming to ASTM A653/A653M-11.

2. Flexible ductwork to equipment connectors: UL listed fire retardant type 20 ounce cotton duct for low pressure systems, and 30 ounce for neoprene coated glass fiber type for high pressure systems, as manufactured by Ventfabrics, Inc., Wiremold Company or equal.
3. Flexible ducting: UL listed Class 1 connector or Air Duct Material, Standard 181, factory insulated, of steel spiral reinforced fabric type, or two ply seamless helically corrugated aluminum type with manufacturer's pressure rating of at least 150 percent of the maximum operating pressure of the system involved. Insulation shall be one inch minimum thickness glass fiber flexible blanket type, with suitable vapor barrier.
4. Manual damper regulators: These shall be Young Regulator Company, Ventfabrics, Inc., or equal indicating and locking assemblies operable from outside of ductwork, of the following types: inaccessible ductwork, concealed type, flush mounted in building construction; accessible non-externally insulated ductwork, quadrant or lever type, surface mounted on ductwork and accessible externally insulated ductwork, quadrant or lever type, mounted on ductwork so that operating and locking mechanism will clear the insulation. Provide the appropriate type regulator on each manually operated damper and splitter damper, each in an accessible location.
5. Air extractor regulator: These shall be of the indicating and locking type which is operable from outside of ductwork. Provide a regulator on each air extractor, each in an accessible location.
6. Duct access doors: Hinged access door, Air Balance, Inc., Model F3AIDU or as approved 1-inch insulated door with cam latch.

2.02 OUTLETS, GRILLES AND REGISTERS

- A. Outlets, grilles and registers shall be the makes (or as approved), types, sizes and capacities as scheduled on the Drawings, and as specified below. If air inlet and outlet devices other than those scheduled are furnished: their face velocities, neck velocities and noise levels shall not exceed those scheduled; their face areas shall not be less than those scheduled; and their styles and designs shall be acceptable. Within the same room or area, all supply, return, and exhaust devices of the same type shall be same dimensional size, to provide architectural uniformity and symmetry.
- B. Each supply, return and exhaust device shall be of the proper design and size of the type indicated to pass the indicated quantity of air into or out of (as applicable) the space involved, without objectionable noise, excessive friction, and/or objectionable air movement at the occupied level. Each air supply device and each register shall have a volume control damper that is operable from the face of the device. Supply volume control damper shall be of the opposed blade or equivalent type. Each device shall be furnished with the proper fittings and gaskets.
- C. Except where aluminum or other finishes are indicated or specified, air devices shall have factory baked on enamel finish, color as selected from submittals showing the manufacturer's standard available finishes.

2.03 FILTERS

- A. Air filters shall be of the types specified below. Type of filter required in each case, arrangements, sizes, capacities, number of cells and other requirements not specified hereinafter shall be as indicated.
- B. Provide filters as follows:
 - 1. Initial fill for each filter of each type, installed in place for testing and adjusting AC system; one complete fill left in place for Owner's immediate use; and one complete fill for Owner's future use, stored at location as approved by Owner.
- C. Disposable Filters: Filters shall have a minimum MERV rating of 7.

2.04 FANS AND ACCESSORIES

- A. This Article applies only to fans which are not integral parts of AC equipment specified elsewhere in this Section.
- B. Fan Makes, Types, and Features: Fans shall be Greenheck, Penn, Cook, or as approved make. See FAN SCHEDULE on Drawings for type, capacity maximum sound level, and other special requirements for each individual fan. Features of various fan types shall be as specified below.
- C. Certified Ratings: Each fan shall have AMCA certified rating.
- D. Excessive Noise: At HVAC Contractor's expense, each fan that has a sound level higher than that scheduled for the fan involved, or is otherwise excessively noisy, shall be removed and replaced with an acceptable fan.
- E. Ceiling Exhaust Fans: These shall be ducted, direct connected, each complete with: galvanized steel housing, with duct connection flanges; NEMA standard 1,800 maximum rpm sealed grease lubricated ball bearing motor; centrifugal wheel and vibration absorbing mountings for rotating parts or entire fan assembly. Unit shall be complete with designer grille, solid state speed control, and disconnect.

PART 3 - EXECUTION

3.01 DUCTWORK, DAMPERS AND RELATED SHEET METAL WORK

- A. Ductwork Construction, General: Construct ductwork (except flexible ducting) with careful, neat and accurate workmanship, and airtight joints and seams. Construct ductwork and install in accordance with latest edition of SMACNA (Sheet Metal and Air Conditioning Contractors National Association, Inc.) "Low Velocity Duct Construction Standards", as applicable to classification of ductwork involved, including all applicable recommendations of these Standards.
 - 1. Duct sizes indicated on Drawings are inside dimensions, measured inside of the sheet metal; sizes shown include allowances for all specified and/or indicated internal insulation or acoustical lining.

3.02 OUTLETS, GRILLES AND REGISTERS

- A. Install ceiling devices utilizing the proper frame for the type ceiling involved.
- B. Install wall mounted devices in accordance with manufacturer's recommendations.
- C. Connect diffusers to low pressure ducts with 5-foot maximum length of flexible duct, held in place with strap or clamps.

3.03 FILTERS

- A. Install in accordance with manufacturer's recommendations.

END OF SECTION 23 3000

SECTION 23 8126 - SPLIT-SYSTEM AIR-CONDITIONERS

PART 1 - GENERAL

1.01 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.
- B. Section 23 0000 - Heating, Ventilating, and Air-Conditioning (HVAC).
- C. Section 23 0700 - HVAC Insulation.
- D. Section 23 0510 - HVAC Basic Materials and Methods.
- E. Division 26 - Electrical.

1.02 WORK INCLUDED

- A. The work in this section includes providing all labor, material, equipment, etc. for a complete installation of the HVAC comfort control system including the split system indoor and outdoor unit(s) with all related piping, controls, supports, etc.

1.03 SYSTEM DESCRIPTION

- A. The heat pump split system shall be manufactured by Trane, Carrier, York or approved equal. The system shall be a split system heat pump unit condensing with matching indoor coil and air handler. The system shall consist of outdoor unit, indoor units, controls and all related piping, supports, etc.

1.04 QUALITY ASSURANCE

- A. The units shall be listed by Electrical Laboratories (ETL) and bear the ETL label.
- B. All wiring shall be in accordance with the National Electrical Code (N.E.C.)
- C. The units shall be rated in accordance with Air-conditioning, Heating, and Refrigeration Institute's (AHRI) Standard 210 and bear the AHRI Certification label.
- D. The units shall be certified to UL 1995,

1.05 SUBMITTALS

- A. Submit shop drawings and manufacturer's product data in accordance with provisions of Section 01 6000.

PART 2 - PRODUCTS

2.01 System Description

- A. The heat pump system shall be equal to a Trane 4TWR6 heat pump split system series with a variable speed air handler with cooling coil and back-up heat with remote controller.
- B. A dry air holding charge shall be provided in the indoor section.
- C. System efficiency shall meet or exceed 14 SEER, 12 EER.
- D. Unit shall be stored and handled according to the manufacturer's recommendations. The controller shall be protected from adverse conditions.
- E. Performance shall be based on 80°F DB, 67°F WB for the indoor unit and 95°F DB, 75°F for the outdoor unit.

2.02 Indoor Unit

- A. The indoor unit shall be factory assembled, wired and run tested variable speed, multi-position air handler unit. Contained within the unit shall be all factory wiring, piping, control circuit board, fan and fan motor.
- B. Unit Cabinet:
 - 1. The cabinet shall have smooth cleanable interior and minimum R value of 4.2.
 - 2. Multi-position up/down flow or horizontal left/right.
 - 3. Cabinet shall have integrated horizontal drain pans, pre-marked conduit connection locations, and tight sealing insulated doors.
- C. Fan:
 - 1. The indoor unit fan shall be an assembly with a fan direct driven by a single motor.
 - 2. The fan shall be statically and dynamically balanced and be powered by a motor with permanently lubricated bearing.
 - 3. Unit shall be equipped with variable speed ECM motor, soft start fan motor operation and built in fan delay modes.
- D. Filter:
 - 1. Indoor unit shall be equipped with one inch filter rail.
- E. Indoor Coil:
 - 1. Coils shall be horizontal type constructed of aluminum plate fins mechanically bonded to copper tubing with all joints brazed. Coil casing shall be insulated and

constructed of steel. Coil shall include a factory installed thermal expansion valve for R-410A. The indoor unit coil shall be of nonferrous construction with smooth plate fins on copper tubing.

2. The tubing shall have inner grooves for high efficiency heat exchange.
3. The coils shall be pressure tested at the factory.
5. A corrosion resistant condensate pan with drain shall be provided under the coil.

F. Electrical:

1. The unit electrical power shall be 208-230 volts, 1-phase, 60 hertz.
2. The system shall be equipped with a two-stage controller.
3. The indoor unit shall have supplemental electrical heat elements.

2.03 Control

A. General:

1. The split system unit shall have a field installed, programmable remote controller kit with a multi-function, wall mounted remote controller and cabling.
2. The controller shall have LCD backlit, easy to read display. The controller shall consist of four Function buttons below the display, and Increase/Decrease Set Temperature buttons and a Hold button. The controller shall have a built-in temperature sensor and a battery holder, using two AA alkaline batteries. Temperature shall be displayed in either Fahrenheit (°F) or Celsius (°C), and temperature changes shall be by increments of 1°F (0.5°C). Communication shall be automatically restored after power resumes and after batteries are replaced.

2.04 Outdoor Units

A. General:

1. The outdoor units shall be specifically designed to work with the indoor units. The outdoor unit shall be completely factory assembled, piped and wired. Each unit shall be run tested at the factory.

B. Unit Cabinet:

1. The casing shall be fabricated of galvanized steel, bonderized, finished with an electrostatically applied, thermally fused acrylic or polyester powder coating for corrosion protection. Assembly hardware shall be cadmium plated for weather resistance.
2. Cabinet shall be galvanized steel, standard color as provided by the manufacturer.

C. Fan:

1. The unit shall be furnished with a direct drive propeller type fan.
2. The outdoor unit fan motor shall be a direct current (DC) motor having permanently lubricated bearings.
3. The fan motor shall be mounted for quiet operation.
4. The fan shall be provided with a raised guard to prevent contact with moving parts.
5. The outdoor unit shall have horizontal discharge airflow.

D. Coil:

1. The outdoor unit coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing.
2. The coil shall be protected with an integral metal guard.
3. Refrigerant flow from the outdoor unit shall be regulated by means of an electronically controlled, precision, linear expansion valve.
4. Outdoor unit shall be pre-charged with sufficient R-410a refrigerant for up to twenty five (25) feet of refrigerant piping.
5. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft / °F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1" thick insulation shall have a - Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102.
6. All refrigerant connections between outdoor and indoor units shall be flare type.

E. Compressor:

1. The compressor shall be a high performance, hermetic, two stage type.
2. The compressor motor shall have internal over temperature and pressure protection.
3. The outdoor unit shall be equipped with centrifugal oil pump and modular plugs for electrical connections.
4. The compressor shall be mounted so as to avoid the transmission of vibration.

F. Electrical:

1. The outdoor unit electrical power supply shall be 208/230 volts, 1-phase, 60 hertz.

2.05 LINESET COVER

- A. Each system shall be equipped with exterior lineset cover for covering any refrigerant piping or conduit that is exposed.

PART 3 - EXECUTION

3.01 AIR COOLED OUTDOOR UNIT

- A. Installation: Install each unit on concrete pad at location indicated on the Drawings.
- B. Refrigerant: Provide full charge of proper refrigerant in refrigerant circuit served by each condensing unit, including evaporator coils and interconnecting pipework involved.

3.02 INDOOR FAN UNIT

- A. Installation: Install units per manufacturer's recommendation, mounted on return air plenum.

3.03 WARRANTY

- A. The units shall be covered by an extended manufacturer's limited warranty for a period of five (5) years from date of installation. The compressor shall have a warranty of seven (7) years from the same date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material it shall be replaced or repaired.

END OF SECTION 23 8126

SECTION 26 05 11 - ELECTRICAL GENERAL & WORK IN EXISTING FACILITIES

PART 1 – GENERAL

1.1 GENERAL

- A. All work shall conform to the latest editions of the National Electrical Code (NEC) [National Fire Protection Association (NFPA) 70], the Standard for Electrical Safety in the Workplace (NFPA 70E), the Life-Safety Code (NFPA 101), the International Building Code, the Americans with Disabilities Act, and all other applicable federal, state, and local codes and regulations.
- B. All work shall be performed in strict compliance with NFPA 70E. Submission of bid shall stand as an agreement by the Contractor to indemnify and hold harmless the Engineer and Owner from all liability related to damage and/or injury to personnel and equipment during the installation of the project.
- C. The contract documents are schematic in nature and are intended to convey the intent of the electrical work to be performed on this project. Provide all material, labor, equipment, etc., necessary to provide complete and operable electrical systems.
- D. The General Conditions, Supplementary Conditions, General Requirements, Information to Bidders, and all other parts of this set of Contract Documents are hereby adopted and are applicable to the Division 26, 27, and 28 Contractor.

1.2 SCOPE OF WORK

- A. Visit site prior to bid. Devise a plan for installation of complete and operable electrical systems meeting the requirements and intent of the Contract Documents. Submission of Bid stands as evidence that the Contractor accepts the Contract Documents as sufficient and complete for the work to be performed. Notify the engineer at least two weeks prior to bid of any discrepancies between the Contract Documents and actual field conditions. No change orders will be granted due to existing conditions that could have been observed during a site visit.
- B. Provide temporary power and lighting during construction. Coordinate with the General Contractor for the exact requirements.
- C. Electrical switchgear and panelboard layouts are based on sizes of Square D equipment. Equipment manufactured by General Electric, Siemens, and Cutler Hammer are equally acceptable. However, the Electrical Contractor is responsible for selecting and furnishing gear that will fit in the spaces provided and shall be responsible for arranging the gear to meet the required code clearances. Regardless of the manufacturer, the Electrical Contractor shall provide a drawn-to-scale electrical layout with the equipment brochures for all rooms in which panelboards, motor control centers, switchboards, or switchgear are placed. The drawings shall include the work of all other trades including mechanical system piping, ductwork, sprinkler piping, etc. No conduits shall be installed until layouts have been approved.
- D. Locate junction boxes, pull boxes, disconnects, and other equipment requiring access in such a manner that they are accessible at the end of construction. Notify the Architect where it is impossible to plan conduit routing or equipment placement in such a manner, and provide the

necessary access panels in the ceiling or wall as required. The access panel type and style shall be subject to the Architect's approval. Employ a painter to provide the appropriate coatings as directed by the Architect.

- E. Relocate, or recircuit, all electrical equipment, conduit, and circuitry conflicting with or obstructing work on this project. Where the electrical systems are owned by other entities, pay them to relocate, or recircuit, their facilities.
- F. Arrange for connection of service to all electrical systems by the appropriate utility company. Coordinate completely with all utility company requirements even if they are different than the contract documents. If utility company requirements are different from the contract documents, notify the engineer at least ten days prior to bid. Pay all utility company charges necessary for installation and connection of service. **No change orders will be granted for utility company connection fees.**
- G. Provide all necessary equipment, raceway, circuitry, fittings, lugs, terminations, labor, etc. and connect to all equipment and appliances requiring electrical connections furnished herein, by the Owner, or by other Contractors. Prior to ordering electrical equipment and roughing in for equipment furnished by the Owner or other Contractors, verify all connection types, connection locations, connection heights, voltages, number of phases, conductor sizes, disconnecting means, breaker sizes, etc. Furnish the proper electrical equipment for the equipment actually being supplied.

1.3 WORK IN EXISTING FACILITIES

- A. All work shall be scheduled and coordinated through the General Contractor with the Owner. Provide necessary costs for all work during both normal and premium work hours in bid.

1.4 SCOPE OF WORK IN EXISTING FACILITIES

- A. Remove electrical equipment in areas being demolished and electrical equipment feeding other equipment being demolished. Remove raceways and circuitry back to the panel of origination. Where raceways are installed in inaccessible areas, remove conductors back to the panel of origination. Where circuits are not being completely demolished, remove conductors back to a junction box or other connection point outside of the renovated area and recircuit existing electrical equipment that is to remain as required.

1.5 SUBMITTALS AND SHOP DRAWINGS

- A. Within 30 days after award of Contract and prior to beginning work, provide six bound copies of manufacturers' cut sheets containing information concerning each article of electrical equipment to be furnished on this project. These cut sheets shall contain sufficient information to prove compliance with the contract documents. Information addressing the requirements of the contract documents shall be highlighted. Each bound set shall bear the stamp of the Electrical Contractor as well as the General Contractor.
- B. Within 30 days after award of Contract and prior to beginning work, provide six sets of full size shop drawings showing exact equipment locations with all equipment drawn to scale. Show all raceways with their junction boxes and pull boxes. Show all connection types, locations, and heights to equipment. Provide mounting and support details for all raceways and equipment.

Coordinate with all other trades to ensure that there are no conflicts between systems. Each set of shop drawings shall bear the stamp of the Electrical Contractor, the General Contractor, and all Project Sub-Contractors. Failure to submit these Shop Drawings will render the Electrical Contractor responsible for resolving all conflicts between trades at his own expense.

- C. Submittals and Shop Drawings are reviewed to determine quality of materials. Approval of submittals and shop drawings does not relieve the Contractor of meeting the requirements and intent of the Contract Documents.
- D. Outlet, light fixture, and device locations are shown in their approximate locations on the drawings. Coordinate with Architectural drawings to get final locations. Mount all electrical outlets shown at counters such that the bottom of the box is two inches above the backsplash or six inches above a counter with no backsplash. The Owner reserves the right to relocate outlets, light fixtures, and devices a distance not to exceed twenty feet prior to the installation of outlet boxes.

PART 2 - PRODUCTS

- 2.1 All electrical equipment and materials shall be new. All equipment and materials shall be stored on the job site in weatherproof enclosures. Electronic equipment shall be stored in facilities where the temperature and humidity are controlled. In addition, comply completely with all manufacturers' requirements for storage and handling.
- 2.2 All equipment shall be UL listed for the application in which it is used and shall be labeled as evidence of its UL listing.
- 2.3 Each circuit breaker supplying a multiwire branch circuit shall be installed with a manufacturer supplied handle tie to simultaneously disconnect all ungrounded conductors. Each multi-wire branch circuit shall comply with NEC article 210.4.
- 2.4 Products shall be selected to maintain or improve the aesthetics of the facility. Gain approval of the Architect or Engineer prior to ordering or installing any electrical equipment or raceway.

PART 3 – EXECUTION

3.1 WORKMANSHIP

All work shall be performed with an emphasis on neatness. The Engineer, Architect, and Owner retain the right to reject work that is, in their judgment, unsatisfactory.

3.2 EXPERIENCE

The Contractor shall have completed at least two jobs of similar size and scope within the past five years. The Engineer reserves the right to reject Contractors based on their inability to submit evidence of their experience, or based on experience with the Contractor on previous projects.

3.3 PERMITS

Obtain and pay for all permits required for work.

3.4 PROTECTION

- A. Keep energized equipment covered during all phases of construction. Use enclosures, doors, covers, etc., to ensure that neither personnel nor machinery contact live electrical equipment.
- B. Replace electrical equipment that is damaged during construction.

3.5 DAMAGED FACILITIES

- A. Locate all existing site equipment and utilities prior to beginning construction. Repair all equipment and utilities damaged during construction, or pay for the repair of the equipment and utilities where required by the Owner of the damaged facilities.
- B. Coordinate the routing of all circuits and the locations of all devices with the Architect or Engineer and the Owner. Shop drawings shall describe completely the locations and elevations of all raceways, boxes, fittings, and equipment.

3.6 EXCAVATION AND BACKFILL

- A. Excavate in such a manner as to minimize erosion of the soil. Backfill trenches around conduits with fine sand that is free of rocks, clods, and debris. Fill sand a minimum of 4" over conduits. Backfill the rest of the trench in six inch increments, wetted, and tamped. Final compaction shall be a minimum of 95% of that of the adjacent earth. Resurface the grade with the same material as that excavated from the grade whether it be paving, concrete, sod, etc. Repair work shall be comparable to the quality of the original site prior to excavation.
- B. Provide a 3" wide plastic labeled marker tape 12" below grade over all electrical conduits buried underground. Tapes for power circuits shall have a warning such as "Caution: Buried Electrical Line Below." Labels on tapes for telephone, data, cable television, and other facilities shall adequately describe the line over which they are buried.
- C. Provide a #12 AWG wire in each buried conduit run labeled accordingly on each end.

3.7 IDENTIFICATION

- A. Label all switchboards, panel boards, motor starters, disconnects, and motor control centers furnished under Division 26, 27, and 28 and other divisions of this contract with engraved rigid plastic nameplates having letters at least ¼ inch high. Nameplates shall be bolted to the enclosure. All labels shall indicate the voltage, number of phases, the AIC rating, and the panelboard and circuit number from which the device is fed.
- B. All circuit breakers in Switchboards, Motor Control Centers, Square D I-Line, and similar panelboards shall be labeled with plastic nameplates (as described in Part A) providing the name of the load served and the ampacity and number of poles of the breaker.
- C. All Square D NQOD, NF and similar panel boards shall have typewritten circuit directories.

- D. Label all conductors at all junction boxes, pull boxes, and terminations with typewritten adhesive markers indicating the panel board or switchboard name and circuit number of the conductor. Labels shall be Brady Datatab or approved equal.
- E. Label all junction boxes and pull boxes with stenciled painted letters containing the name of the panel board and circuit numbers of the circuits contained within. Use black paint for normal circuits, red paint for emergency circuits, and orange paint for fire alarm circuits. The Contractor may select other colors for junction boxes and pull boxes for auxiliary systems.
- F. Label all conduits in the most likely direction of access and view every 50' and on both ends of each bend with stenciled painted letters containing the name of the panel board and circuit numbers of the circuits contained within. Use black paint for normal circuits, red paint for emergency circuits, and orange paint for fire alarm circuits. The Contractor may select other colors for conduits for auxiliary systems.

3.8 AS-BUILT DRAWINGS

Maintain one set of drawings during construction for as-built markings. Mark these drawings in red to indicate field changes. Provide these drawings to the Engineer at the end of the construction process. Where required under the General Conditions, Special Conditions, or other portions of this contract, provide revised computer drawn as-built drawings to the Engineer at the end of construction.

3.9 TESTING

- A. Test all systems, or pay testing agencies as required, for compliance with the requirements of all regulatory agencies.
- B. Test the electrical power service ground using a Biddle Three-Terminal Ground Resistance Tester, or approved equal. Grounds shall meet the requirements of the NEC, or of Specification 26 05 26, whichever is more stringent. Test grounds only when the earth is dry. Provide additional ground rods as necessary to achieve the required results.
- C. Prior to making final equipment connections, test all service, feeder, and branch circuit conductors for continuity, phase-to-phase faults, and phase-to-ground faults using a Megger BM100 or approved equal test instrument generating 500 Vdc. Insulation resistance shall be a minimum of 500,000 Ohms between any conductor and ground and 1,000,000 Ohms between any two conductors.
- D. Test other systems as required in their respective specifications.
- E. Provide three bound copies of all test results to the Engineer at the end of the construction process. No Recommendation of Substantial Completion will be granted until all testing reports have been submitted.

3.10 WARRANTY

Provide the Owner a written guarantee to repair, or replace, all faulty equipment and systems for a period of one year from date of Substantial Completion. During this one-year period, a

representative of the Contractor shall be on the site actively working on the repairs within 24 hours of the Owner's telephone call. During this period of time, the Owner shall not be charged for any repair work or expenses related with the repair work unless the Contractor can prove that the Owner has damaged the equipment or system.

END OF SECTION

SECTION 26-05-19 – LOW-VOLTAGE POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

- 1.1 Provide all circuitry, terminations, splices, connectors, lugs, and other equipment necessary for connection of all equipment requiring electrical connections.
- 1.2 METAL CLAD CABLE.
 - A. Provide all circuitry, terminations, splices, connectors, lugs, and other equipment necessary for connection of metal clad cable where used on this project.
 - B. Metal Clad (MC) Cable may only be used where new electrical devices are being installed in existing hollow walls. All other circuitry shall be in conduit per Specification 26 05 33.
 - C. Provide a junction box in the accessible ceiling above the location of the new outlet. Provide a hole in the wall above the accessible ceiling. At the proper outlet height, cut out a hole in the wall for the use of an after-construction box. Run MC Cable down the wall to the junction box in the crawlspace, and connect it to the after-construction box before installing the box in the wall.
 - D. Each MC cable shall be furnished with a green insulated copper ground wire that is not shown by tic marks on the drawings.

PART 2 – PRODUCTS

- 2.1 CONDUCTORS
 - A. All electrical conductors shall be soft-drawn annealed copper having 98% conductivity and an insulation rating of 600V.
 - B. Conductors shall be UL listed for installation in the raceway in which they are to be installed.
 - C. Conductors shall be rated 90 degrees C for use in residential, commercial, industrial, and institutional facilities, and shall be listed as 105 degrees C appliance wire. Conductors shall be listed under UL 83, UL 1063, and UL 758. If XLP or EPR insulation is used, conductors shall be listed under UL 44 and NEMA WC7.
 - D. Conductors used for branch circuits, feeders, auxiliary systems, and controls run in dry locations shall have PVC insulation and a Nylon outer jacket. They shall be THHN/THWN or XHHW-2.
 - E. Conductors used for branch circuits, feeders, auxiliary systems, and controls run in wet locations shall have XLP or EPR insulation and be type XHHW-2.
 - F. Conductors used for services shall be type SE for aerial services or type USE-2 for underground services.

- G. Sizes #10 and #12 shall be solid conductors except where used for controls. All controls conductors shall be stranded.
- H. Use minimum #14 AWG conductors for controls and auxiliary circuits. Use larger conductors as required to compensate for voltage drops exceeding 3% of the system voltage.
- I. Conductors shall be furnished in the colors described below unless local ordinances require different colors. Conductors #8 and smaller shall be furnished with colored insulation; conductors larger than #8 shall be taped with the appropriately colored tape for a length of at least 2" at each panelboard, junction box, pull box, load, or other exposed location. Ground conductors shall be taped green for their entire exposed length.

System Voltage	208Y/120V, 3-Phase, 4-Wire	120/240V, 3-Phase, 4-Wire	480Y/277V, 3-Phase, 4-Wire
Phase A	Black	Black	Brown
Phase B	Red	Orange	Orange
Phase C	Blue	Blue	Yellow
Neutral	White	White	Gray
Ground	Green	Green	Green

2.1 METAL CLAD CABLE

- A. shall be UL listed as type MC. It shall meet the requirements of UL 1569. It shall also be constructed in accordance with NEC 334 C.
- B. Fittings shall be manufactured and UL listed for the application in which they are used.
- C. MC cable shall have an interlocked armor made of aluminum alloy or galvanized steel.
- D. All electrical conductors shall be soft-drawn annealed copper having 98% conductivity and an insulation rating of 600V.
- E. Conductors shall have PVC insulation and a Nylon outer jacket. They shall be THHN/THWN or XHHW-2.
- F. Sizes #10 and #12 shall be solid conductors. Other conductors shall be stranded.
- G. Conductors shall be furnished in the colors described below unless local ordinances require different colors. Conductors #8 and smaller shall be furnished with colored insulation; conductors larger than #8 shall be taped with the appropriately colored tape for a length of at least 2" at each panelboard, junction box, pull box, load, or other exposed location. Ground conductors shall be taped green for their entire exposed length.

System Voltage	208Y/120V, 3-Phase, 4-Wire	120/240V, 3-Phase, 4-Wire	480Y/277V, 3-Phase, 4-Wire
Phase A	Black	Black	Brown
Phase B	Red	Orange	Orange
Phase C	Blue	Blue	Yellow
Neutral	White	White	White

Ground	Green	Green	Green
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PART 3 – EXECUTION

3.1 CONDUCTORS

- A. Install conductors carefully using a minimum of two tradesmen – one feeding the conductors into the conduit, and the other pulling the conductors into the conduit.
- B. Join stranded conductors with appropriate mechanical or compression lugs. Wire nuts may be used for solid conductors only.
- C. Splices shall only be made in approved enclosures. Splices shall not be pulled inside conduits.
- D. Provide cable supports and strain relief connectors as required by the NEC.
- E. Furnish junction boxes, pull boxes, handholes, manholes, etc. as required to ensure that the maximum number of bends allowed by the NEC are not exceeded and to ensure that the cables are not damaged during installation.

3.2 METAL CLAD CABLE EXECUTION

- A. Install MC Cable per the requirements of NEC 334 B.
- B. Join stranded conductors with appropriate mechanical or compression lugs. Wire nuts may be used for solid conductors only.
- C. Provide cable supports as required by the NEC.
- D. Furnish junction boxes, pull boxes, handholes, manholes, etc. as required to ensure that the maximum number of bends allowed by the NEC are not exceeded and to ensure that the cables are not damaged during installation. Do not enclose junction boxes in areas that will be inaccessible at the end of construction.
- E. MC Cable shall be run complete between junction boxes or outlet boxes. Splices are not allowed.

END OF SECTION

SECTION 26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 GENERAL

Ground all equipment, systems, structures, etc., per the latest edition of the National Electrical Code (NEC).

PART 2 – PRODUCTS

- 2.1 Use mechanical bolted connections in dry locations that are accessible.
- 2.2 Use exothermic welds in wet locations and locations that will be inaccessible at the end of construction.
- 2.3 Ground rods shall be UL listed 3/4" x 10' copper-clad steel ground rods with a minimum copper cladding thickness of 10 mils.

PART 3 – EXECUTION

- 3.1 Ground rods shall be installed with their tops no less than 6" below grade.
- 3.2 Bond ground connections to metal raceways at each end of the conduit run. Provide grounding bushings where required by the NEC. Where cable trays are used, bond the ground conductor to each section and fitting of the tray.
- 3.3 Provide all circuits with an equipment grounding conductor sized per the NEC, or as shown on the drawings. Circuitry shown on drawings does not include the required equipment grounding conductor. Where multiple circuits are run with a common neutral, only one equipment grounding conductor is needed. The equipment grounding conductor shall be furnished with green insulation for conductors #8 AWG and smaller; where larger than #8, the equipment grounding conductor shall be taped green for its entire exposed length.
- 3.4 The grounding electrode conductor(s) shall be bare or shall be colored green for its entire exposed length.
- 3.5 Individual ground conductors shall be installed in PVC conduit sized per the NEC.
- 3.6 Provide receptacles, luminaires, and other devices with a green conductor that bonds the receptacle grounding screw or pigtail, the outlet box grounding screw, and the equipment grounding conductor together.
- 3.7 Telephone, cable television, and other auxiliary systems shall be bonded to the electrical building service ground using a conductor no smaller than #6 AWG.

END OF SECTION

SECTION 26 05 33 – RACEWAYS, OUTLET BOXES AND JUNCTION BOXES for ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 GENERAL

- A. All electrical systems circuitry shall be contained in raceways unless expressly listed in the specification for that system.
- B. Outlet Boxes and Junction Boxes.
 - 1. Furnish and install all outlet boxes and junction boxes in accordance with this specification and the requirements of the NEC.
 - 2. Provide outlet boxes for all switches, receptacles, luminaires, telephone jacks, cable jacks, and other devices furnished in this Contract. Provide all necessary hardware including, but not limited to, additional structural support, support brackets, screws, bolts, fixture studs, etc.
 - 3. Outlet boxes and junction boxes in dry locations shall be galvanized stamped steel boxes sized per the latest edition of the National Electrical Code (NEC), but no less than 4" x 4" x 2 1/8" deep. The thickness of the steel shall be in compliance with the requirements of the NEC. Provide stamped steel covers for all junction boxes manufactured to fit the particular box on which it is used.
 - 4. Outlet boxes used in concrete and masonry walls and ceilings shall be of the concrete type manufactured for such applications.
 - 5. Outlet boxes and junction boxes in wet locations shall be of cast metal construction with gasketed waterproof covers. All conduit connections to the boxes shall be made watertight.
 - 6. Wall outlet boxes shall be 4" x 4" x 2 1/8", or larger as required, with plaster rings provided for final flush installation. Plaster rings shall have single-gang openings unless the equipment mounted inside requires two-gang installation.
 - 7. Floor boxes in slabs on grade shall be deep rectangular, cast iron, fully adjustable boxes with brass rings. Covers shall be made of brass and shall provide flip top access to the power or data jacks inside. Screw-on covers are not acceptable unless a flip-top cover is unavailable for the device installed in the floor box. Provide the box sized as required for the number of devices shown installed. Boxes shall be as follows, or approved equal:
 - a. Single-Gang Boxes: Hubbell B2436
 - b. Single-Gang Cover Plates: Hubbell S3825
 - c. Double-Gang Boxes: Hubbell B4233
 - d. Double-Gang Cover Plates: Two Hubbell S3825 Cover Plates
 - e. Triple-Gang Boxes: Hubbell B4333
 - f. Triple-Gang Cover Plates: Three Hubbell S3825 Cover Plates
 - 8. In slabs above grade, use cast iron, semi-adjustable shallow boxes as follows, or approved equal:

- a. Single-Gang Boxes: Hubbell B2414
 - b. Two-Gang Boxes: Hubbell B4214
 - c. Three-Gang Boxes: Hubbell B4314
 - 9. Receptacles installed in floor boxes shall be as described in Specification 26 09 23, Switches and Receptacles. Data, Telephone, or Combination Data and Telephone Outlets shall consist of Category 5 rated RJ45 jacks mounted in a Hubbell DJOI strap for use under a S3825 flip top cover plate.
 - 10. In existing slabs above grade, use poke thru boxes as follows, or equal:
 - a. Hubbell System One
 - 11. Size all boxes per the requirements of the latest NEC.
- 1.2 SCOPE OF WORK
- A. Raceways.
- 1. Provide all raceways, fittings, couplings, anchors, supports, hangers, etc. for complete raceway systems.
 - 2. Use Schedule 40 polyvinyl chloride (PVC) conduit for circuits run underground and in slabs on grade level. Provide PVC-coated galvanized rigid steel elbows and PVC-coated galvanized rigid steel conduit for all vertical runs extending to a point at least 6" above grade. Galvanized Rigid steel conduit coated with two complete coats of asphaltum or bituminous paint may be used in lieu of PVC-coated galvanized rigid steel conduit.
 - 3. Use Galvanized Rigid Steel (GRS) conduit for all applications where circuits are run above ground exposed to the weather.
 - 4. Use Intermediate Metal Conduit (IMC) for all branch circuits, feeders, and auxiliary circuits requiring conduit 1 1/4" nominal trade size or larger in dry locations.
 - 5. Use Electrical Metallic Tubing (EMT) for all branch circuits and feeders less than 1 1/4" nominal trade size in dry locations and in slabs above grade level.

PART 2 – PRODUCTS

2.1 Products for Raceways.

- A. PVC conduits, fittings, couplings, adapters, and accessories shall be UL listed and approved for use with 90 degree Celsius conductors. The UL label shall be affixed to each ten foot length of conduit and each fitting. Conduits shall comply with NEMA Specification TC-2 and UL 651. Fittings shall comply with NEMA TC-3 and UL 514b.
- B. PVC-coated conduits, fittings, couplings, adapters, and accessories shall be UL listed with PVC as the primary corrosion protection. They shall be hot dipped galvanized rigid steel conduit with threads electro-galvanized after cutting. The conduit shall meet UL 6. The fittings shall meet

UL 514B. The PVC coating shall be uniformly applied to the interior and exterior of all conduit and fittings. The coating shall be nominally 2 mils thick. The PVC coating shall extend one pipe diameter or two inches, whichever is less, at every male fitting except unions to fit over the joining female connection. Couplings shall contain a series of longitudinal ribs, 40 mils in thickness, to protect the coating from damage by tools during installation. PVC-coated conduits shall be ETL Verified PVC-001. Fittings shall be manufactured to the same standard. PVC-coated conduit shall be Robroy Plastibond or approved equal.

- C. GRS conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot-dipped galvanized steel. They shall meet the safety standards of UL 6, and shall be manufactured to ANSI C80.1. Threads shall be hot galvanized after cutting.
- D. IMC conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot-galvanized steel. Fittings, couplings, adapters, and accessories shall be the same as those for GRS conduit described above. IMC shall meet UL 1242 and ANSI C80.6. Threads shall be hot galvanized after cutting. The inside of the conduit shall be finished with a corrosion-resistant coating.
- E. EMT conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot galvanized steel and shall be produced in accordance with UL 797 and ANSI C80.3. The inside shall be finished with a corrosion-resistant lubricating coating.
- F. Conduit fittings used with EMT conduits may be set screw indenter type or compression type. All metallic fittings for IMC and Rigid conduit shall be compression type fittings.
- G. Flexible metallic conduit shall be constructed of galvanized steel and shall be UL listed as compliant with UL 1 and UL 1479.
- H. Liquidtight flexible conduit shall be constructed of galvanized steel and shall be coated with a PVC jacket to resist liquids, dirt, grease, and oils. All fittings shall be designed, constructed, and installed to maintain the integrity of the liquidtight connections. Liquidtight flexible conduit shall comply with UL 360.

2.2 ACCEPTABLE MANUFACTURERS FOR OUTLET BOXES AND JUNCTION BOXES.

- A. Outlet boxes and junction boxes shall be manufactured by Raco, Steel City, Crouse Hinds, or Appleton.

PART 3 – EXECUTION

3.1 CONDUIT EXECUTION.

- A. Conduits run underground shall be buried no less than 24” deep. Services and primary conduits feeding transformers shall be buried no less than 48” deep.
- B. **Do not install conduits in or below ground floor slabs, except for service conduits, site lighting, and where specifically indicated on the drawings.**
- C. Do not install conduits within 6” of the deck where a screw down type roof system is utilized.

- D. PVC-coated conduits may be field-bent provided that manufacturer-approved tools are used. Individuals installing PVC-coated conduits shall be trained for installation by factory-certified trainers. Provide evidence of training with equipment brochures.
 - E. Support and install all conduits per the latest edition of the National Electrical Code. Support groups of conduits with electrical strut supported by threaded rods anchored to the building structure. Supports shall be designed to hold no less than twice the weight of the conduit and conductors to be supported plus an additional 250 pounds at midspan.
 - F. All conduits shall be grouped and run parallel to each other and to building walls.
 - G. All conduits shall be assembled according to the manufacturer's instructions.
 - H. Conduits run underground shall be assembled to be watertight.
 - I. Cap all conduits during installation. Pull a mandrel sized for that conduit and a cleaning brush through each conduit before installation of any conductors.
 - J. Conduits that are obviously damaged and field bends that are obviously out of round shall be replaced.
 - K. Provide final connections to equipment with flexible metallic conduit. In wet or damp locations, use liquidtight flexible conduit. Flexible conduit shall not exceed 72".
 - L. Terminate conduits entering boxes with a locknut inside the box and a locknut outside the box. Provide protective bushings on all conduit threads. Use watertight hubs where conduit terminations are exposed to moisture.
 - M. Use grounding bushings on all feeder conduits, all underground conduits, and where required by the National Electrical Code.
 - N. Conduits shall be run no closer than 12" to hot water pipes.
 - O. Where conduits are run through the ceiling and are required to make connections to equipment within the room that is not located near a wall, support the conduit from the structural ceiling and provide a flange bolted to the floor. Install a tee conduit fitting in the vertical run of conduit, and make the connection to the equipment with a piece of flexible conduit extending from the tee conduit fitting to the equipment.
 - P. Provide expansion fittings where conduits cross building expansion joints. Provide grounding jumpers between the conduits.
 - Q. Provide EMT conduit sleeves where conduits pass through walls, floors, or footings sized a minimum of two nominal trade sizes larger than the conduit that must pass through the sleeve.
 - R. Equip all empty conduits with a pullwire or string capable of withstanding 200 pounds of pulling tension.
- 3.2 Execution for Outlet Boxes and Junction Boxes.

- A. All devices shall be flush mounted unless specific written permission is obtained from the Engineer for a particular device in a particular location.
- B. Install outlet boxes in walls, and provide plaster rings such that wall finish contractor's finish is flush against the edge of the plaster ring. Workmanship will not be accepted where the hole in the wall shows behind the cover plate, or the wall finish is uneven or unpainted at the edge of the cover plate.
- C. Use round or square ceiling outlet boxes as required for the device being installed. The ceiling shall be finished flush against the box; the fixture shall completely cover the box and mount tight against the ceiling. Coordinate the requirements of the fixture prior to installing the box.
- D. Provide junction boxes, pull boxes, and conduit fittings where required by the NEC to limit the number of bends in the raceway, and where required to prevent damage to conductors due to long runs.
- E. Junction boxes and pull boxes installed in the ground outside shall be Quazite Composolite or approved equal. Mount the boxes over 24" of washed gravel fill. If splices are to be made inside the boxes, the boxes shall be of the type furnished with a bottom, and all conduit connections shall be watertight. In addition, all conductor splices shall be made watertight using an appropriate splice kit as manufactured by 3M, or an approved equal.

END OF SECTION

SECTION 26 09 23 - SWITCHES AND RECEPTACLES

PART 1 – GENERAL

Furnish and install all switches and receptacles in accordance with this specification and the requirements of the NEC.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

Switches and receptacles shall be manufactured by Hubbell, Cooper Wiring Devices, Leviton, or Pass & Seymour.

2.2 GENERAL

- A. Switches and receptacles shall be specification grade. They shall have ampacity and voltage ratings suitable for the application in which they are used.
- B. Consult architect or engineer for device colors prior to ordering devices.
- C. Provide brushed stainless steel cover plates for all devices. A single cover plate shall cover all devices in one box.
- D. Light switches shall be 20 Ampere, 120-277V back-wired and side-wired toggle switches. They shall be rated up to 2 HP at 240V. Each switch shall be equipped with a grounding screw. Switches shall be Hubbell CSB series or approved equal.
- E. Duplex NEMA 5-20R receptacles shall be Hubbell HBL 5362A or approved equal.
- F. Duplex GFI NEMA 5-20R receptacles shall be Hubbell HBL GF5362A or approved equal.
- G. Weatherproof while-in-use cover plates shall be Teddico #34017-7 or approved equal. Cover plates shall be single gang, lockable, and constructed of heavy duty die cast metal.
- H. All 125V, 15 and 20 ampere receptacles installed in dwelling units shall be of the tamper-resistant type.
- I. All 15 and 20 ampere, 125 and 250V non-locking receptacles installed in wet or damp locations shall be listed as the weather-resistant type.
- J. Devices furnished in this Contract, but not listed above, shall be of the same standard of quality as those items listed.

PART 3 – EXECUTION

- 3.1 Flush mount all devices unless specific written permission is obtained from the Engineer for a particular device in a particular location.

- 3.2 Install all devices vertically unless the drawings specifically state that the particular device should be mounted horizontally.
- 3.3 Install receptacles with the ground slot up.

END OF SECTION

SECTION 26 24 00 - PANELBOARDS

PART 1 – GENERAL

- 1.1 Furnish and install all panelboards, complete with their circuit breakers, phase buses, neutral buses, ground buses, structural supports, and other equipment necessary for complete systems.
- 1.2 The equipment vendor shall perform all calculations necessary and provide complete Arc Flash Labels as required by the National Electrical Cod (NEC) and the drawings. Note: The drawings typically require more detail than required by the NEC.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Panelboards shall be designed, manufactured, and tested to be in compliance with NEMA PB 1, UL 50, UL 67, UL 489, NFPA 70, and the ASTM.
- B. Circuit breakers shall be designed, manufactured, and tested to be in compliance with NEMA AB 1, UL 489, and Federal Specification W-C-375B/GEN.
- C. Panelboards shall be UL listed for service entrance where used for that purpose.
- D. Panelboard ampere interrupting current (AIC) ratings shall equal the lowest rated device in the panelboard. Provide panelboards with the AIC ratings shown on the Contract Drawings. Buses shall be braced to withstand the AIC rating shown on the drawings. Series ratings shall only be used where shown on the panelboard schedules.
- E. All panelboards shall be furnished with dead-front, door-in-door construction.
- F. Lug locations shall be determined during the creation of shop drawings for proper arrangement with the raceway system.
- G. Buses shall be constructed of 98% conductivity copper or equivalently rated aluminum.
- H. Panelboard enclosures shall be NEMA 1 when they are to be mounted indoors, and NEMA 3R when they are to be mounted outdoors. Provide special enclosures where shown on the Contract Drawings.

2.2 ACCEPTABLE MANUFACTURERS

Panelboards shall be manufactured by Siemens, Square D, General Electric, or Cutler Hammer.

2.3 PANELBOARD CLASSES

- A. Power distribution panelboards shall be available with mains and branch devices up to 1200 amperes. AIC ratings shall be available up to 200,000 Amperes. Power distribution panelboards shall be equipped with a nameplate containing the appropriate system voltage, number of wires, and number of phases for the system on which they are installed.

- B. In 480Vac and less applications where a main breaker not exceeding 600 Amperes is required, the AIC rating does not exceed 65,000 Amperes, and no branch breakers exceed 125 Amperes, Square D NF and equivalent panelboards may be used.
- C. In 480Vac and less applications where a main breaker not exceeding 225 Amperes is required, the AIC rating does not exceed 14,000 Amperes, and no branch breakers exceed 100 Amperes, Square D NEHB and equivalent panelboards may be used.
- D. In 240Vac and less applications where a main breaker not exceeding 400 Amperes or main lugs not exceeding 600 Amperes is required, the AIC rating does not exceed 22,000 Amperes, and no branch breakers exceed 125 Amperes, Square D NQOD and equivalent panelboards may be used.

2.4 CIRCUIT BREAKERS

- A. Circuit breakers shall be thermal magnetic, molded-case with quick-make, quick-break contact action. They shall have thermal and magnetic tripping elements on each pole. Breakers with multiple poles shall have common tripping of all poles. Circuit breaker ampere ratings shall be stamped on the handle. Interrupting ratings of the circuit breakers shall be equivalent to the specified AIC rating of the panelboard. Breakers handles shall reside in a position between "ON" and "OFF" after a trip condition. Breakers shall be rated HACR when used for heating, air-conditioning, and refrigeration; HID when used with High Intensity Discharge fixtures; and shall be rated SWD when used for switching duty.
- B. Circuit breaker sizes for motor loads are based on Square D recommendations for use of their breakers at the motor horsepower listed on the mechanical drawings. If equipment is used other than Square D, adjust breaker sizes per the manufacturer's recommendations.
- C. Each circuit breaker supplying a multiwire branch circuit shall be installed with a manufacturer supplied handle tie to simultaneously disconnect all ungrounded conductors. Each multiwire branch circuit shall comply with NEC article 210.4.
- D. Circuit breakers with slash ratings, such as 120/240V or 480Y/277V, shall be used in solidly grounded systems where the nominal voltage of any conductor to ground does not exceed the lower of the two values of the breaker's voltage rating and the nominal voltage between any two conductors does not exceed the higher value of the circuit breaker's voltage rating.
- E. Circuit breakers with straight voltage ratings, such as 240V or 480V, shall be used in systems other than solidly grounded systems (Corner-Grounded Delta, Ungrounded, Impedance Grounded, etc.) where the nominal voltage between any two conductors does not exceed the circuit breaker's voltage rating. A two-pole circuit breaker shall not be used to protect a three-phase, Corner-Grounded Delta system unless the circuit breaker is marked 1 Φ -3 Φ .

PART 3 – EXECUTION

- 3.1 Install panelboards in complete compliance with all manufacturers' installation instructions.
- 3.2 Install conductors neatly in panelboards. Group and tie-wrap circuits that share a common neutral.

3.3 Number circuits exactly as shown on the contract drawings.

END OF SECTION

SECTION 26 28 00 - DISCONNECTS & SEPARATELY-MOUNTED CIRCUIT BREAKERS

PART 1 – GENERAL

Furnish and install all disconnects and separately mounted circuit breakers as shown on the drawings, specified herein, and required by the NEC.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Disconnects shall be of the heavy-duty type, and shall be UL listed for service entrance use. They shall meet or exceed the requirements of NEMA Standard KS1. Provide fuses sized to appropriately protect the load served. Equipment manufacturer's recommendations shall take precedence over the Contract Drawings.
- B. Fuses shall be dual element, time-delay, Class J fuses. They shall be Bussman Low-Peak or approved equal.
- C. Circuit breakers shall be thermal magnetic, molded-case with quick-make, quick-break contact action. They shall have thermal and magnetic tripping elements on each pole. Breakers with multiple poles shall have common tripping of all poles. Circuit breaker ampere ratings shall be stamped on the handle. Interrupting ratings of the circuit breakers shall be equivalent to the specified AIC rating of the panelboard. Breakers handles shall reside in a position between "ON" and "OFF" after a trip condition. Breakers shall be rated HACR when used for heating, air-conditioning, and refrigeration; HID when used with High Intensity Discharge fixtures; and shall be rated SWD when used for switching duty.
- D. Circuit breaker sizes for motor loads are based on Square D recommendations for use of their breakers at the motor horsepower listed on the mechanical drawings. If equipment is used other than Square D, adjust breaker sizes per the manufacturer's recommendations.
- E. Circuit breakers with slash ratings, such as 120/240V or 480Y/277V, shall be used in solidly grounded systems where the nominal voltage of any conductor to ground does not exceed the lower of the two values of the breaker's voltage rating and the nominal voltage between any two conductors does not exceed the higher value of the circuit breaker's voltage rating.
- F. Circuit breakers with straight voltage ratings, such as 240V or 480V, shall be used in systems other than solidly grounded systems (Corner-Grounded Delta, Ungrounded, Impedance Grounded, etc.) where the nominal voltage between any two conductors does not exceed the circuit breaker's voltage rating. A two-pole circuit breaker shall not be used to protect a three-phase, Corner-Grounded Delta system unless the circuit breaker is marked 1 Φ -3 Φ .
- G. Disconnect and individually-mounted circuit breaker ampere interrupting current (AIC) ratings shall equal the rating of the panelboard from which they are fed unless otherwise noted.
- H. Buses shall be constructed of 98% conductivity copper or equivalently rated aluminum.
- I. Switches shall be horsepower rated where used to serve motors.

- J. Enclosures shall be NEMA 1 when they are to be mounted indoors, NEMA 3R when they are to be mounted outdoors, and NEMA 4X where they are subject to washdown. Provide special enclosures where shown on the Contract Drawings.

2.2 ACCEPTABLE MANUFACTURERS

Disconnects and separately-mounted circuit breakers shall be manufactured by Siemens, Square D, General Electric, or Cutler Hammer.

PART 3 – EXECUTION

- 3.1 Install disconnects and individually-mounted circuit breakers in complete compliance with all manufacturers' installation instructions. Where necessary, provide structural supports and bracing for installation.
- 3.2 Disconnects are to be surface-mounted.
- 3.3 Individually-mounted circuit breakers are to be flush-mounted unless otherwise shown.

END OF SECTION

SECTION 26 51 00 - LIGHTING

PART 1 – GENERAL

Provide all lighting fixtures (luminaires), lamps, end caps, connectors, fittings, structural support members, supports, brackets, etc., for a complete and operable lighting system.

PART 2 – PRODUCTS

2.1 LUMINAIRES

- A. Luminaires are shown in the Luminaire Schedule on the drawings to establish a standard of quality. Manufacturer's names and model numbers shall not be interpreted as a proprietary specification. Notify the engineer at least two weeks prior to bid if an equivalent for a fixture listed in the schedule is not readily available,
- B. Prior to submitting electrical equipment brochures for review and approval, coordinate with the General Contractor and verify that the fixtures are appropriate for the ceiling types in which they are shown to be installed. Also verify that ballast voltage on the submittals is appropriate for the electrical system on which the fixtures are to be installed (regardless of voltage listed in the part number in the Fixture Schedule). Submit with equipment brochures a certificate stating that these items of coordination have been completed.

2.2 LAMPS

- A. Incandescent lamps shall be rated 125V and shall be of the appropriate size with the appropriate base configuration for installation in the fixture specified. Incandescent lamps shall be clear unless otherwise specified.
- B. T8 fluorescent lamps shall be rapid-start with a Color Rendering Index (CRI) of 75 and a color temperature of 3500K.
- C. T5 & T5HO fluorescent lamps shall be rapid-start with a Color Rendering Index (CRI) of 82 and a color temperature of 3500K.
- D. HID Lamps shall be clear unless otherwise noted. They shall have a color temperature of 3500K. Coordinate base size with fixture socket prior to ordering lamps.

2.3 BALLASTS

- A. Fluorescent luminaires shall be furnished with energy-saving, high power factor (0.9 or greater), electronic ballasts. Ballasts shall operate lamps without noticeable flicker and shall operate within the IES recommended noise levels. Ballasts shall operate at a frequency no less than 20,000 Hz. Total harmonic distortion shall be less than 10%. Ballasts shall be able to withstand voltage transients in accordance with IEEE C62.41, Category A for normal and common modes. Ballasts shall be compatible with the lamps furnished. Furnish number and size of ballasts as required to operate the number of lamps indicated with the control schemes shown.

- B. Fluorescent ballasts for light fixtures controlled by occupancy sensors shall be programmed start ballasts with the lamps wired in parallel. Failure of one lamp shall leave the rest of the lamps illuminated.
- C. Emergency Ballasts: Emergency Ballasts in fluorescent fixtures shall consist of an automatic power failure device, a test switch, and a pilot light that is visible from outside of the fixture. They shall contain a fully automatic solid state charger in a self-contained power pack. The fixture shall be factory wired in a manner that will allow the emergency lamps to be switched while still maintaining charging power to the battery. Wiring Diagrams shall be furnished with the fixture showing switching connections. The battery shall be of the sealed electrolyte type with the capacity to provide power to the lamps provided for a minimum of 90 minutes at a minimum output as indicated below:

Linear and U-Tube T-8 and T-12 Lamps	1100 Lumens
26W DTT	970 Lumens
26W TRT	450 Lumens
32W TRT	575 Lumens
42W TRT	1000 Lumens

The battery shall be able to operate unattended with no maintenance for a period of no less than five years. Emergency ballasts shall be fully compatible with solid state ballasts. Battery packs shall be mounted inside the fixture unless remotely mounted ballasts are shown on the drawings, or unless the fixture is of a type that does not have room for internally mounted battery packs.

- D. HID ballasts shall be of the high power factor type (0.9 or greater).
- E. Where quartz restrike fixtures are fed at voltages different than 120V, they shall be furnished with integral transformers and all equipment necessary to feed the quartz fixtures at 120V.

2.4 SUPPORTS

- A. Provide all structural members necessary to support fixtures in locations shown on the contract drawings. Submit mounting and support details to the Architect or Engineer for approval with the project shop drawings. Notify the General Contractor prior to bid of any structural work that will be required to support the fixtures.
- B. Provide hangers, cords, stems, etc., where required. Coordinate with the Architect or Engineer for proper stem lengths prior to ordering fixtures.

PART 3 – EXECUTION

- 3.1 Raceways for lighting systems in accessible ceilings shall be run to junction boxes mounted in locations that do not interfere with the ceiling installation, the luminaire installation, or other building systems. Provide final connections to fixtures using conductors in flexible conduit. Flexible conduit whips shall not exceed six feet in length.
- 3.2 All recessed fixtures shall be mounted with their trims flush against the ceiling.
- 3.3 Comply completely with all manufacturers' installation instructions.

- 3.4 Fixtures shall be warranted for a period of one year after beneficial occupancy. Incandescent lamps shall be warranted for 90 days after beneficial occupancy. Fluorescent and HID lamps shall be warranted for 180 days after beneficial occupancy.

END OF SECTION

SECTION 27 05 28 - TELEPHONE AND DATA SYSTEMS

PART 1 – GENERAL

Provide a complete system of raceways, outlet boxes, and pull wires for the telephone and data systems in accordance with this specification and the contract drawings.

PART 2 – PRODUCTS

- 2.1 Outlet boxes shall be furnished per Specification Section 26 05 33.
- 2.2 Plaster rings with single-gang outlet openings shall be furnished unless otherwise noted.
- 2.3 Raceways shall be furnished per Specification Section 26 05 33. Minimum conduit size shall be 1" nominal trade size.
- 2.4 Provide all outlets with blank, brushed stainless steel cover plates.
- 2.5 Telephone and Data Backboard: Wall mount a 3/4" x 4' x 8' sheet of plywood, primed and painted with two coats of fire retardant paint of the color and finish selected by the Architect. Provide a 1/4" x 4" x 17.75" copper ground block (Erico Eritech TMGB-A18L23PT or approved equal) on the wall, bond a #6 AWG copper conductor to the ground block with a two hole compression lug and run the #6 AWG ground wire to the electrical power system ground. Bond the #6 AWG ground wire to the power system electrode using an exothermic weld.

PART 3 – EXECUTION

- 3.1 Provide a #6 copper ground wire in 1" PVC conduit from each Telephone and Data Backboard to the Building Power System Ground. Bond the #6 copper ground wire to the power system ground.
- 3.2 Extend a 1" conduit from each outlet box to the Telephone and Data Backboard. Turn the conduit down vertically and terminate it with a protective bushing. Provide all conduits with pullstrings.
- 3.3 Service Conduits: Provide a 2" conduit with long radius elbows from the Telephone and Data Backboard to the exterior of the building (terminated with a weatherhead). Conduits bends shall contain radii that are no less than 10 times the conduit diameter. Coordinate the exact termination point with the telephone company. Comply completely with all telephone company requirements. Furnish conduits with pullstrings.
- 3.4 Equip all service conduits with a pullstring capable of withstanding 200 pounds of pulling tension.

END OF SECTION

SECTION 31 3116
TERMITE CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Chemical soil treatment for termite control, as herein specified:
 - 1. Treat the soil under and around walls, piers, footings, concrete slabs and other building elements near or at the ground where disturbed or added by this concrete.

1.02 REFERENCE STANDARDS

- A. Title 7, United States Code, 136 through 136y - Federal Insecticide, Fungicide and Rodenticide Act; 1947 (Revised 2001).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Indicate toxicants to be used, composition by percentage, dilution schedule, intended application rate.
- C. Test Reports: Indicate regulatory agency approval reports when required.
- D. Manufacturer's Application Instructions: Indicate caution requirements .
- E. Manufacturer's Certificate: Certify that toxicants meet or exceed specified requirements.
- F. Warranty: Submit warranty and ensure that forms have been completed in City of Durant's name.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing this type of work and:
 - 1. Having minimum of three (3) years documented experience.
 - 2. Approved by manufacturer of treatment materials.
 - 3. Licensed in the State in which the Project is located.

1.05 WARRANTY

- A. Upon completion of soil treatment and as a condition of final acceptance, furnish the City of Greenville a written 1-year guarantee, signed by the Applicator and the Contractor.
 - 1. Furnish written warranty certifying that applied poisoning treatment will prevent infestation of termites.
 - 2. If termite activity is discovered, during warranty period, Contractor will include coverage for repairs to building and to contents damaged due to building damage. Repair damage and, if required, re-treat.
 - 3. At the end of the first year, provide option for the City of Greenville to extend warranty for four additional years.

PART 2 PRODUCTS

2.01 CHEMICAL SOIL TREATMENT

- A. Toxicant Chemical: EPA (Title 7, United States Code, 136 through 136y) approved; synthetically color dyed to permit visual identification of treated soil.
- B. Mixes: Mix toxicant to manufacturer's instructions.
- C. Materials and application method shall conform with all applicable federal, state and local ordinances, policies and guidelines.
- D. Use only treatment solutions which are not harmful to planting.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.

- B. Verify final grading is complete.
- C. Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations.
- D. Notify the contractor in writing of conditions detrimental to the proper and timely completion of the work.
- E. Do not proceed with work/application until unsatisfactory conditions have been corrected in a manner acceptable to the applicator.

3.02 APPLICATION - CHEMICAL TREATMENT

- A. Apply 4 Gallons of chemical solution per 10 lin. ft. under concrete slabs and critical areas such as along side of piers, foundation walls, around plumbing and other building items extending to or near the soil.
- B. Apply 1-1/2 Gallon of chemical solution per 10 lin. ft. as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel.
- C. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.

3.03 PROTECTION

- A. Allow not less than 12 hours for drying after the application, before beginning construction activities in the area.
- B. Post signs in areas of application warning workers that poisoning has been applied. Remove signs where areas are covered by other construction.
- C. Do not permit soil grading over treated work.

END OF SECTION

SECTION 905 PROPOSAL

Date _____

_____, Mississippi

Sirs: The following proposal is made on behalf of _____
of _____
for constructing the following designated project(s) within the time(s) hereinafter specified.

The plans are composed of drawings and blue prints on file in the offices of:

The Specifications are the current Standard Specifications of the Mississippi Department of Transportation approved by the Federal Highway Administration, except where superseded or amended by the plans, Special Provisions and Notice(s) to Bidders attached hereto and made a part thereof.

I (We) certify that I (we) possess a copy of said Standard and Supplemental Specifications.

Evidence of my (our) authority to submit the Proposal is hereby furnished. The proposal is made without collusion on the part of any person, firm or corporation. I (We) certify that I (we) have carefully examined the Plans, the Specifications, including the Special Provisions and Notice(s) to Bidders, herein, and have personally examined the site of the work. On the basis of the Specifications, Special Provisions, Notice(s) to Bidders, and Plans, I (we) propose to furnish all necessary machinery, tools, apparatus and other means of construction and do all the work and furnish all the materials in the manner specified. I (We) understand that the quantities mentioned herein are approximate only and are subject to either increase or decrease, and hereby propose to perform any increased or decreased quantities of work at the unit prices bid, in accordance with the above.

Attached hereto is a certified check, cashier's check or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law).

INSTRUCTION TO BIDDERS: Alternate and Optional Items on Bid Schedule.

1. Two or more items entered opposite a single unit quantity WITHOUT DEFINITE DESIGNATION AS "ALTERNATE ITEMS" are considered as "OPTIONAL ITEMS". Bidders may or may not indicate on bids the Optional Item proposed to be furnished or performed WITHOUT PREJUDICE IN REGARD TO IRREGULARITY OF BIDS.
2. Items classified on the bid schedule as "ALTERNATE ITEMS" and/or "ALTERNATE TYPES OF CONSTRUCTION" must be preselected and indicated on bids. However, "Alternate Types of Construction" may include Optional Items to be treated as set out in Paragraph 1, above.
3. Optional items not preselected and indicated on the bid schedule MUST be designated in accordance with Subsection 102.06 prior to or at the time of execution of the contract.
4. Optional and Alternate items designated must be used throughout the project.

I (We) further propose to perform all "force account or extra work" that may be required of me (us) on the basis provided in the Specifications and to give such work my (our) personal attention in order to see that it is economically performed.

SECTION 905 PROPOSAL (Continued)

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check or bid bond for **five percent (5%) of the total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bonds within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the Local Public Agency as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO. _____	DATED _____	ADDENDUM NO. _____	DATED _____
ADDENDUM NO. _____	DATED _____	ADDENDUM NO. _____	DATED _____

TOTAL ADDENDA: _____
(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE _____

Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

President

Address

Secretary

Address

Treasurer

Address

The following is my (our) itemized proposal.

SECTION 905 PROPOSAL (Bid Sheet No. 2-1)

PROJECT NUMBER: STP-0074-00(0021) LPA/106866-701000**COUNTY:** HOLMES COUNTY**PROJECT DESCRIPTION:**

Historic Durant Depot - North Building Renovation

I (We) agree to complete the entire project within the specified contract time.

***** SPECIAL NOTICE TO BIDDERS *****

BIDS WILL NOT BE CONSIDERED UNLESS BOTH UNIT PRICES AND ITEM TOTALS ARE ENTERED.
BIDS WILL NOT BE CONSIDERED UNLESS THE BID CERTIFICATE LOCATED AT THE END OF THE BID SHEETS IS SIGNED

BID SCHEDULE

PAY ITEM NO.	PLAN QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	ITEM TOTAL
907-242-A015	1	LS	Renovation of the Durant Depot - North Building		
TOTAL BASE BID:					

1 I/ We agree that no less than _____ percent shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE and WBE).

2 Classification of Bidder: Small Business (DBE) _____ Small Business (WBE) _____

3 A joint venture with a Small Business (DBE/ WBE): YES _____

***** SIGNATURE STATEMENT *****

BIDDER ACKNOWLEDGES THAT HE/ SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFY THAT THE FIGURES SHOWN THERIN CONSTITUTE THEIR OFFICIAL BID.

BIDDER'S SIGNATURE

**Certification with regard to the Performance of Previous
Contracts or Subcontracts subject to the Equal Opportunity
Clause and the filing of Required Reports**

The Bidder _____, proposed Subcontractor _____, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the Equal Opportunity Clause, as required by Executive Orders 10925, 11114, or 11246, and that he has _____, has not _____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

(COMPANY)

BY _____

(TITLE)

DATE: _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the Equal Opportunity Clause. Contracts and Subcontracts which are exempt from the Equal Opportunity Clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime Contractors and Subcontractors who have participated in a previous contract or subcontract subject to the Executive orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such Contractors submit a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

NON-COLLUSION AFFIDAVIT

(Execute in duplicate)

I, _____,
(Name of person signing affidavit)

individually, and in my capacity as _____ of
(Title)

_____ do hereby certify under
(Name of Firm, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that _____

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. _____,

in _____ County(ies), Mississippi, has not either

directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds:

- a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in (b) above; and
- d) Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Initial here "_____" if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

The bidder further certifies that the certification requirements contained in Section XI of Form FHWA 1273, will be or have been included in all subcontracts, material supply agreements, purchase orders, etc. except those procurement contracts for goods or services that are expected to be less than the Federal procurement small purchase threshold fixed at 10 U.S.C. 2304(g) and 41 U.S.C. 253(g) (currently \$25,000) which are excluded from the certification requirements.

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

- 1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions will be completed and submitted.

The certification contained in (1) and (2) above is a material representation of fact upon which reliance is placed and a prerequisite imposed by Section 1352, Title 31, U.S. Code prior to entering into this contract. Failure to comply shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000. The bidder shall include the language of the certification in all subcontracts exceeding \$100,000 and all subcontractors shall certify and disclose accordingly.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on _____

Signature

MISSISSIPPI DEPARTMENT OF TRANSPORTATION**NON-COLLUSION AFFIDAVIT**

(Execute in duplicate)

I, _____,
(Name of person signing affidavit)

individually, and in my capacity as _____ of
(Title)

_____ do hereby certify under
(Name of Firm, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that _____

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. _____,

in _____ County(ies), Mississippi, has not either

directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds:

- a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in (b) above; and
- d) Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Initial here "_____" if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

The bidder further certifies that the certification requirements contained in Section XI of Form FHWA 1273, will be or have been included in all subcontracts, material supply agreements, purchase orders, etc. except those procurement contracts for goods or services that are expected to be less than the Federal procurement small purchase threshold fixed at 10 U.S.C. 2304(g) and 41 U.S.C. 253(g) (currently \$25,000) which are excluded from the certification requirements.

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

- 1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions will be completed and submitted.

The certification contained in (1) and (2) above is a material representation of fact upon which reliance is placed and a prerequisite imposed by Section 1352, Title 31, U.S. Code prior to entering into this contract. Failure to comply shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000. The bidder shall include the language of the certification in all subcontracts exceeding \$100,000 and all subcontractors shall certify and disclose accordingly.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on _____

Signature

LOCAL PUBLIC AGENCY (LPA)

S E C T I O N 9 0 2

CONTRACT FOR: **Historic Durant Depot – North Building Renovation**
Federal Aid Project No. STP-0074-00(021) LPA/106866-701000

LOCATED IN THE COUNTY OF HOLMES, STATE OF MISSISSIPPI.

This contract entered into by and between the Local Public Agency, City of Durant (hereinafter "LPA") on one hand, and the undersigned contractor, on the other witnesseth;

That, in consideration of the payment by the LPA of the prices set out in the proposal hereto attached, to the undersigned contractor, such payment to be made in the manner and at the time of times specified in the specifications and the special provisions, if any, the undersigned contractor hereby agrees to accept the prices stated in the proposal in full compensation for the furnishing of all materials and equipment and the executing of all the work contemplated in this contract.

It is understood and agreed that the advertising according to law, the Advertisement, the instructions to bidders, the proposal for the contract, the specifications, the revisions of the specifications, the special provisions, and also the plans for the work herein contemplated, said plans showing more particularly the details of the work to be done, shall be held to be, and are hereby made a part of this contract by specific reference thereto and with like effect as if each and all of said instruments had been set out fully herein in words and figures.

It is further agreed that for the same consideration the undersigned contractor shall be responsible for all loss or damage arising out of the nature of the work aforesaid; or from the action of the elements and unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work, exceptions being those specifically set out in the contract; and for faithfully completing the whole work in good and workmanlike manner according to the approved Plans, Specifications, Special Provisions, Notice(s) to Bidders and requirements of the LPA.

It is further agreed that the work shall be done under the direct supervision and to the complete satisfaction of the LPA or their authorized representatives, and when Federal Funds are involved subject to inspection at all times and approval by the Mississippi Department of Transportation or Federal Highway Administration, or its agents as the case may be, or the agents of any other Agency whose funds are involved in accordance with those Acts of the Legislature of the State of Mississippi approved by the Governor and such rules and regulations issued pursuant thereto by the Mississippi Transportation Commission and the authorized Federal Agencies.

The Contractor agrees that all labor as outlined in the Special Provisions may be secured from list furnished by

Manager, WIN Job Center nearest the project

It is agreed and understood that each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and this contract shall be read and enforced as though it were included herein, and, if through mere mistake or otherwise any such provision is not inserted, then upon the application of either party hereto, the contract shall forthwith be physically amended to make such insertion.

The Contractor agrees that he has read each and every clause of this Contract, and fully understands the meaning of same and that he will comply with all the terms, covenants and agreements therein set forth.

Witness our signatures this the ____ day of _____, 20 ____.

Contractor(s)

By _____

Title _____

Signed and sealed in the presence of:
(Names and address of witnesses)

By _____

LPA Official

LPA Clerk

Award authorized by the LPA in session on the ____ day of _____, 20 ____, as recorded _____

LOCAL PUBLIC AGENCY (LPA)

S E C T I O N 9 0 3
PERFORMANCE AND PAYMENT BOND

CONTRACT BOND FOR: **Historic Durant Depot – North Building Renovation**
Federal Aid Project No. STP-0074-00(021) LPA/106866-701000

LOCATED IN THE COUNTY OF HOLMES, STATE OF MISSISSIPPI.

Know all men by these presents: that we, _____
(Contractor)

(hereinafter “Principal”), a _____

residing at _____ in the State of _____

and _____
(Surety)

residing at _____ in the State of _____

authorized to do business in the State of Mississippi, under the laws thereof, as surety, are held and firmly bound

unto the Local Public Agency _____, (hereinafter

“LPA”), in the sum of _____

(\$ _____) Dollars, lawful money of the United States of America, to be

paid to it for which payment well and truly to be made, we bind ourselves, our heirs, administrators, successors, or

assigns jointly and severally by these presents.

The conditions of this bond are such, that whereas the said Principal, has (have) entered into a contract with the
LPA, bearing the date of _____ day of _____ A.D. _____ hereto annexed, for the
construction of certain project(s) in the State of Mississippi as mentioned in said contract in accordance with the
Contract Documents therefor, on file in the offices of the LPA.

Now therefore, if the above bounden Principal in all things shall stand to and abide by and well and truly observe, do
keep and perform all and singular the terms, covenants, conditions, guarantees and agreements in said contract,
contained on his (their) part to be observed, done, kept and performed and each of them, at the time and in the
manner and form and furnish all of the material and equipment specified in said contract in strict accordance with
the terms of said contract which said plans, specifications and special provisions are included in and form a part of
said contract and shall maintain the said work contemplated until its final completion and acceptance as specified in
Subsection 109.11 of the approved specifications, and save harmless said LPA from any loss or damage arising out
of or occasioned by the negligence, wrongful or criminal act, overcharge, fraud, or any other loss or damage
whatsoever, on the part of said principal (s), his (their) agents, servants, or employees in the performance of said
work or in any manner connected therewith, and shall be liable and responsible in a civil action instituted by the
LPA at the instance of any officer of the LPA authorized in such cases, for double any amount in money or property,
the LPA may lose or be overcharged or otherwise defrauded of, by reason of wrongful or criminal act, if any, of the
Contractor(s), his (their) agents or employees, and shall promptly pay the said agents, servants and employees and
all persons furnishing labor, material, equipment or supplies therefor, including premiums incurred, for Surety

LOCAL PUBLIC AGENCY (LPA)

Bonds, Liability Insurance, and Workmen's Compensation Insurance; with the additional obligation that such Contractor shall promptly make payment of all taxes, licenses, assessments, contributions, damages, any liquidated damages which may arise prior to any termination of said principal's contract, any liquidated damages which may arise after termination of the said principal's contract due to default on the part of said principal, penalties and interest thereon, when and as the same may be due this state, or any county, municipality, board, department, commission or political subdivision: in the course of the performance of said work and in accordance with Sections 31-5-51 et seq. Mississippi Code of 1972, and other State statutes applicable thereto, and shall carry out to the letter and to the satisfaction of the LPA Official, all, each and every one of the stipulations, obligations, conditions, covenants and agreements and terms of said contract in accordance with the terms thereof and all of the expense and cost and attorney's fee that may be incurred in the enforcement of the performance of said contract, or in the enforcement of the conditions and obligations of this bond, then this obligation shall be null and void, otherwise to be and remain in full force and virtue.

_____	_____
(Contractors) Principal	Surety
By _____	By _____
	(Signature) Attorney in Fact
	Address: _____

Title _____	_____
(Contractor's Seal)	(Printed) Mississippi Agent

	(Signature) Mississippi Agent
	Address: _____

	(Surety Seal)

	Mississippi Insurance ID Number

**MDOT Certification Form for Sub-Awards
Executive Compensation Reporting for Transparency Act**

On behalf of the entity named below, I certify that I have personally read and reviewed the executive compensation reporting requirements of the Federal Funding Accountability and Transparency Act of 2006, as amended by Section 6202 of the Government Funding Transparency Act of 2008 [FFATA], and certify under penalty of perjury pursuant to Section 97-9-61, Mississippi Code of 1972, as amended, the following:

Local Entity Name: _____

Data Universal Numbering System (DUNS) Number : _____(required)

_____ The local entity listed below receiving federal funds from MDOT **is not** required to report executive compensation under the Federal Funding Accountability and Transparency Act of 2006, as amended by Section 6202 of the Government Funding Transparency Act of 2008 [FFATA].

_____ The local entity listed below receiving federal funds from MDOT **is required** to report executive compensation under the Federal Funding Accountability and Transparency Act of 2006, as amended by Section 6202 of the Government Funding Transparency Act of 2008 [FFATA], listed below are the names and total annual compensation of the five most highly compensated officers of the city:

	NAME	TOTAL ANNUAL COMPENSATION
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

The LPA acknowledges that a false statement in this certification may be subject to criminal prosecution, including under 18 U.S.C. §§ 1001 (false statements) and 1621 (perjury), and 28 U.S.C. §1746 (declarations under penalty of perjury). The LPA also acknowledges that said projects, including certifications provided in connection with such projects and grants are subject to review by the Mississippi Department of Transportation, the Mississippi State Auditor, and the Mississippi Office of Attorney General.

LPA Chief Official

Date

**Guidance for Federal Spending Transparency:
Subaward and Executive Compensation Data
Reporting Requirements for FFATA Implementation**

Summary

1. Prime awardees and sub awardees of Federal financial assistance must report executive compensation data if they meet the statutory reporting thresholds. For the Federal-aid Highway Program, this means that the State, and any subawardees of Federal-aid funds through the State, is subject to the executive compensation reporting requirement.

- names and total compensation of the five most highly compensated officers of the entity if the entity in the preceding fiscal year received 80 percent or more of its annual gross revenues in Federal awards; and \$25,000,000 or more in annual gross revenues from Federal awards; and the public does not have access to this information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §§ 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. See FFATA § 2(b)(1).

Background

Beginning October 1, 2010, guidance directs compliance with the Transparency Act to report prime and first-tier subaward data. Federal agencies and prime awardees will report to ensure disclosure of Federal contract and grant subaward and executive compensation data.

The Transparency Act requires information disclosure concerning entities receiving Federal financial assistance through Federal awards such as Federal contracts, sub-contracts, grants, and sub-grants.

Specifically, the Transparency Act's section 2(b)(1) requires the Office of Management and Budget ("OMB") to ensure the establishment of a publicly available website that contains the following information about each Federal award:

- name of the entity receiving the award;
- amount of the award;
- information on the award including transaction type, funding agency, the North American Industry Classification System code or Catalog of Federal Domestic Assistance number, program source, award title descriptive of the purpose of each funding action;

- location of the entity receiving the award and primary location of performance under the award, including city, State, congressional district, and country;
- unique identifier of the entity receiving the award and the parent entity of the recipient, should the entity be owned by another entity; and
- names and total compensation of the five most highly compensated officers of the entity if the entity in the preceding fiscal year received 80 percent or more of its annual gross revenues in Federal awards; and \$25,000,000 or more in annual gross revenues from Federal awards; and the public does not have access to this information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §§ 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. See FFATA § 2(b)(1).

LPA PROJECT

DISADVANTAGED BUSINESS ENTERPRISE LIST

PROJECT NUMBER :

NAME OF DBE FIRM:

☐ RACE CONSCIOUS ☐ RACE NEUTRAL

COUNTY:

CITY :

A	B	C
REFERENCE NUMBER OF ITEMS	PERCENT WORK SUBCONTRACTED , (SEE NOTE 4 & 5 BELOW)	VALUE OF ITEM (SUBCONTRACTED , MANUFACTURED OR SUPPLIED)
TOTAL		
PER CENT OF TOTAL BID		

*** I ACKNOWLEDGE AND COMMIT TO THE ITEMS AND PRICES STATED ABOVE. ***

SIGNATURE OF DBE

SIGNATURE OF PRIME

DATE
APPROVED:

Prime Contractor Firm Name

APPROVED BY:

LPA Project Director Name (Printed)

Submitted By Name

LPA Project Director (Signature)

TITLE

I AGREE TO SUBCONTRACT OR PURCHASE MATERIAL FROM THE DBE FIRM LISTED ABOVE AND I MAKE THIS COMMITMENT WITH THE UNDERSTANDING THAT IF I FAIL FOR GOOD REASON TO FULFILL THIS COMMITMENT I HAVE LISTED I WILL FULFILL THE TERMS OF MY CONTRACT AS LONG AS I REACH OR EXCEED THE CONTRACT GOAL OF %.

INSTRUCTIONS :

1. SUBMIT THIS FORM TO THE **LPA Project Director** **FOR THEIR SIGNATURE** NO LATER THAN THE THIRD (3) BUSINESS DAY AFTER THE OPENING OF THE BIDS.
2. 60 % CREDIT IS ALLOWED TOWARD THE DBE GOAL FOR SUPPLIERS.
3. THE ACTUAL SUBCONTRACT AGREEMENT MUST EQUAL OR EXCEED THE DOLLAR AMOUNT SHOWN IN COLUMN " C " .
4. IF THE DBE FIRM PERFORMS " ALL OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM ENTER 100 % IN COLUMN " B " .
5. IF THE DBE FIRM PERFORMS " A PORTION OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM THE PERCENTAGE IS CALCULATED BASED ON THE TOTAL VALUE OF THE ITEM AND ENTERED IN COLUMN " B " . A BREAKDOWN OF THE COST MUST ACCOMPANY THIS SITUATION.

LPA PROJECT

DISADVANTAGED BUSINESS ENTERPRISE LIST

PROJECT NUMBER :

NAME OF DBE FIRM:

☐ RACE CONSCIOUS ☐ RACE NEUTRAL

COUNTY:

CITY :

A	B	C
REFERENCE NUMBER OF ITEMS	PERCENT WORK SUBCONTRACTED , (SEE NOTE 4 & 5 BELOW)	VALUE OF ITEM (SUBCONTRACTED , MANUFACTURED OR SUPPLIED)
TOTAL		
PER CENT OF TOTAL BID		

*** I ACKNOWLEDGE AND COMMIT TO THE ITEMS AND PRICES STATED ABOVE. ***

SIGNATURE OF DBE

SIGNATURE OF PRIME

DATE

APPROVED:

Prime Contractor Firm Name

APPROVED BY:

LPA Project Director Name (Printed)

Submitted By Name

LPA Project Director (Signature)

TITLE

I AGREE TO SUBCONTRACT OR PURCHASE MATERIAL FROM THE DBE FIRM LISTED ABOVE AND I MAKE THIS COMMITMENT WITH THE UNDERSTANDING THAT IF I FAIL FOR GOOD REASON TO FULFILL THIS COMMITMENT I HAVE LISTED I WILL FULFILL THE TERMS OF MY CONTRACT AS LONG AS I REACH OR EXCEED THE CONTRACT GOAL OF %.

INSTRUCTIONS :

- SUBMIT THIS FORM TO THE **LPA Project Director** **FOR THEIR SIGNATURE** NO LATER THAN THE THIRD (3) BUSINESS DAY AFTER THE OPENING OF THE BIDS.
- 60 % CREDIT IS ALLOWED TOWARD THE DBE GOAL FOR SUPPLIERS.
- THE ACTUAL SUBCONTRACT AGREEMENT MUST EQUAL OR EXCEED THE DOLLAR AMOUNT SHOWN IN COLUMN " C ".
- IF THE DBE FIRM PERFORMS " ALL OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM ENTER 100 % IN COLUMN " B ".
- IF THE DBE FIRM PERFORMS " A PORTION OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM THE PERCENTAGE IS CALCULATED BASED ON THE TOTAL VALUE OF THE ITEM AND ENTERED IN COLUMN " B ". A BREAKDOWN OF THE COST MUST ACCOMPANY THIS SITUATION.

LPA PROJECT

DISADVANTAGED BUSINESS ENTERPRISE LIST

PROJECT NUMBER :

NAME OF DBE FIRM:

☐ RACE CONSCIOUS ☐ RACE NEUTRAL

COUNTY:

CITY :

A	B	C
REFERENCE NUMBER OF ITEMS	PERCENT WORK SUBCONTRACTED , (SEE NOTE 4 & 5 BELOW)	VALUE OF ITEM (SUBCONTRACTED , MANUFACTURED OR SUPPLIED)
TOTAL		
PER CENT OF TOTAL BID		

*** I ACKNOWLEDGE AND COMMIT TO THE ITEMS AND PRICES STATED ABOVE. ***

SIGNATURE OF DBE

SIGNATURE OF PRIME

DATE

APPROVED:

Prime Contractor Firm Name

APPROVED BY:

LPA Project Director Name (Printed)

Submitted By Name

LPA Project Director (Signature)

TITLE

I AGREE TO SUBCONTRACT OR PURCHASE MATERIAL FROM THE DBE FIRM LISTED ABOVE AND I MAKE THIS COMMITMENT WITH THE UNDERSTANDING THAT IF I FAIL FOR GOOD REASON TO FULFILL THIS COMMITMENT I HAVE LISTED I WILL FULFILL THE TERMS OF MY CONTRACT AS LONG AS I REACH OR EXCEED THE CONTRACT GOAL OF %.

INSTRUCTIONS :

- SUBMIT THIS FORM TO THE **LPA Project Director** **FOR THEIR SIGNATURE** NO LATER THAN THE THIRD (3) BUSINESS DAY AFTER THE OPENING OF THE BIDS.
- 60 % CREDIT IS ALLOWED TOWARD THE DBE GOAL FOR SUPPLIERS.
- THE ACTUAL SUBCONTRACT AGREEMENT MUST EQUAL OR EXCEED THE DOLLAR AMOUNT SHOWN IN COLUMN " C ".
- IF THE DBE FIRM PERFORMS " ALL OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM ENTER 100 % IN COLUMN " B ".
- IF THE DBE FIRM PERFORMS " A PORTION OF THE WORK " PERTAINING TO A SUBCONTRACTED ITEM THE PERCENTAGE IS CALCULATED BASED ON THE TOTAL VALUE OF THE ITEM AND ENTERED IN COLUMN " B ". A BREAKDOWN OF THE COST MUST ACCOMPANY THIS SITUATION.

LPA PROJECT

LIST OF FIRMS SUBMITTING QUOTES

I/we received quotes from the following firms on Project No: _____
County: _____

Disadvantaged Business Enterprise (DBE) Regulations as stated in 49 CFR 26.11 require the Mississippi Department of Transportation (MDOT) to create and maintain a comprehensive list of all firms quoting/bidding subcontracts on prime contracts and quoting/bidding subcontracts on federally-funded transportation projects. For every firm, we require the following information:

Firm Name: _____
Contact Name/Title: _____
Firm Mailing Address _____
Phone Number: _____
_____ DBE Firm _____ Non-DBE Firm

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Contact Name/Title: _____
Firm Mailing Address _____
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SUBMITTED BY (Signature)

FIRM NAME

Submit this form to the **LPA as a part of your bid package**. If this form is not included as part of the bid packet, your bid will be deemed irregular. For further information about this form, call Mississippi DOT's Office of Civil Rights at (601) 359-7466; FAX (601) 576-4504.
Please make copies of this form when needed and also add those copies to the bid package.

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