

Set No. _____

Job No. 92421

SPECIFICATION MANUAL FOR:
MCAEOC
V HEADSTART CENTER

2220 GRANT STREET, SUITE B
JONESBORO, ARKANSAS 72401

SECTION 00 0101
PROJECT TITLE PAGE

SPEC. NO. _____
COMM. NO. 92421

MCAEOC V HEADSTART CENTER
2220 GRANT STREET, SUITE B
JONESBORO, AR 72401

Consultant:
MORTIN DESIGN SERVICE, LLC
131 VERNON HARVEY ROAD
BEEBE, ARKANSAS 72012

Architect:
JAMIE MCFADDEN

DATE OF SPECIFICATION: November 22nd 2021

SECTION 00 0110

TABLE OF CONTENTS

PROCUREMENT AND CONTRACTING REQUIREMENTS

Division 00 -- Procurement and Contracting Requirements

- 00 0101 - Project Title Page
- 00 0110 - Table of Contents
- 00 1100 – Advertisement for Bids
- 00 2100 – Instructions
- 00 4100 – Bid Form
- 00 5000 - Agreement
- 00 7200 - General Conditions
- 00 7300 - Supplementary Conditions

SPECIFICATIONS

Division 01 -- General Requirements

- 01 1000 - Summary
- 01 2000 - Price and Payment Procedures
- 01 4000 - Quality Requirements
- 01 4100 - Regulatory Requirements
- 01 5000 - Temporary Facilities and Controls
- 01 5813 - Temporary Project Signage
- 01 6000 - Product Requirements
- 01 7000 - Execution and Closeout Requirements
- 01 7800 - Closeout Submittals

Division 02 -- Existing Conditions

- 02 4116 - Demolition

Division 03 -- Concrete

- 03 3000 - Cast-in-Place Concrete

Division 04 -- Masonry

Division 05 -- Metals

Division 06 -- Wood, Plastics, and Composites

- 06 1000 – Rough Carpentry
- 06 2000 - Finish Carpentry
- 06 4100 - Architectural Wood Casework

Division 07 -- Thermal and Moisture Protection

Division 08 -- Openings

Division 09 -- Finishes

- 09 2116 - Gypsum Board Assemblies
- 09 5110 - Suspended Acoustical Ceiling
- 09 6500 - Resilient Flooring
- 09 9000 - Paints and Coatings

Division 10 -- Specialties

- 10 2800 - Toilet, Bath, and Laundry Accessories

Division 11 -- Equipment

Division 12 -- Furnishings

Division 13 -- Special Construction

Division 14 -- Conveying Equipment

Division 21 -- Fire Suppression

Division 22 -- Plumbing

- 22 0719 - Plumbing Piping Insulation
- 22 1005 - Plumbing Piping
- 22 4000 - Plumbing Fixtures

Division 23 -- Heating, Ventilating, and Air-Conditioning (HVAC)

Division 26 -- Electrical

- 26 0519 - Low-Voltage Electrical Power Conductors and Cables (600 V and Less)
- 26 0534 - Conduit
- 26 0537 - Boxes
- 26 2726 - Wiring Devices

Division 27 -- Communications

Division 28 -- Electronic Safety and Security

Division 31 -- Earthwork

Division 32 -- Exterior Improvements

Division 33 -- Utilities

END OF TABLE OF CONTENTS

SECTION 00 1100

ADVERTISEMENT FOR BIDS

ADVERTISEMENT FOR BIDS

Mississippi County, Arkansas E.O.C.

(herein called the "Owner") invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by:

**Mississippi County, Arkansas E.O.C. V Headstart Center
2220 Grant Street, Suite B
Jonesboro, AR 72401**

**At 2:00 AM CST on December 16th, 2021 at
Mississippi County, Arkansas E.O.C. V Headstart Center
2220 Grant Street, Suite B
Jonesboro, AR 72401**

The envelopes containing the bids must be sealed & addressed to:

**Mississippi County Arkansas E.O.C. – Attn: Mrs. Pulliam
2220 Grant Street, Suite B
Jonesboro, AR 72401**

and designated as:

**Bid for:
Headstart Center
2220 Grant Street, Suite B
Jonesboro, Arkansas 72401**

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any in formalities. Owner assumes no obligation to accept the lowest or any bid and may reject any or all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof. The Owner shall receive bids and shall open said bids and read publicly.

The CONTRACT DOCUMENTS may be examined at the following locations:

Jonesboro Blueprint & Supply 222 Madison Street, Jonesboro, AR 72401

CONTRACT DOCUMENTS may be obtained at Jonesboro Blueprint & Supply, 222 South Madison St., Jonesboro, AR 72401 (870) 932-4329 at Contractor's expense.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, the name of the project as designated above and the Commercial Contractor's license number as issued and approved by the Arkansas State Licensing Board previous to bid date. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the Bid Form.

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such Bidder is qualified to carry out the obligations of the contract and to complete the work contemplated therein. The owner reserves the right to reject all bids.

All bidders shall comply with the requirements of the Arkansas State Licensing Law for Commercial Contractors, Act 150 of 1965 and 162 of 1987 (as amended).

Each bid must be accompanied by cash, certified check of the bidder, or a bid bond duly executed by the bidder as principal and having as Surety thereon a Surety Company licensed to do business in the State of Arkansas and approved by the Owner, in the amount of 5% of the bid.

Mississippi County Arkansas E.O.C.

SECTION 00 2100

INSTRUCTIONS

PART 1 - GENERAL

RECEIPT AND OPENING OF BIDS:

Mississippi County Arkansas E. O. C.

(herein called the "Owner") invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by:

Mississippi County E. O. C. – Attn. Mrs. Pulliam
2220 Grant Street, Suite B
Jonesboro, AR 72401

**At 2:00 AM CST on December 16th 2021 at
Mississippi County, Arkansas E.O.C.
2220 Grant Street, Suite B
Jonesboro, AR 72401**

The envelopes containing the bids must be sealed, addressed to:

Mississippi County Arkansas E. O. C. Attn. Mrs Pulliam
2220 Grant Street, Suite B
Jonesboro, AR 72401

and designated as:

Bid for:
Migrant & Seasonal Headstart Center
2220 Grant Street, Suite A
Jonesboro, AR 72401

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities. Owner assumes no obligation to accept the lowest or any bid and may reject any or all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

PREPARATION OF BID:

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, the name of the project as designated in 1.1 above and the Commercial Contractor's license number as issued and approved by the Arkansas State Licensing Board previous to bid date. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the Bid Form.

SUBCONTRACTS:

The bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner and have a Commercial License by the Arkansas State Licensing Board of Contractors to perform subcontract work in the state of Arkansas.

TELEGRAPHIC MODIFICATION:

Any bidder may modify his bid by telegraphic communications at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two (2) days from the closing time, no consideration will be given to the telegraphic modification.

INTERPRETATION OF QUOTED PRICES:

In case of a difference in written words and figures in a bid, the amount stated in written words shall be the price bid.

QUALIFICATIONS OF BIDDER:

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such Bidder is qualified to carry out the obligations of the contract and to complete the work contemplated therein.

All bidders shall comply with the requirements of the Commercial General Contractor's Licensing Law of the State of Arkansas, Act 150, of the Acts of 1965.

BID SECURITY:

Each bid must be accompanied by cash, certified check of the bidder, or a bid bond duly executed by the bidder as principal and having as Surety thereon a Surety Company licensed to do business in the State of Arkansas and approved by the Owner, in the amount of 5% of the bid. Such cash, checks, or bid bonds will be returned to all except the three lowest bidders within three (3) days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within 30 days after the opening of bids, upon demand of the bidder at any time thereafter so long as he has not been notified of the acceptance of his bid.

LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:

The successful bidder, upon his failure to execute the contract and bonds required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

TIME OF COMPLETION:

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project in the time stated on the Bid Form.

LIQUIDATED DAMAGES

If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the owner as liquidated damages the sum of \$100.00 for each day of delay. The Contractor remains liable for damages caused other than by delay.

If the Owner terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Owner in completing the work.

If the Owner does not terminate the Contractor's right to proceed, the resulting damage will

consist of liquidated damages until the work is completed or accepted.

CONDITIONS OF WORK:

Each bidder must inform himself fully of the conditions relating to the construction of the project and employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible, the contractor in carrying out his work, must employ such methods or means as will not cause any interruption or interference with the work of any other contractor.

ADDENDA AND INTERPRETATIONS:

No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to Mortin Design Services, and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. All such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed to all prospective bidders at the respective addresses furnished for such purposes, not later than two days prior to the date fixed for the opening of bids. Any written addenda mailed two days or sooner prior to the opening of bids will be mailed by certified mail with return receipt requested. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed contract, the contractor shall furnish a surety bond or bids as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract as specified in the General Conditions included herein. The surety on such bond or bonds shall be a surety company duly authorized to do business in the State of Arkansas satisfactory to the Owner.

POWER OF ATTORNEY:

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their Power of Attorney.

NOTICE OF SPECIAL CONDITIONS:

Attention is particularly called to those parts of the contract and specifications which deal with the following:

- Inspection and testing of materials
- Insurance requirement

TAXES, LAWS AND REGULATIONS:

The bidder's attention is directed to the fact that all applicable sales tax, Social Security taxes, state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full. This shall include inspection fees, licenses and building permits where required. The General Contractor shall pay for all such taxes and fees required for this project.

OBLIGATION OF BIDDER:

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all Addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from obligation in respect to his bid.

METHOD OF BIDDING:

All construction work required to complete total project in accordance with requirements of Contract Documents shall be in one contract. The General Construction Contract shall cover all work including heating, ventilating, air conditioning, plumbing and electrical. Conditional bids will not be accepted.

END OF SECTION

SECTION 00 4100

BID FORM

THE PROJECT AND THE PARTIES

TO:

Mississippi County, Arkansas E. O. C.
2220 Grant Street, Suite B
Jonesboro, AR 72401

FOR:

MCAEOC V Headstart Center
2220 Grant Street, Suite B
Jonesboro, AR 72401

DATE: _____ (Bidder to enter date)

SUBMITTED BY: (Bidder to enter name and address)

Bidder's Full Name _____

Address _____

City, State, Zip _____

BASE BID

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

_____ dollars

(\$ _____), in lawful money of the United States of America.

We have included the required security deposit as required by the Instruction to Bidders.

All applicable federal taxes are included and State of Arkansas taxes are included in the Bid Sum.

ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for sixty days from the bid closing date.

If this bid is accepted by within the time period stated above, we will:

Execute the Agreement within seven days of receipt of Notice of Award.

Furnish the required bonds within seven days of receipt of Notice of Award.

Commence work within seven days after written Notice to Proceed of this bid.

If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

CONTRACT TIME

If this Bid is accepted, we will:

Complete the Work within _____ from Notice to Proceed.

ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum # _____ Dated _____.

Addendum # _____ Dated _____.

Addendum # _____ Dated _____.

Addendum # _____ Dated _____.

BID FORM SIGNATURE(S)

(Bidder - print the full name of your firm)

(Authorized signing officer, Title)

END OF BID FORM

SECTION 00 5000

AGREEMENT

PART 1 GENERAL

1.01 FORM OF AGREEMENT

1.02 The Agreement to be executed is AIA Document A101-2007

1.03 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 00800 - Supplementary Conditions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF AGREEMENT

SECTION 00 7200

GENERAL CONDITIONS

FORM OF GENERAL CONDITIONS

1.01 The "General Conditions of the Contract for Construction", "A.I.A Document A201, Sixteenth Edition, 2007, Article 1 thru 15, inclusive, is a part of this contract, and is incorporated herein as fully as if here set forth.

RELATED REQUIREMENTS

2.01 Section 00 7300 - Supplementary Conditions.

END OF DOCUMENT

SECTION 00 7300

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. These Supplementary Conditions amend and supplement the General Conditions defined in Document 00 7200 and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.
- B. The terms used in these Supplementary Conditions that are defined in the General Conditions have the meanings assigned to them in the General Conditions.

1.02 MODIFICATIONS TO GENERAL CONDITIONS

- A. Article 3-Contractor
 - 1. New sub-paragraph
 - a. 3.12.11 Additional provisions pertaining to shop drawings are included in Division 1-General; Requirements
 - 1) 3.15.3 Additional provisions for cleaning up are included in division 1-General Requirements.
- B. Article 7-Changes in the work
 - 1. 7.3.3 Delete in its entirety and substitute therefor:
 - a. 7.3.3 The cost or credit to the owner resulting from a change in the work shall be determined in one or more of the following ways:
 - 1) By the unit prices stated in the Contract Documents or subsequently agreed upon or
 - 2) By mutually acceptable cost and fixed or percentage fee computed as follows:
 - (a) Net cost of material plus sales tax
 - (b) Net delivery cost
 - (c) Net placing cost plus W.C. insurance FICA tax
 - (d) Overhead and profit charge of 12% above (1,2,3)
 - (e) Allowable bond premium (1,2,3,4)
 - (f) Where such changes, additions, or deductions involve subcontract work only the General Contractor shall add to cost of subcontract work (1,2,3,4) an overhead and profit charge of 10%
 - b. Contractor shall be required , if called upon, to furnish the original bills and payrolls and support the statement with affidavits. Burden of profit of costs rests upon the contractor.
 - c. If the net value of the change results in a credit from the Contractor or Subcontractors, the credit given shall be the net cost without overhead and profit. The cost used herein shall be as described in paragraph 7.3.7
- C. Article 11 - Insurance and Bonds
 - 1. 11.1.1 In the first line following the word "maintain" insert the words "in the the company or companies to which the Owner has no reasonable objection."
 - 2. 11.1.1 Add the following sub paragraph
 - a. Liability insurance should include all major divisions of coverage and be on a comprehensive general basis including:
 - 1) - Operation (including X - C - U)
 - 2) Contractor's protective
 - 3) Products and Completed Operations
 - 4) Contractual- including specific provision for the contractor's obligation under paragraph 3.18.
 - 3. 11.1.2 Delete and substitute therefor:
 - a. The insurance required by subparagraph 11.1.1 shall be written for not less than any

limits of liability required by law or by those set forth below, whichever is greater, and shall include contractual liability insurance as applicable to the contractor's obligations under paragraph 3.18.

- | | |
|--|---------------------------|
| 1) Workman's Compensation Requirements | Statutory |
| 2) Public Liability Per Occurrence | Per Person/ |
| (a) Bodily and Personal Injury | \$2,000,000.00 |
| (b) Property Damage- | \$2,000,000.00 |
| 3) Automobile Liability- | Per Person/Per Occurrence |
| (a) Bodily Injury-\$2,000,000.00 | |
| (b) Property Damage | \$2,000,000.00 |
4. 11.3 Property Insurance
- a. Article 11.3 shall be supplemented as follows: The Contractor shall effect and maintain insurance provided in this article as in the interest the Owner and Contractor may appear. Said insurance in a company or companies to which the Owner has no reasonable objection.
- b. Delete in its entirety and substitute therefor:
- 1) 11.4 The Owner shall require the Contractor to furnish bond for 100% of the amount of the contract price, covering faithful performance of the contract and the payment of all obligations arising thereunder in such form as the Owner may prescribe and with such securities as he may approve. The bond guaranteeing the performance of this contract shall be given in compliance with the laws of the state where the site is located approved by the Owner.
- 2) After approval by the architect, the Contractor shall file the bonds with the Circuit Clerk and Recorder of the County in which the work to be performed is located. The contractor shall obtain from the Circuit Clerk certificates as evidence that the bonds have been approved and filed with said Clerk and said certificates shall be filed with the Architect. The premium for the required bond shall be paid by the Contractor. The obtaining by the Contractor of the bonds shall be a condition precedent to the effectuation of the Contract between Owner and Contractor.
- 3)
- D. Article 15- Claims and Disputes
1. Add to Paragraph 15.1.5.2
- a. Abnormal weather for the period of time shall be defined by National Climatic Data Center, Asheville, NC, Climatology of the United States for the city nearest the site. Days in excess of mean number of days precipitation 0.10 or more per month are only days considered abnormal. Documentation shall include National Weather Service data for the site location as well as construction logs.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

3.01 END OF DOCUMENT

SECTION 01 1000

SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: MCAEOC V Headstart Center
- B. 2220 Grant Street, Suite B
- C. Jonesboro, AR 72401
- D. Owner's Name: Mississippi County, Arkansas E. O. C.
- E. Consultants Name: Mortin Design Service Architect's Name: Jamie McFadden
- F. The Project consists of the renovation of an existing space to accommodate Owner's needs.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.03 OWNER OCCUPANCY

- A. Owner intends to occupy the Project upon Substantial Completion.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Use of portion of site for this space only.
- B. Provide access to and from site as required by law and by:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.

1.05 SPECIFICATION SECTIONS APPLICABLE TO ALL CONTRACTS

- A. Unless otherwise noted, all provisions of the sections listed below apply to all contracts. Specific items of work listed under individual contract descriptions constitute exceptions.
- B. Section 01 2000 - Price and Payment Procedures.
- C. Section 01 2100 - Allowances.
- D. Section 01 3000 - Administrative Requirements.
- E. Section 01 3216 - Construction Progress Schedule.
- F. Section 01 4000 - Quality Requirements.
- G. Section 01 5000 - Temporary Facilities and Controls.
- H. Section 01 5100 - Temporary Utilities.
- I. Section 01 5213 - Field Offices and Sheds.
- J. Section 01 5813 - Temporary Project Signage.
- K. Section 01 6000 - Product Requirements.
- L. Section 01 7000 - Execution and Closeout Requirements.
- M. Section 01 7800 - Closeout Submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Price and Contract Time.
- C. Change procedures.
- D. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. Document 00 5200 - Agreement Form: Contract Price, retainages, payment period, monetary values of unit prices.
- B. Document 00 7200 - General Conditions and Document 00 7300 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.
- C. Document 00 7300 - Supplementary Conditions: Percentage allowances for's overhead and profit.
- D. Section 01 2100 - Allowances: Payment procedures relating to allowances.

1.03 SCHEDULE OF VALUES

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Mortin Design Services for approval.
- B. Forms filled out by hand will not be accepted.
- C. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- D. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization.
- E. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Mortin Design Services for approval.
- C. Forms filled out by hand will not be accepted.
- D. Execute certification by signature of authorized officer.
- E. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- G. Submit five copies of each Application for Payment.

- H. When Mortin Design Services requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Price or Contract Time, Mortin Design Service will issue instructions directly to the contractor.
- B. Contractor may propose a change by submitting a request for change to or Design Services, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.
- C. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
 - 1. For change requested by Mortin Design Services for work falling under a fixed price contract, the amount will be based on contractor's price quotation.
 - 2. For change requested by the owner, the amount will be based on the contractor's request for a Change Order as approved by Mortin Design Services.
 - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
- D. Execution of Change Orders: Mortin Design Services will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- E. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- F. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- G. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

END OF SECTION

SECTION 01 4000

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. References and standards.
- B. Quality assurance submittals.
- C. Control of installation.
- D. Testing and inspection services.

1.02 RELATED REQUIREMENTS

- A. Section 01 2100 - Allowances: Allowance for payment of testing services.
- B. Section 01 3000 - Administrative Requirements: Submittal procedures.

1.03 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008.
- B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2011.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2009.
- D. 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; 2010.
- E. ASTM E329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing; 2011.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2009.

1.04 SUBMITTALS

- A. Design Data: Submit for Mortin Design Services 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's information.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Mortin Design Services and to.
 - 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 Mortin Design Services, provide interpretation of results.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and or installation/application subcontractor to Mortin Design Services, 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 Mortin Design Services.
- 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's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Erection Drawings: Submit drawings for Mortin Design Services benefit as contract administrator or for.

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 Mortin Design Services before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Mortin Design Services shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AND INSPECTION AGENCIES

- 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 of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Employed Agency:
 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM C1021, ASTM C1077, and ASTM C1093.
 2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
 3. Laboratory: Authorized to operate in.
 4. 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 3 EXECUTION

2.01 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 Mortin Design Services 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.

2.02 TESTING AND INSPECTION

- A. See individual specification sections for testing required.
- B. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Mortin Design Services and in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Mortin Design Services and of observed irregularities or non-conformance of Work or products.
 - 5. Perform additional tests and inspections required by Mortin Design Services.
 - 6. 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.
 - 4. Agency has no authority to stop the Work.
- D. 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 and to manufacturers' facilities.
 - 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 Mortin Design Services 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 beyond specified requirements.
 6. Arrange with's agency and pay for additional samples, tests, and inspections required by beyond specified requirements.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Mortin Design Services.
- F. Re-testing required because of non-conformance to specified requirements shall be paid for by contractor .

2.03 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of Mortin Design Services, it is not practical to remove and replace the Work, Mortin Design Services will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4100

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Regulatory requirements applicable to this project are the following:
- B. 28 CFR 35 - Department of Justice accessibility regulations relating to State and local governments; current edition.
- C. 28 CFR 36 - Department of Justice accessibility regulations relating to public accommodations; current edition.
- D. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; 2002.
- E. 29 CFR 1910 - Occupational Safety and Health Standards; current edition; as a work place.
- F. Building Code: Arkansas State Fire Prevention Code.Vol I &Vol II 2012.
- G. Plumbing Code: Arkansas Plumbing Code 2006.
- H. Mechanical Code: Arkansas Mechanical Code 2003.
- I. NFPA 70 - National Electrical Code, 2011.
- J. Energy Code: Arkansas Energy Code-current edition.

1.02 RELATED REQUIREMENTS

- A. Section 01 4000 - Quality Requirements.

1.03 QUALITY ASSURANCE

- A. Designer Qualifications: Where delegated engineering design is to be performed under the construction contract provide the direct supervision of a Professional Engineer experienced in design of this type of work and licensed in Arkansas.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.
- H. Project identification sign.
- I. Field offices.

1.02 TEMPORARY UTILITIES - See Section 01 5100

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
- B. Existing facilities may not be used.
- C. New permanent facilities may be used.
- D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
- B. Telecommunications services shall include:
 - 1. Telephone Land Lines: One line, minimum; one handset per line.

1.04 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.

1.05 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, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

- A. Construction:contracto

1.07 SECURITY - See Section 01 3553

- A. Provide security and facilities to protect Work, existing facilities, and's operations from unauthorized entry, vandalism, or theft.

1.08 VEHICULAR ACCESS AND PARKING - See Section 01 5500

- A. Coordinate access and haul routes with governing authorities and.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. 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.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.10 PROJECT IDENTIFICATION

- A. Provide project identification sign of design and construction indicated on Drawings.
- B. Erect on site at location indicated.
- C. No other signs are allowed without permission except those required by law.

1.11 FIELD OFFICES

- A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack.
- B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.
- C. Locate offices a minimum distance of 30 feet from existing and new structures.

1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. 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.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5813

TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project identification sign.

1.02 REFERENCE STANDARDS

- A. FHWA (SHS) - Standard Highway Signs; Federal Highway Administration, U.S. Department of Transportation; 2004.

1.03 QUALITY ASSURANCE

- A. Design sign and structure to withstand 50 miles/hr wind velocity.
- B. Sign Painter: Experienced as a professional sign painter for minimum three years.
- C. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

1.04 SUBMITTALS

- A. Shop Drawing: Show content, layout, lettering, color, foundation, structure, sizes and grades of members.

PART 2 PRODUCTS

2.01 SIGN MATERIALS

- A. Structure and Framing: New, wood, structurally adequate.
- B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inch thick, standard large sizes to minimize joints.
- C. Rough Hardware: Galvanized.
- D. Paint and Primers: Exterior quality, two coats; sign background of red, white, & blue color.
- E. Lettering: Exterior quality paint, white on red and blue background, black on white background

2.02 PROJECT IDENTIFICATION SIGN

- A. Content: See layout in the Drawings

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install project identification sign within 30 days after date fixed by Notice to Proceed.
- B. Erect at designated location.
- C. Install sign surface plumb and level, with butt joints. Anchor securely.
- D. Paint exposed surfaces of sign, supports, and framing.

3.02 MAINTENANCE

- A. Maintain signs and supports clean, repair deterioration and damage.

3.03 REMOVAL

- A. Remove signs, framing, supports, and foundations at completion of Project and restore the area

END OF SECTION

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.

1.02 RELATED REQUIREMENTS

- A. Document 00 2113 - Instructions to Bidders: Product options and substitution procedures prior to bid date.
- B. Section 01 1000 - Summary: Lists of products to be removed from existing building.
- C. Section 01 4000 - Quality Requirements: Product quality monitoring.
- D. Section 01 7419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting packaging and substitutions.

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 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 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.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. 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.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitution Submittal Procedure:
 - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 - 3. The Little & Associates - Architects will notify in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

3.03 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. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. 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. Cutting and patching.
- C. Surveying for laying out the work.
- D. Cleaning and protection.
- E. Starting of systems and equipment.
- F. Closeout procedures, except payment procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures.
- B. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- C. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures.

1.03 REFERENCE STANDARDS

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2009.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
 - 1. On request, submit documentation verifying accuracy of survey work.
 - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
 - 3. Submit surveys and survey logs for the project record.
- C. 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 or separate Contractor.

1.05 QUALIFICATIONS

- A. For survey work, employ a land surveyor registered in and acceptable to Mortin Design Services. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.06 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

- D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- E. 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.
- F. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

PART 2 PRODUCTS

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.

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 mis fabrication.
- 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 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Mortin Design Services of any discrepancies discovered.

- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Mortin Design Services 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 Mortin Design Services.
- 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; and _____.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, ground floor elevations, and _____.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 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.

3.05 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. 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.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.
- 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.

3.06 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.

3.07 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 plastic coverings if possible.

3.08 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 personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.09 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.10 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.11 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Notify Mortin Design Services when work is considered ready for Substantial Completion.
- C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Mortin Design Services review.
- D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to-occupied areas.
- E. Notify Mortin Design Services when work is considered finally complete.
- F. Complete items of work determined by Mortin Design Services final inspection.

END OF SECTION

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Mortin Design Services with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Mortin Design Services comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by.

- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.
 - 4. Complete nomenclature and model number of replaceable parts.
- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- D. Provide servicing and lubrication schedule, and list of lubricants required.
- E. Include manufacturer's printed operation and maintenance instructions.
- F. Include sequence of operation by controls manufacturer.

- G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- H. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4116

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building demolition.
- B. Selective demolition of built site elements.
- C. Selective demolition of building elements for alteration purposes.
- D. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

- A. Section 00300 - Information Available to Bidders: Existing building survey conducted by; information about known hazardous materials.
- B. Section 01100 - Summary: Limitations on's use of site and premises.
- C. Section 01100 - Summary: Description of items to be removed by.
- D. Section 01100 - Summary: Description of items to be salvaged or removed for re-use by.
- E. Section 01500 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- F. Section 01575 - Temporary Erosion and Sedimentation Control.
- G. Section 01600 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- H. Section 01700 - Execution Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- I. Section 01732 - Waste Management: Limitations on disposal of removed materials; requirements for recycling.
- J. Section 02310 - Grading: Topsoil removal.
- K. Section 02310 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.
- L. Section 02316 - Fill and Backfill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

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; 2009.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Site Plan: Showing:
 - 1. Areas for temporary construction and field offices.
 - 2. Areas for temporary and permanent placement of removed materials.
- C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and

- construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
 - 3. Include a summary of safety procedures.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required.
- 1. Minimum of 5 years of documented experience.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fill Material: As specified in Section 02310 - Grading

PART 3 EXECUTION

3.01 SCOPE

- A. Remove the buildings or portion of buildings designated on the site plan.
- B. Remove paving and curbs as required to accomplish new work.
- C. Remove all other paving and curbs within site boundaries.
- D. Within area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade.
- E. Outside area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade on buildings or portion of buildings to be removed..
- F. Remove concrete slabs on grade within site boundaries.
- G. Remove manholes and manhole covers, curb inlets and catch basins.
- H. Remove other items indicated, for salvage and relocation.
- I. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 02316.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with other requirements specified in Section 01700.
- 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. Comply with all Arkansas Department of Environmental Quality regulations including but not limited to Regulation 21 (Asbestos Abatement) ,whether asbestos is present or not, and Regulation 23 (Hazardous Waste Management) including all fees required.
 - 4. Use of explosives is not permitted.
 - 5. 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.
 - 6. Provide, erect, and maintain temporary barriers and security devices.

7. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 8. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 9. Do not close or obstruct roadways or sidewalks without permit.
 10. 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.
 11. 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.
 - D. Do not begin removal until built elements to be salvaged or relocated have been removed.
 - E. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.
 - F. 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.
 - G. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
 - H. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.
 - I. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 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.
- 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.
- 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.

3.04 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 shown.
 2. Report discrepancies to Mortin Design Services before disturbing existing installation.

3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
 1. Provide, erect, and maintain temporary dustproof partitions of construction indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
- D. Remove existing work as indicated and as required to accomplish new work.
 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 2. Remove items indicated on drawings.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 3. Verify that abandoned services serve only abandoned facilities before removal.
 4. 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.
- F. Protect existing work to remain.
 1. Prevent movement of structure; provide shoring and bracing if necessary.
 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Remove from site all materials not to be reused on site; do not burn or bury.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Floors and slabs on grade.
- C. Concrete shear walls, elevator shaft walls, and foundation walls.
- D. Concrete foundations and anchor bolts.
- E. Concrete reinforcement.
- F. Joint devices associated with concrete work.
- G. Miscellaneous concrete elements, including equipment pads, light pole bases, flagpole bases, thrust blocks, and manholes.
- H. Concrete curing.

1.02 RELATED REQUIREMENTS

- A. Section 32 1313 - Concrete Paving: Sidewalks, curbs and gutters.

1.03 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- C. ACI 211.2 - Standard Practice for Selecting Proportions for Structural Lightweight Concrete; American Concrete Institute International; 1998 (Reapproved 2004).
- D. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- E. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- F. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- G. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- H. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.
- I. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- J. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.
- K. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International; 2004.
- L. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

- M. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2009b.
- N. ASTM C33 - Standard Specification for Concrete Aggregates; 2011.
- O. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2010.
- P. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2011.
- Q. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2010a.
- R. ASTM C150 - Standard Specification for Portland Cement; 2011.
- S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2010b.
- T. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- U. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.
- V. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2010.
- W. COE CRD-C 572 - Corps of Engineers Specifications for Polyvinylchloride Waterstop; Corps of Engineers; 1974.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
 - 2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
 - 3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
 - 4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
 - 1. Type: Deformed billet-steel bars.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain type.
 - 1. Form: Coiled Rolls.

2. Mesh Size and Wire Gage: As indicated on drawings.
- C. Reinforcement Accessories:
1. Tie Wire: Annealed, minimum 16 gage.
 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.
1. Acquire all cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
1. Acquire all aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Calcined Pozzolan: ASTM C618, Class N.
- E. Water: Clean and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260.

2.05 ACCESSORY MATERIALS

- A. Chemical Hardener: Fluosilicate solution designed for densification of cured concrete slabs.

2.06 BONDING AND JOINTING PRODUCTS

- A. Epoxy Bonding System: Complying with ASTM C881/C881M and of Type required for specific application.
- B. Waterstops: PVC, complying with COE CRD-C 572.
1. Configuration: As indicated on the drawings.
 2. Size: As indicated on the drawings.
- C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
- D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.

2.07 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
1. For trial mixtures method, employ independent testing agency acceptable to Mortin Design Services for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- D. Normal Weight Concrete:
1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 psi.
 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.

4. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
5. Maximum Slump: 4 inches.
6. Maximum Aggregate Size: 5/8 inch.

2.08 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- C. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
 1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
- D. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
 1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- D. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
- D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
 - 1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and terrazzo with full bed setting system.
 - 2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 301.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
 - 3. Other Surfaces to Be Left Exposed: "Steel trowel" as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
 - a. Chemical Hardener: After slab has cured, apply water-diluted hardener in three coats per manufacturer's instructions, allowing 24 hours between coats.
- E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.08 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 - 1. Normal concrete: Not less than 7 days.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- D. Surfaces Not in Contact with Forms:
 - 1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
 - 2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
 - 3. Final Curing: Begin after initial curing but before surface is dry.
 - a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.09 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.

- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.10 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Little & Associates - Architects and within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Little & Associates - Architects. The cost of additional testing shall be borne by when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Little & Associates - Architects for each individual area.

3.11 SCHEDULE - CONCRETE TYPES AND FINISHES

- A. Foundation Walls: 3,000 psi 28 day concrete, form finish with honeycomb filled surface.
- B. Concrete floor slabs exposed to View: 4,000 psi 28 day concrete, form finish with honeycomb filled surface.
- C. Exterior concrete: 4,000 psi 28 day concrete, air entrained, smooth rubbed finish.

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. Sheathing.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. Concealed wood blocking, nailers, and supports.
- H. Water-resistive barrier over wall sheathing.

1.02 RELATED REQUIREMENTS

- A. Section 06 1753 - Shop-Fabricated Wood Trusses.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings.
- C. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2001.
- 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; American Wood Protection Association; 2010.
- D. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc; 2009.
- E. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2004.
- F. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.
- G. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.
- H. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17; West Coast Lumber Inspection Bureau; 2004, and supplements.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Samples: For rough carpentry members that will be exposed to view, submit two samples, 6x6 inch in size illustrating wood grain, color, and general appearance.

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.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. 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.
 - 2. 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.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Douglas Fir-Larch.
 - 2. Grade: No. 2.
- E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
 - 1. Machine stress-rated (MSR) as follows:
 - a. Fb-single (minimum extreme fiber stress in bending): 1350 psi.
 - b. E (minimum modulus of elasticity): 1,300,000 psi.
 - 2. Species: Douglas Fir-Larch.
- F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.

2.04 CONSTRUCTION PANELS

- A. Roof Sheathing: Radiant Barrier foil faced oriented strand board wood structural panel; PS 2, Exposure 1.
 - 1. Thickness: 5/8 inch, nominal.
 - 2. Span Rating: 32/16.
 - 3. Edges: Square.
 - 4. Exposure Time: Sheathing undamaged; water-resistive and air barrier layer intact after exposure to weather for up to 300 days.
 - 5. Provide fastening guide on top panel surface with separate markings indicating fastener spacing for 16 inches and 24 inches on center, respectively.
- B. Wall Sheathing: Oriented strand board structural wood panel with factory laminated water-resistive and air barrier layer.
 - 1. Sheathing Panel: PS 2, Exposure 1.
 - a. Size: 4 feet wide by 8 feet long.
 - b. Thickness: 7/16 inch.
 - c. Span Rating: 24/16.
 - d. Edge Profile: Square edge.

2.05 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.06 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. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
 - 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 above grade.
 - f. Treat lumber in other locations as indicated.
 - 2. Preservative Pressure Treatment of Plywood Above Grade: AWWA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
 - b. Treat plywood in contact with masonry or concrete.
 - c. Treat plywood 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.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.

- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. 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.
- F. 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 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.
- C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- D. Specifically, provide the following non-structural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Handrails.
 - 4. Grab bars.
 - 5. Towel and bath accessories.
 - 6. Wall-mounted door stops.
 - 7. Chalkboards and marker boards.
 - 8. Wall paneling and trim.
 - 9. Joints of rigid wall coverings that occur between studs.
 - 10. Ceiling fan Mounting.

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. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
 - 1. At long edges use sheathing clips where joints occur between roof framing members.
 - 2. Nail panels to framing; staples are not permitted.
- C. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
 - 1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

- D. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
 - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
 - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 - 3. Install adjacent boards without gaps.

3.07 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.08 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.

1.02 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.
- B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

1.03 SUBMITTALS

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

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
- B. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards for Premium Grade.
- B. Unless otherwise indicated provide products of quality specified by AWI Architectural Woodwork Quality Standards Illustrated for Custom grade.

2.02 WOOD-BASED COMPONENTS

2.03 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.02 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 06 4100

ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.

1.02 RELATED REQUIREMENTS

- A. Section 09 9000 - Painting and Coating: Site finishing of cabinet exterior.

1.03 REFERENCE STANDARDS

- A. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2009.
- B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.
- 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; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).

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.
- C. Product Data: Provide data for hardware accessories.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Mid America Cabinets
20980 Marion Lee Road
Gentry, AR 72734

2.02 CABINETS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Premium Grade.
- B. Wood Veneer Faced Cabinets: Premium grade.
 - 1. Exposed Surfaces: Grade AA, Red Oak, plain sliced, slip-matched.
 - 2. Semi-Exposed Surfaces: Grade A, Red Oak, rotary cut, random-matched.
- C. Cabinets at Kitchen and Bath:

1. Finish - Exposed Exterior Surfaces: Wood.
2. Finish - Exposed Interior Surfaces: Wood.
3. Finish - Concealed Surfaces: Wood.
4. Grained Face Layout for Cabinet and Door Fronts: Style and Rail, all Grades.
 - a. Drawer fronts run grain either vertically or horizontally at the manufacturer's option.
 - b. Doors: Vertical grain.
5. Cabinet Design Series: Box: Mesa (1/2" plywood); Upper Doors: Lincoln recessed panel; Lower Doors: Sierra recessed panel; Drawer Fronts: Slab.
6. Adjustable Shelf Loading: 50 lbs. per sq. ft..
 - a. Deflection: L/144.

2.03 WOOD-BASED COMPONENTS

- A. Hardwood Edgebanding: Use solid hardwood edgebanding matching species, color, grain, and grade for exposed portions of cabinetry.

2.04 LAMINATE MATERIALS

- A. Manufacturers:
 1. Formica Corporation: www.formica.com.
 2. Wilsonart International, Inc: www.wilsonart.com.
- B. Provide specific types as scheduled.
 1. Post-Formed Horizontal Surfaces: HGP, 0.039 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 2. Cabinet Liner: CLS, 0.020 inch nominal thickness, through color, colors as scheduled, finish as scheduled.
 3. Laminate Backer: BKL, 0.020 inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.

2.05 COUNTERTOPS

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, post-formed, 180 degree wrap (Europa) front edge, with coved integral backsplash.

2.06 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.
- C. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

2.07 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Drawer and Door Pulls: Drawer Knob- Amerock 3011ORB; Door Pulls - Amerock174ORB.
- C. Drawer Slides:
 1. Type: Standard extension.
 2. Static Load Capacity: Commercial grade.
 3. Mounting: Side mounted.
 4. Stops: Integral type.
 5. Features: Provide self closing/stay closed type.
- D. Hinges: European style concealed self-closing type, steel with polished finish.

2.08 FABRICATION

- A. Cabinet Style: Reveal overlay on face frame.
- B. Cabinet Doors and Drawer Fronts: Stile and rail, flat panel style.

- C. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- D. 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. Locate counter butt joints minimum 2 feet from sink cut-outs.

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.

3.03 ADJUSTING

- A. Adjust installed work.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SECTION 09 2116

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Gypsum wallboard.
- B. Joint treatment and accessories.
- C. Textured finish system.

1.02 RELATED REQUIREMENTS

- A. Section 05 4000 - Cold-Formed Metal Framing: Exterior wind-load-bearing metal stud framing.
- B. Section 07 9005 - Joint Sealers: Acoustic sealant.

1.03 REFERENCE STANDARDS

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).
- B. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.
- C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.
- D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2010a.
- E. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.
- F. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

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

2.02 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
 - 1. American Gypsum: www.americangypsum.com.
 - 2. American Gypsum: www.americangypsum.com.
 - 3. CertainTeed Corporation: www.certainteed.com.
 - 4. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.
 - 5. National Gypsum Company: www.nationalgypsum.com.
 - 6. USG Corporation: www.usg.com.
- 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, unless otherwise indicated.
 - 2. Thickness:
 - a. Vertical Surfaces: 5/8 inch.

3. Paper-Faced Products:
 - a. American Gypsum; EagleRoc Regular Gypsum Wallboard and FireBloc Type X Gypsum Wallboard.
 - b. CertainTeed Corporation; ProRoc Brand Gypsum Board.
 - c. National Gypsum Company; Gold Bond Brand Gypsum Wallboard.
 - d. USG Corporation; Sheetrock Brand Gypsum Panels.

2.03 ACCESSORIES

- A. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
 1. Types: As detailed or required for finished appearance.
- B. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
 1. Tape: 2 inch wide, coated glass fiber tape for joints and corners(hand flat work).
 2. Tape: 2 inch wide, creased paper tape for joints and corners(machine work).
 3. Ready-mixed vinyl-based joint compound.
- C. High Build Drywall Surfer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.
- D. Textured Finish Materials: Latex-based compound; plain.
- E. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

3.03 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.

3.04 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 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
 3. Level 3: Walls to receive textured wall finish.
 4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 5. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
 6. Level 0: Temporary partitions and surfaces indicated to be finished in later stage of project.
- 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.
- D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.05 TEXTURE FINISH

- A. Apply finish texture coating by means of spraying apparatus in accordance with manufacturer's instructions and to match approved sample.

3.06 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 5110

SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Suspended metal grid ceiling system.
- B. Acoustical units.

1.02 RELATED REQUIREMENTS

- A. Section 07212 - Board and Batt Insulation: Acoustical insulation.
- B. Section 07900 - Joint Sealers: Acoustical sealant.
- C. Section 16510 - Interior Luminaires: Light fixtures in ceiling system.

1.03 REFERENCE STANDARDS

- A. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2007.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2008.
- C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2011.
- D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2008e1.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on suspension system components.

1.06 FIELD CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

- A. Manufacturers:
 - 1. Armstrong World Industries, Inc.; www.armstrong.com.
 - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Acoustical Units - General: ASTM E1264, Class A.
- C. Acoustical Panels: Painted mineral fiber, ASTM E1264 Type III, with the following characteristics:
 - 1. Size: 24 x 24 inches.
 - 2. Thickness: 5/8 inches.
 - 3. Composition: Wet felted.

4. Light Reflectance: 0.85 percent, determined as specified in ASTM E1264.
5. NRC Range: 0.55 to 0.55, determined as specified in ASTM E1264.
6. Ceiling Attenuation Class (CAC): 35, determined as specified in ASTM E1264.
7. Edge: Reveal edge.
8. Surface Color: White.
9. Surface Pattern: Non-directional fissured.
10. Product: 1732 Fine Fissured Tegular by Armstrong.

2.02 SUSPENSION SYSTEM(S)

- A. Manufacturers:
 1. Armstrong World Industries, Inc; Product 7300: www.armstrong.com.
 2. Substitutions: See Section 01600 - Product Requirements.
- B. Suspension Systems - General: ASTM C635; die cut and interlocking components, with stabilizer bars, clips, splices, and perimeter moldings as required.
- C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; intermediate-duty.
 1. Profile: Tee; 15/16 inch wide face.
 2. Construction: Double web.
 3. Finish: White painted.
 4. Product: 7300 Prelude XL by Armstrong. Siesmic braced for siesmic zone 3.

2.03 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
 1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Locate system on room axis according to reflected plan.
- D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- I. Do not eccentrically load system or induce rotation of runners.
- J. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Use longest practical lengths.
 - 2. Overlap and rivet corners.

3.03 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.
- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- F. Cutting Acoustical Units:
 - 1. Make field cut edges of same profile as factory edges.

3.04 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 6500

RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient tile flooring.
- B. Resilient base.
- C. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2010e1.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.
- C. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2010)e1.
- D. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008.
- E. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2011.

1.03 SUBMITTALS

- A. See Section 01300 - 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 Mortin Design Services initial selection.

1.04 FIELD CONDITIONS

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 TILE FLOORING

- A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness, and:
 - 1. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
 - 2. Size: 12 x 12 inch.
 - 3. Thickness: 0.125 inch.
 - 4. Pattern: Marbleized.
 - 5. Manufacturers:
 - a. Armstrong World Industries, Inc; Product Exelon: www.armstrong.com.
 - b. Mannington Mills, Inc; Product Essentials: www.mannington.com.
 - c. Tarkett Inc; Product Expressions: www.tarkett.com.
 - d. Substitutions: See Section 01600 - Product Requirements.

2.02 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TV, vinyl, thermoplastic; top set Style B, Cove, and as follows:
 - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 - 2. Height: 4 inch.
 - 3. Thickness: 0.125 inch thick.
 - 4. Finish: Satin.
 - 5. Length: Roll.
 - 6. Color: Color as selected from manufacturer's standards.
 - 7. Manufacturers:
 - a. Johnsonite, Inc: www.johnsonite.com.
 - b. Roppe Corp: www.roppe.com.
 - c. Substitutions: See Section 01600 - Product Requirements.

2.03 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
- C. Moldings, Transition and Edge Strips: Same material as flooring.
- D. Filler for Coved Base: Plastic.

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. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

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 cured.

3.03 INSTALLATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. Install in accordance with manufacturer's instructions.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Fit joints tightly.
- E. Set flooring in place, press with heavy roller to attain full adhesion.
- F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

- G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

3.05 RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.

3.06 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's instructions.

3.07 PROTECTION

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 09 9000

PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Exposed surfaces of steel lintels and ledge angles.
 - 3. Surfaces inside cabinets.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Floors, unless specifically so indicated.
 - 6. Glass.
 - 7. Concealed pipes, ducts, and conduits.

1.02 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 D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- C. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two paper chip samples, illustrating range of colors and textures available for each surface finishing product scheduled.
- D. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.05 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. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Base Manufacturer: See Section 09 9100.
 - 2. Sherwin-Williams Co.: www.sherwin-williams.com.
- C. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each coating material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
 - 1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Wood, Opaque, Latex, 3 Coat:
 - 1. One coat of latex primer sealer.
 - 2. Semi-gloss: Two coats of latex enamel; SW A82 series.
- B. Masonry/Concrete, Opaque, Latex, 3 Coat:
 - 1. One coat of block filler.
 - 2. Semi-gloss: Two coats of latex enamel; SW-A82 series.
- C. Ferrous Metals, Unprimed, Alkyd, 3 Coat:
 - 1. One coat of alkyd primer.

2. Semi-gloss: Two coats of alkyd enamel; SW-B54 series.
- D. Galvanized Metals, Latex, 3 Coat:
1. One coat galvanize primer.
 2. Semi-gloss: Two coats of latex enamel; SW-A82 series.
- E. Pavement Marking Paint:
1. Yellow: One coat,; SW-0.0TM2161.

2.04 PAINT SYSTEMS - INTERIOR

- A. Wood, Opaque, Latex, 3 Coat:
1. One coat of latex primer sealer.
 2. Semi-gloss: Two coats of latex enamel; SW-A32 series.
- B. Concrete/Masonry, Opaque, Latex, 3 Coat:
1. One coat of block filler.
 2. Semi-gloss: Two coats of latex enamel; SW-A82 series.
- C. Ferrous Metals, Unprimed, Alkyd, 3 Coat:
1. One coat of alkyd primer.
 2. Semi-gloss: Two coats of alkyd enamel; SW B31W2251.
- D. Paint Mgl-OP-3L - Galvanized Metals, Latex, 3 Coat:
1. One coat galvanize primer.
 2. Semi-gloss: Two coats of latex enamel; SW# B31W2251.
- E. Paint GI-OP-3LA - Gypsum Board/Plaster, Latex-Acrylic, 3 Coat:
1. One coat of latex primer sealer.
 2. Eggshell: Two coats of latex-acrylic enamel; SW B20W2251.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. 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. Gypsum Wallboard: 12 percent.
 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.

- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- H. 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.
- I. 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 instructions.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

END OF SECTION

SECTION 10 2800

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Accessories for toilet rooms, showers, and residential bathrooms.
- B. Grab bars.

1.02 REFERENCE STANDARDS

- A. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip; 1999 (Reapproved 2009).
- B. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2010.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.
- D. ASTM C1036 - Standard Specification for Flat Glass; 2006.
- E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008.
- F. GSA CID A-A-3002 - Mirrors, Glass; U.S. General Services Administration; 1996.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Toilet Accessories:
 - 1. Bradley Corporation: www.bradleycorp.com.

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. Stainless Steel Sheet: ASTM A666, Type 304.
- C. Stainless Steel Tubing: ASTM A269, Type 304 or 316.
- D. Mirror Glass: Float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

2.03 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.

2.04 TOILET ROOM ACCESSORIES

- A. Toilet Paper Dispenser: Single roll, surface mounted bracket type, chrome-plated zinc alloy brackets.
 - 1. Product: 508-3200000 manufactured by Bradley.
- B. Paper Towel Dispenser: Folded paper type, stainless steel, surface-mounted, with viewing slots on sides as refill indicator and tumbler lock.

- C. Waste Receptacle: Stainless steel, freestanding style with swing top.
 - 1. Liner: Removable, heavy-duty vinyl liner, attached at a minimum of 4 points with stainless steel grommets and hooks.
 - 2. Product: 357-0000000 manufactured by Bradley.
- D. Waste Receptacle: Wall-mounted, stainless steel, seamless lower door for access to container, with tumbler lock, reinforced panel full height of door, push-in self-closing top door, continuously welded bottom pan and seamless exposed flanges.
 - 1. Product: 357-0000000 manufactured by Bradley.
- E. Soap Dispenser: Liquid soap dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gage refill indicator, tumbler lock.
 - 1. Minimum Capacity: 40 ounces.
 - 2. Product: 6542-0000000 manufactured by Bradley.
- F. Mirrors: Stainless steel framed, 6 mm thick float glass mirror.
 - 1. Size: 18"x30" TILT. Width of vanity x 40" H fixed
 - 2. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
 - 3. Adjustable Tilt Mirrors: Stainless steel piano hinge full width of base and elbow hinges at sides of mirror, for minimum tilt forward from top of 6 inches.
 - 4. Product: 782-0183000 manufactured by Bradley.(Tilt)
 - 5. Product: 781-0304000 Manufactured by Bradley. (Fixed)
- G. Grab Bars: Stainless steel, 1-1/4 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar.
 - 1. Length: 36 inches wall behind toilet:42" & 18" vertical wall beside toilet.
 - 2. Product: 8120-001360(36");8120-001420(42");8120-001180(18") manufactured by Bradley.

2.05 SHOWER AND TUB ACCESSORIES

- A. Shower Curtain Rod: Stainless steel tube, 1 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for installation with exposed fasteners.
 - 1. Product: 9531-072000 manufactured by Bradley.
- B. Shower Curtain:
 - 1. Material: Opaque vinyl, 0.008 inch thick, matte finish, with antibacterial treatment, flameproof and stain-resistant.
 - 2. Size: 72 by 72 inches, hemmed edges.
 - 3. Grommets: Stainless steel; pierced through top hem on 6 inch centers.
 - 4. Color: White.
 - 5. Shower curtain hooks: Chrome-plated or stainless steel spring wire designed for snap closure.
 - 6. Product: 9536&9537-7272 manufactured by Bradley.
- C. Wall-Mounted Soap Dish: Heavy duty, seamless stainless steel, surface-mounted with drain holes, with grab bar, satin finish; with concealed mechanical fastening suitable for substrate and backplate.
- D. Towel Bar: Stainless steel Type 304, 1 inch round, 18 ga. tubular bar; satin finish.
 - 1. Length: 24 inches.
 - 2. Product: 908-24 manufactured by Bradley.

2.06 RESIDENTIAL ACCESSORIES

- A. Medicine Cabinet: One-piece construction of heavy-gage steel with factory-applied, gloss

white, baked enamel finish, fully recessed, satin finish stainless steel mirror frame, reversible type.

1. Shelves: Adjustable, aluminum or glass; provide not less than 3 shelves.
2. Door: Fitted with continuous piano-type hinge, magnetized catch, right-hand swing.
3. Product: 9663 manufactured by Bradley.

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 06100 for installation of blocking, reinforcing plates, and concealed anchors in walls, and ceilings.

3.02 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights and Locations: As required by accessibility regulations and as indicated on drawings
 1. Bottom of Mirrors: 40".to reflective surface
 2. Grab Bars 36".
- D.

SCHEDULE

END OF SECTION

SECTION 22 0719

PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Piping insulation.

1.02 REFERENCE STANDARDS

- A. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2008.
- B. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2007.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.
- D. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials; National Fire Protection Association; 2006.
- E. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

PART 2 PRODUCTS

2.01 REQUIREMENTS FOR ALL PRODUCTS OF THIS SECTION

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84, NFPA 255, or UL 723.

2.02 FLEXIBLE ELASTOMERIC CELLULAR INSULATION1

- A. Manufacturer:
 - 1. Armacell International Armaflex: www.armacell.com.
- B. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534 Grade 3; use molded tubular material wherever possible.
 - 1. Minimum Service Temperature: -40 degrees F.
 - 2. Maximum Service Temperature: 220 degrees F.
 - 3. Connection: Waterproof vapor barrier adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install in accordance with NAIMA National Insulation Standards.
- C. Exposed Piping: Locate insulation and cover seams in least visible locations.

- D. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 8400.

3.03 SCHEDULES

- A. Plumbing Systems:
1. Domestic Hot Water Supply:
 - a. Cellular Foam Insulation: All piping this section
 - 1) Pipe Size Range: 1/2"-2" inch.
 - 2) Thickness: 1/2 inch.
 2. Domestic Cold Water:
 3. Roof Drain Bodies:
 4. Roof Drainage Above Grade:
 5. Roof Drainage Run Horizontal at Roof Level:
- B. Cooling Systems:
1. Cold Condensate Drains:
 2. Refrigerant Suction:
 3. Refrigerant Hot Gas:

END OF SECTION

SECTION 22 1005

PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, valves, and connections for piping systems.
 - 1. Sanitary sewer.
 - 2. Domestic water.

1.02 RELATED REQUIREMENTS

- A. Section 31 2316 - Excavation.
- B. Section 31 2323 - Fill.
- C. Section 33 1300 - Disinfecting of Water Utility Distribution.
- D. Section 22 0516 - Expansion Fittings and Loops for Plumbing Piping.

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; 2001 (R2005) (ANSI B16.18).
- B. ASME B31.2 - Fuel Gas Piping; The American Society of Mechanical Engineers; 1968.
- C. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2008 (ANSI/ASME B31.9).
- D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.
- E. ASTM B32 - Standard Specification for Solder Metal; 2008.
- F. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2010.
- G. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2009.
- H. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2005.
- I. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2006.
- J. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2006.
- K. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2004 (Reapproved 2009).
- L. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2010.
- M. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings; 1996 (Reapproved 2010).
- N. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2008.
- O. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 1992 (Reapproved 2008).
- P. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Distribution; American Water Works Association; 2007 (ANSI/AWWA

C900).

- Q. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2009.
- R. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 1996.

1.04 SUBMITTALS

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

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Arkansas, standards.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for installation of backflow prevention devices.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 SANITARY SEWER PIPING, BURIED BEYOND 5 FEET OF BUILDING

- A. PVC Pipe: ASTM D2665 or ASTM D3034.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. PVC Pipe: ASTM D2665 or ASTM D3034.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 SANITARY SEWER PIPING, ABOVE GRADE

- A. PVC Pipe: ASTM D2665.
 - 1. Fittings: PVC.
 - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.04 WATER PIPING, BURIED BEYOND 5 FEET OF BUILDING

- A. PVC Pipe: AWWA C900.

2.05 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

- A. Copper Pipe: ASTM B 88, light drawn.
 - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.
 - 2. Joints: ASTM B 32, alloy Sn95 solder.
- B. PEX tubing: Zurn with Zurn fittings

2.06 WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B 88 (ASTM B 88M), Type L (B), Hard Drawn (H).
 - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
 - 2. Joints: ASTM B32, alloy Sn95 solder.
- B. PEX tubing: Zurn with Zurn fittings

2.07 FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 3 Inches and Under:
 - 1. Ferrous pipe: Class 150 malleable iron threaded unions.
 - 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.08 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 - 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 - 3. Trapeze Hangers: Welded steel channel frames attached to structure.
 - 4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Drain, Waste, and Vent:
 - 1. Conform to ASME B31.9.
 - 2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
- C. Plumbing Piping - Water:
 - 1. Conform to ASME B31.9.
 - 2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.

2.09 BALL VALVES

- A. Manufacturers:
 - 1. Nibco, Inc: www.nibco.com.
- B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze, two piece body, chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, solder ends with union.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.

- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 22 0516.
- G. Install vent piping penetrating roofed areas to maintain integrity of roof assembly; refer to Section 13122.
- H. Excavate in accordance with Section 31 2316.
- I. Backfill in accordance with Section 31 2323.
- J. Install bell and spigot pipe with bell end upstream.
- K. Install water piping to ASME B31.9.
- L. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- M. Sleeve pipes passing through partitions, walls and floors.
- N. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9.

3.04 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Provide plug valves in natural gas systems for shut-off service.

3.05 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
- B. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Disinfect water distribution system in accordance with Arkansas Health Department requirements.
- B. Prior to starting work, verify system is complete, flushed and clean.

3.07 SERVICE CONNECTIONS

- A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- B. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, pressure reducing valve, and sand strainer.
- C. Provide new gas service complete with gas meter and regulators. Gas service distribution piping to have initial minimum pressure of 7 inch wg. Provide regulators on each line serving gravity type appliances, sized in accordance with equipment.

3.08 SCHEDULES

- A. Pipe Hanger Spacing:
 - 1. Metal Piping:
 - a. Pipe size: 1/2 inches to 1-1/4 inches:
 - 1) Maximum hanger spacing: 6.5 ft.
 - 2) Hanger rod diameter: 3/8 inches.
 - b. Pipe size: 1-1/2 inches to 2 inches:
 - 1) Maximum hanger spacing: 10 ft.

- 2) Hanger rod diameter: 3/8 inch.
- c. Pipe size: 2-1/2 inches to 3 inches:
 - 1) Maximum hanger spacing: 10 ft.
 - 2) Hanger rod diameter: 1/2 inch.
- 2. Plastic Piping:
 - a. All Sizes:
 - 1) Maximum hanger spacing: 6 ft.
 - 2) Hanger rod diameter: 3/8 inch.

END OF SECTION

SECTION 22 4000

PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water closets.
- B. Lavatories.
- C. Sinks.
- D. Service sinks.
- E. Bathtubs.
- F. Showers.

1.02 RELATED REQUIREMENTS

- A. Section 06 4100 - Architectural Wood Casework: Preparation of counters for sinks; lavatory tops.
- B. Section 07 9005 - Joint Sealers: Seal fixtures to walls and floors.
- C. Section 22 1005 - Plumbing Piping.

1.03 REFERENCE STANDARDS

- A. ANSI Z124.1.2 - American National Standard for Plastic Bathtub and Shower Units; 2005.
- B. ANSI Z358.1 - American National Standard for Emergency Eyewash and Shower Equipment; 2009.
- C. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration; 2006.
- D. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2005.
- E. ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures; The American Society of Mechanical Engineers; 1994 (R2004).
- F. ASME A112.19.2 - Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals; The American Society of Mechanical Engineers; 2008.
- G. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use); The American Society of Mechanical Engineers; 2008.
- H. ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks and Urinals; The American Society of Mechanical Engineers; 2005.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Warranty: Submit manufacturer warranty and ensure forms have been completed in's name and registered with manufacturer.

1.05 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

- B. Provide five year manufacturer warranty for electric water cooler.

PART 2 PRODUCTS

2.01 TANK TYPE WATER CLOSETS

- A. Bowl: ASME A112.19.2; floor mounted, gravity flush with tip bucket technology (Niagara), vitreous china, 18 inches high, close-coupled closet combination with elongated rim, insulated vitreous china closet tank with fittings and lever flushing valve, bolt caps.
- B. Seat: Solid white plastic, closed front, brass bolts, with cover.

2.02 LAVATORIES

- A. Marble top with integrated bowl lavatory, 30"x22" with front overflow, seal of putty, calking, or concealed vinyl gasket.
- B. Supply Faucet: ASME A112.18.1; chrome plated combination supply fitting with pop-up waste, water economy aerator with maximum flow of 2.2 gallons per minute, single lever handle.

2.03 SINKS

- A. Double Compartment Bowl: ASME A112.19.3; 33" x 22" outside dimensions 20 gage thick, Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim.
 - 1. Drain: 1-1/2 inch chromed brass drain.

2.04 BATHTUBS AND SHOWERS

- A. Bathtub:
 - 1. ANSI Z124.1.2; molded glass fiber reinforced polyester, with slip-resistant bottom surface, contoured shape, color as selected.
 - 2. Length: 60 inches ID.
 - 3. Width: 30 inches ID.
 - 4. Complete with grab bars per ADA and ANSI and fold up seat
- B. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, pressure balanced mixing valve, bent shower arm with adjustable spray ball joint showerhead with maximum 1.5 gallons per minute flow and escutcheon, lever operated pop-up waste and overflow.

2.05 SHOWERS

- A. Shower Manufacturers: Hamilton
- B. Cabinet: ANSI Z124.1.2 reinforced glass fiber, 36" by 36" by 76 3/4" inches with integral receptor, soap dish, removable chrome plated strainer, tail piece, white color.
- C. Complete with ADA and ANSI U Bar and 1" dia. SS built in curtain rod.
- D. Trim: ASME A112.18.1; concealed shower supply with pressure balanced mixing valves, integral service stops, bent shower arm with adjustable spray ball joint shower head with maximum flow, and escutcheon.
- E. ADA and ANSI adjustable hand held shower head and slide bar.
- F. Low-Flow Shower Head:
 - 1. ASME A112.18.1; chrome plated vandal-proof institutional head with integral wall bracket, built-in 1.5 gpm flow control.

2.06 SERVICE SINKS

- A. Bowl: 24 by 24 by 10 inch high white molded stone, floor mounted, with one inch wide shoulders, vinyl bumper guard, stainless steel strainer.

- B. Trim: ASME A112.18.1 exposed wall type supply with cross handles, spout wall brace, vacuum breaker, hose end spout, strainers, eccentric adjustable inlets, integral screwdriver stops with covering caps and adjustable threaded wall flanges.
- C. Accessories:
 - 1. 5 feet of 1/2 inch diameter plain end reinforced plastic hose.
 - 2. Hose clamp hanger.
 - 3. Mop hanger.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 9005, color to match fixture.

3.04 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.05 CLEANING

- A. Clean plumbing fixtures and equipment.

3.06 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.
- C. Repair or replace damaged products before Date of Substantial Completion.

3.07 SCHEDULES

- A. Fixture Heights: Install fixtures to heights above finished floor as indicated.
 - 1. Water Closet:
 - a. Accessible: 18 inches to top of seat.
 - 2. Lavatory:
 - a. Standard: 31 inches to top of basin rim.
 - b. Accessible: 34 inches to top of basin rim.
 - 3. Shower Heads:
 - a. Adult Male: 69.5 inches to bottom of head.
- B. Fixture Rough-In
 - 1. Water Closet (Tank Type):
 - a. Cold Water: 1/2 Inch.

- b. Waste: 4 Inch.
- c. Vent: 2 Inch.
- 2. Lavatory:
 - a. Hot Water: 1/2 Inch.
 - b. Cold Water: 1/2 Inch.
 - c. Waste: 1-1/2 Inch.
 - d. Vent: 1-1/4 Inch.
- 3. Sink:
 - a. Hot Water: 1/2 Inch.
 - b. Cold Water: 1/2 Inch.
 - c. Waste: 1-1/2 Inch.
 - d. Vent: 1-1/4 Inch.
- 4. Service Sink:
 - a. Hot Water: 1/2 Inch.
 - b. Cold Water: 1/2 Inch.
 - c. Waste: 2 Inch.
 - d. Vent: 1-1/2 Inch.
- 5. Shower:
 - a. Hot Water: 1/2 Inch.
 - b. Cold Water: 1/2 Inch.
 - c. Waste: 1-1/2 Inch.
 - d. Vent: 1-1/4 Inch.

END OF SECTION

SECTION 26 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonmetallic-sheathed cable.
- B. Underground feeder and branch-circuit cable.
- C. Service entrance cable.
- D. Wire and cable for 600 volts and less.
- E. Wiring connectors.

1.02 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2001 (Reapproved 2007).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.
- C. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2009).
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- E. NECA 121 - Standard for Installing Nonmetallic-Sheathed Cable (Type NM-B) and Underground Feeder and Branch-Circuit Cable (Type UF); National Electrical Contractors Association; 2007.
- F. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; National Electrical Manufacturers Association; 2009 (ANSI/NEMA WC 70/ICEA S-95-658).
- G. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- I. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- J. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- K. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- L. UL 493 - Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables; Current Edition, Including All Revisions.
- M. UL 719 - Nonmetallic-Sheathed Cables; Current Edition, Including All Revisions.
- N. UL 854 - Service-Entrance Cables; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide for each cable assembly type.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and

product listing.

- B. Nonmetallic-sheathed cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. For branch circuit wiring in dry locations within multifamily dwellings permitted to be of Types III, IV, and V construction.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where exposed to view.
 - b. Where exposed to damage.
 - c. For damp, wet, or corrosive locations.
- C. Underground feeder and branch-circuit cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. For damp, wet, or corrosive locations as a substitute for NFPA 70, Type NMC nonmetallic-sheathed cable, when nonmetallic-sheathed cable is permitted.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where exposed to view.
 - b. Where exposed to damage.
- D. Service entrance cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. For underground service entrance, installed in raceway.
 - b. For service from meter location to panel in each unit.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where exposed to damage.

2.02 ALL CONDUCTORS AND CABLES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose indicated.
- C. Comply with NEMA WC 70.
- D. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- E. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- F. Conductor Material:
 - 1. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
- G. Minimum Conductor Size:
 - 1. Branch Circuits: 12 AWG.
- H. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - 3. Color Code:
 - a. 240/120 V, 1 Phase, 3 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.

2.03 NONMETALLIC-SHEATHED CABLE

- A. Description: NFPA 70, Type NM multiple-conductor cable listed and labeled as complying with UL 719, Type NM-B.

- B. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.

2.04 UNDERGROUND FEEDER AND BRANCH-CIRCUIT CABLE

- A. Description: NFPA 70, Type UF multiple-conductor cable listed and labeled as complying with UL 493, Type UF-B.
- B. Provide equipment grounding conductor unless otherwise indicated.
- C. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.

2.05 SERVICE ENTRANCE CABLE

- A. Service Entrance Cable for Above-Ground Use: NFPA 70, Type SE multiple-conductor cable listed and labeled as complying with UL 854, Style R.
- B. Conductor Stranding: Stranded.
- C. Insulation Voltage Rating: 600 V.

2.06 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that raceway installation is complete and supported.
- E. Verify that field measurements are as shown on the drawings.
- F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
- B. Install products in accordance with manufacturer's instructions.
- C. Install conductors and cable in a neat and workmanlike manner in accordance with NECA 1.
- D. Install nonmetallic-sheathed cable (Type NM-B) in accordance with NECA 121.
- E. Install underground feeder and branch-circuit cable (Type UF-B) in accordance with NECA 121.

- F. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
- H. Terminate cables using suitable fittings.
- I. Install conductors with a minimum of 12 inches of slack at each outlet.
- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
- L. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- M. Insulate ends of spare conductors using vinyl insulating electrical tape.
- N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- O. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.
- P. Install wire and cable securely, in a neat and workmanlike manner, as specified in NECA 1.
- Q. Route wire and cable as required to meet project conditions.
- R. Use wiring methods indicated.
- S. Pull all conductors into raceway at same time.
- T. Use suitable wire pulling lubricant for building wire 4 AWG and larger.
- U. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- V. Clean conductor surfaces before installing lugs and connectors.
- W. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
- X. Identify and color code wire and cable under provisions of Section 26 0553. Identify each conductor with its circuit number or other designation indicated.

END OF SECTION

SECTION 26 0534

CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Flexible metal conduit (FMC).
- C. Liquidtight flexible metal conduit (LFMC).
- D. Rigid polyvinyl chloride (PVC) conduit.
- E. Conduit fittings.
- F. Conduit, fittings and conduit bodies.

1.02 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2005.
- B. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); 2005.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); National Electrical Contractors Association; 2006.
- E. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); National Electrical Contractors Association; 2003.
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; 2007.
- G. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit; National Electrical Manufacturers Association; 2005.
- H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; National Electrical Manufacturers Association; 2003.
- I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; National Electrical Manufacturers Association; 2004.
- J. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- L. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
- M. UL 360 - Liquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.
- N. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- O. UL 651 - Schedule 40 and 80 Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittals procedures.
- B. Product Data: Provide for metallic conduit, flexible metal conduit, liquidtight flexible metal

conduit, metallic tubing, nonmetallic conduit, flexible nonmetallic conduit, nonmetallic tubing, fittings, and conduit bodies.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
 - 1. Exterior, Direct-Buried: Use rigid PVC conduit.
 - 2. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.

2.02 CONDUIT REQUIREMENTS

- A. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or testing firm acceptable to authority having jurisdiction as suitable for the purpose indicated.
- C. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 FLEXIBLE METAL CONDUIT (FMC)

- A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
- C. Description: Interlocked steel construction.
- D. Fittings: NEMA FB 1.

2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
- C. Description: Interlocked steel construction with PVC jacket.
- D. Fittings: NEMA FB 1.

2.06 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- B. Fittings:
 - 1. Manufacturer: Same as manufacturer of conduit to be connected.
 - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.
- C. Description: NEMA TC 2; Schedule 40 PVC.
- D. Fittings and Conduit Bodies: NEMA TC 3.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on drawings.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- E. Install liquidtight flexible nonmetallic conduit (LFNC) in accordance with NECA 111.
- F. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- G. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.

2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 3. Use suitable adapters where required to transition from one type of conduit to another.
 4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
 5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- H. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 4. Conceal bends for conduit risers emerging above ground.
 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
 6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
 8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- I. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where conduits are subject to earth movement by settlement or frost.
- J. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- K. Provide grounding and bonding in accordance with Section 26 0526.

END OF SECTION

SECTION 26 0537

BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall and ceiling outlet boxes.
- B. Floor boxes.
- C. Pull and junction boxes.

1.02 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- B. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; National Electrical Manufacturers Association; 2008.
- C. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports; National Electrical Manufacturers Association; 2008.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

PART 2 PRODUCTS

2.01 OUTLET BOXES

- A. Nonmetallic Outlet Boxes: NEMA OS 2.
- B. Wall Plates for Finished Areas: As specified in Section 26 2726.

2.02 FLOOR BOXES

- A. Floor Boxes: NEMA OS 1, fully adjustable, 1-1/2 inches deep.
- B. Material: Cast metal.
- C. Shape: Round.
- D. Service Fittings: As specified in Section 26 2726.

2.03 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify locations of floor boxes and outlets in offices and work areas prior to rough-in.

3.02 INSTALLATION

- A. Install boxes securely, in a neat and workmanlike manner, as specified in NECA 1.
- B. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and as required by NFPA 70.
- C. Set wall mounted boxes at elevations to accommodate mounting heights indicated.
- D. Orient boxes to accommodate wiring devices oriented as specified in Section 26 2726.

- E. Maintain headroom and present neat mechanical appearance.
- F. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
- G. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.
- H. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.
- I. Use flush mounting outlet box in finished areas.
- J. Do not install flush mounting box back-to-back in walls; provide minimum 6 inches separation. Provide minimum 24 inches separation in acoustic rated walls.
- K. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- L. Use stamped steel bridges to fasten flush mounting outlet box between studs.
- M. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- N. Do not fasten boxes to ceiling support wires.
- O. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.
- P. Use gang box where more than one device is mounted together. Do not use sectional box.
- Q. Use cast outlet box in exterior locations exposed to the weather and wet locations.
- R. Use cast floor boxes for installations in slab on grade; formed steel boxes are acceptable for other installations.
- S. Set floor boxes level.

3.03 ADJUSTING

- A. Adjust floor boxes flush with finish flooring material.
- B. Adjust flush-mounting outlets to make front flush with finished wall material.
- C. Install knockout closures in unused box openings.

3.04 CLEANING

- A. Clean interior of boxes to remove dust, debris, and other material.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall switches.
- B. Wall dimmers.
- C. Fan speed controllers.
- D. Receptacles.
- E. Wall plates.
- F. Floor box service fittings.

1.02 REFERENCE STANDARDS

- A. FS W-C-596 - Connector, Electrical, Power, General Specification for; Federal Specification; Revision G, 2001.
- B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush-mounted (General Specification); Federal Specification; Revision F, 1999.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- D. NEMA WD 1 - General Color Requirements for Wiring Devices; National Electrical Manufacturers Association; 1999 (R 2005).
- E. NEMA WD 6 - Wiring Device -- Dimensional Requirements; National Electrical Manufacturers Association; 2002 (R2008).
- F. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.
- H. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- I. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- J. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.
- K. UL 1472 - Solid-State Dimming Controls; Current Edition, Including All Revisions.
- L. UL 1917 - Solid-State Fan Speed Controls; Current Edition, Including All Revisions.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
 - 2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
 - 3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.

4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
 5. Notify Mortin Design Services of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.
- B. Sequencing:
1. Do not install wiring devices until final surface finishes and painting are complete.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.
1. Wall Dimmers: Include derating information for ganged multiple devices.
- C. Operation and Maintenance Data:
1. Wall Dimmers: Include information on operation and setting of presets.
 2. GFI Receptacles: Include information on status indicators and testing procedures and intervals.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hubbell Incorporated; : www.hubbell-wiring.com.
- B. Leviton Manufacturing Company, Inc; : www.leviton.com.
- C. Pass & Seymour, a brand of Legrand North America, Inc; : www.legrand.us

2.02 APPLICATIONS

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. Provide weather resistant GFI receptacles with specified weatherproof covers for all receptacles installed outdoors or in damp or wet locations.
- D. Provide tamper resistant receptacles for all receptacles installed in dwelling units.
- E. Provide GFI protection for all receptacles installed within 6 feet of sinks.
- F. Provide GFI protection for all receptacles installed in kitchens.
- G. Provide GFI protection for all receptacles serving electric drinking fountains.
- H. Provide isolated ground receptacles for all receptacles serving computers and electronic cash registers.
- I. Unless noted otherwise, do not use combination switch/receptacle devices.
- J. For flush floor service fittings, use tile rings for installations in tile floors.
- K. For flush floor service fittings, use carpet flanges for installations in carpeted floors.

2.03 ALL WIRING DEVICES

- A. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- B. Finishes:
 - 1. All Wiring Devices: White with white nylon wall plate unless otherwise indicated.
 - 2. Wiring Devices Installed in Unfinished Spaces: Gray with galvanized steel wall plate unless otherwise indicated.
 - 3. Wiring Devices Installed in Wet or Damp Locations: White with specified weatherproof cover unless otherwise indicated.
 - 4. Flush Floor Box Service Fittings: Gray wiring devices with aluminum cover and ring/flange.

2.04 WALL SWITCHES

- A. Manufacturers:
 - 1. Leviton Manufacturing Company, Inc; Decora: www.leviton.com.
- B. All Wall Switches: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20 and where applicable, FS W-S-896; types as indicated on the drawings.
 - 1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.
- C. Standard Wall Switches: Commercial specification grade, 15 A, 120/277 V with decorator style rocker type switch actuator and maintained contacts; single pole single throw, double pole single throw, three way, or four way as indicated on the drawings.
 - 1. Products:
 - a. SPST 5601-W.

2.05 WALL DIMMERS

- A. Manufacturers:
 - 1. Leviton Manufacturing Company, Inc; : www.leviton.com.
- B. All Wall Dimmers: Solid-state with continuous full-range even control following square law dimming curve, integral radio frequency interference filtering, power failure preset memory, air gap switch accessible without removing wall plate, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 1472; types and ratings suitable for load controlled as indicated on the drawings.
- C. Incandescent Wall Dimmers: 120 V AC, slide control type with separate on/off switch; single pole or three way as indicated on the drawings.
 - 1. Power Rating: 600 W unless otherwise indicated or required to control the load indicated on the drawings.
- D. Electronic Low-Voltage Wall Dimmers: 120 V AC, slide control type with separate on/off switch; single pole or three way as indicated on the drawings.
 - 1. Power Rating: 400 VA unless otherwise indicated or required to control the load indicated on the drawings.

2.06 FAN SPEED CONTROLLERS

- A. Description: 120 V AC, solid-state, full-range variable speed, slide control type with separate on/off switch, with integral radio frequency interference filtering, fan hum elimination circuitry, field-adjustable trim, power failure preset memory, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 1917.

1. Current Rating: 1.5 A unless otherwise indicated or required to control the load indicated on the drawings.

2.07 RECEPTACLES

- A. Manufacturers:
 1. Leviton Manufacturing Company, Inc; Decora: www.leviton.com.
- B. All Receptacles: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
 1. Wiring Provisions: Terminal screws for side wiring with separate ground terminal screw.
 2. NEMA configurations specified are according to NEMA WD 6.
- C. Convenience Receptacles:
 1. Standard Convenience Receptacles: Commercial specification grade, 15A, 125V, NEMA 5-15R; single or duplex as indicated on the drawings.
 - a. Products:
 - 1) Duplex 5325-W.
 - 2) Weatherproof duplex 6199-W with 6196 or 6196V cover.
 - 3) Ground fault 6199-W Use at all locations required by NEC.
 2. Tamper Resistant Convenience Receptacles: Residential grade, 15A, 125V, NEMA 5-15R,, listed and labeled as tamper resistant type; single or duplex as indicated where required by code or city regulation..
- D. GFI Receptacles:
 1. All GFI Receptacles: Provide with feed-through protection, light to indicate ground fault tripped condition and loss of protection, and list as complying with UL 943, class A.

2.08 WALL PLATES

- A. Manufacturers:
 1. Leviton Manufacturing Company, Inc; Decora: www.leviton.com.
- B. All Wall Plates: Comply with UL 514D.
 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
 2. Size: Standard; .
 3. Screws: Metal with slotted heads finished to match wall plate finish.
- C. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.
- D. Weatherproof Covers for Damp Locations: Gasketed, cast aluminum, with self-closing hinged cover and corrosion-resistant screws; listed as suitable for use in wet locations with cover closed.

2.09 FLOOR BOX SERVICE FITTINGS

- A. Description: Service fittings compatible with floor boxes provided under Section 26 0537 with all components, adapters, and trims required for complete installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.
- C. Verify that wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify that final surface finishes are complete, including painting.

- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Perform work in a neat and workmanlike manner in accordance with NECA 1.
- C. Coordinate locations of outlet boxes provided under Section 26 0537 as required for installation of wiring devices provided under this section.
 - 1. Mounting Heights: Unless otherwise indicated, as follows:
 - a. Wall Switches: 44 above finished floor.
 - b. Wall Dimmers: 44 above finished floor.
 - c. Fan Speed Controllers: 44 above finished floor.
 - d. Receptacles: 18 inches above finished floor or 6 inches above counter.
 - 2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
 - 3. Provide minimum of 24 inches horizontal separation between flush mounted outlet boxes installed on opposite sides of fire rated walls.
 - 4. Where multiple receptacles, wall switches, or wall dimmers are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
 - 5. Unless otherwise indicated, provide separate outlet boxes for line voltage and low voltage devices.
 - 6. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Little & Associates - Architects to obtain direction prior to proceeding with work.
 - 7. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.
 - 8. Locate outlet boxes so that wall plate does not span different building finishes.
- D. Install wiring devices in accordance with manufacturer's instructions.
- E. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- F. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
- G. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- H. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- I. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- J. Install wall switches with OFF position down.
- K. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.

- L. Do not share neutral conductor on branch circuits utilizing wall dimmers.
- M. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- N. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- O. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.04 FIELD QUALITY CONTROL

- A. Perform field inspection, testing, and adjusting in accordance with Section 01 4000.
- B. Inspect each wiring device for damage and defects.
- C. Operate each wall switch, wall dimmer, and fan speed controller with circuit energized to verify proper operation.
- D. Test each receptacle to verify operation and proper polarity.
- E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.
- F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION