

**PROJECT MANUAL** for:

**OCS - MOUND FORT JR. HIGH REMODEL  
OGDEN, UTAH**

Project Number: 1505  
Date: 04.23.15



OCS - MOUND FORT JR. HIGH REMODEL

1396 LIBERTY AVE.  
OGDEN, UTAH

Project Number: 1505  
Date: 04.23.15

Architect's Seal:



ARCHITECT

Bott Pantone Architects  
620 24th Street  
Ogden, Utah 84401  
p. 801.394.3033



## **OCS – MOUND FORT JR. HIGH REMODEL**

### **TABLE OF CONTENTS**

Cover Sheet  
Project Directory

### **BIDDING REQUIREMENTS:**

Notice to Contractor  
Instructions to Bidders  
Sample Forms  
    Bid Form  
    Contract  
    Bid Bond  
    Payment Bond  
    Performance Bond

### **CONDITIONS OF THE CONTRACT:**

General Conditions  
Supplementary Conditions

### **DIVISION 1 - GENERAL REQUIREMENTS:**

### **DIVISION 2 - EXISTING CONDITIONS:**

02 4000 Demolition and Structure Moving  
    02 4119 Selective Structure Demolition

### **DIVISION 3 - CONCRETE:**

03 3000 Cast-In-Place Concrete  
03 3543 Bonded Abrasive Polished Concrete Floors

### **DIVISION 4 THROUGH 5: NOT USED**

### **DIVISION 6 - WOOD AND PLASTICS:**

06 1000 Rough Carpentry

### **DIVISION 7 - THERMAL AND MOISTURE PROTECTION:**

07 2100 Thermal Insulation  
07 9200 Joint Sealants

### **DIVISION 8 - OPENINGS:**

08 1213 Hollow Metal Frames  
08 1416 Flush Wood Doors  
08 7100 Door Hardware

**DIVISION 9 - FINISHES:**

09 2216	Non-Structural Metal Framing
09 2900	Gypsum Board
09 5113	Acoustical Panel Ceilings
09 6513	Resilient Base and Accessories
09 9123	Interior Painted Gypsum Board, Plaster

**DIVISION 10 - SPECIALTIES:**

10 4413	Fire Protection Cabinets
10 4416	Fire Extinguishers

**DIVISION 11 THROUGH 25: NOT USED****DIVISION 26: ELECTRICAL**

26 0001	Electrical General Requirements
26 0050	Basic Materials and Methods
26 0070	Electrical Connections for Equipment
26 0110	Conduit Raceways
26 0120	Conductors and Cables
26 0135	Electrical Boxes and Fittings
26 0136	Supporting Devices
26 0140	Wiring Devices
26 0452	Grounding
26 0721	Fire Alarm and Detection Systems

**DIVISION 27 THROUGH 30: NOT USED****DIVISION 31: EARTHWORK:**

31 0700	General Site Requirements
---------	---------------------------

**DIVISION 32: EXTERIOR IMPROVEMENTS:**

32 1216	Asphalt Paving - Marshall
---------	---------------------------

**DIVISION 33 THROUGH 49: NOT USED**

END OF TABLE OF CONTENTS

## OCS – MOUND FORT JR. HIGH REMODEL

### **BIDDING REQUIREMENTS:**

- Notice to Contractor
- Instructions to Bidders
- Sample Forms
  - Bid Form
  - Contract
  - Bid Bond
  - Payment Bond
  - Performance Bond

### **CONDITIONS OF THE CONTRACT:**

- General Conditions
- Supplementary Conditions





## NOTICE TO CONTRACTORS

Sealed bids will be received by the Board of Education of Ogden City School District for Mound Fort Jr. High Remodel, located at 1396 Liberty Ave., Ogden, Utah. Bids will be in accordance with drawings and specifications prepared by Bott Pantone Architects, 620 24th Street, Ogden, Utah 84401 and the same may be obtained from the Architect beginning **April 23, 2015**, upon receipt of \$50.00 deposit per set, made payable to the Architect, and which deposit will be refunded upon return of such drawings and specifications in good condition within ten (10) days of the date set for the bid opening.

A Pre-Bid walk through meeting will be held at Mound Fort Jr. High School, 1396 Liberty Ave., Ogden, UT, commencing at **3:30 p.m. on Thursday, April 23, 2015**. Attendance at this walk-through is mandatory to qualify contractors to bid this work.

Bids will be received by the **Coordinator of Purchasing at the Administration Building, 1950 Monroe Blvd, Ogden, Utah until the hour of 2:00 p.m. on May 6, 2015**. Bids will be opened and read aloud at that time. **Envelopes must be labeled Mound Fort Jr. High School Remodel.**

A bid bond in the amount of five percent (5%) of the bid, made payable to the Board of Education of Ogden City School District, shall accompany bid. If a certified or cashier's check is used in lieu of a bid bond, a certificate from an approved surety company guaranteeing execution of a 100% Performance Bond and 100% Payment Bond must accompany bid.

The Board of Education of Ogden City School District reserves the right to reject any or all bids or to waive any informality or technicality in any bid in the interest of the District.

BOARD OF EDUCATION OF OGDEN CITY SCHOOL DISTRICT



# INSTRUCTIONS TO BIDDERS

## 1. DRAWINGS AND SPECIFICATIONS

Drawings and Specifications may be obtained from Richards Bott Architects for a deposit of \$50.00 per set.

Any person or firm who retains a set of drawings and specifications longer than ten days after the date of this deposit receipt, and fails to submit a proposal on the work indicated by those drawings and specifications in strict accordance with the instructions herein, or fails to return the complete set of drawings and specifications in good condition to the Architect within ten (10) days after the time set for receiving bids, will forfeit his deposit. Deposits will be returned after bids are opened subject to the above conditions.

## 2. SITE VISIT

A mandatory Pre-Bid visit will be conducted by the Architect and a representative of the School District at **2:30 p.m. on Thursday, April 23, 2015** at the project site (1396 Liberty Ave., Ogden, UT). Attendance at site is mandatory for qualifying to bid project. Bidders are strongly advised to familiarize themselves with the Bidding Documents prior to the meeting. See Section 01 1000 - General Requirements.

## 3. BIDS

Before submitting a bid, each bidder will carefully examine the drawings, specifications and other contract documents; will visit the site of the work; will fully inform himself as to all existing conditions and limitations; and shall include in the bid the cost of all items included in the contract.

## 4. CONTRACT AND BOND

The Contract Agreement will be on a form as provided in this bid document as well as the 100% Payment and 100% Performance Bonds. The completion date of construction will be as indicated in the proposal. The successful bidder will be required to furnish a Performance Bond and a Payment Bond each in an amount equal to one hundred percent (100%) of the contract price. Said bonds shall be secured from a company satisfactory to the Board of Education of Ogden City School District.

## 5. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the drawings, specifications or other proposed contract documents, he may submit to the Board of Education of Ogden City School District a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum duly issued and a copy of such addendum will be mailed or delivered to each person receiving a set of the documents. Neither the Owner nor the Architect will be responsible for any other explanations or interpretations of the proposed documents.

## 6. ADDENDA OR BULLETINS

Any addenda or bulletins issued during the time of bidding shall become part of the documents loaned to the bidders for the preparation of his bid, shall be covered in the bid, and shall be made a part of the contract.

## 7. AWARD OF CONTRACT

The contract will be awarded as soon as possible to the lowest responsible and responsive bidder, provided his bid is reasonable and it is to the interest of the Owner to accept it. The Owner reserves the right to waive any technicalities or informalities in any bid or in the bidding.

## 8. QUALIFICATIONS

The Contractor's and subcontractor's past performance, organization, equipment and ability to perform and complete their contract in the manner and within the time limit specified will be elements, along with the cash amount of the

bid, which will be considered by the Owner in the letting of the contract. The contractor will comply with and require all of his subcontractors to comply with the license and bonding laws as required by the Local and State Government.

## **9. COST BREAKDOWN**

The Contractor shall, before starting his work, submit to the Board of Education of Ogden City School District, a cost breakdown showing the cost of various segments of the work according to specifications headings, the total amount equaling the contract price. This breakdown shall be used as the basis for the payment of estimates as stated in the Contract Documents.

## **10. CHECKS OF SUCCESSFUL BIDDERS**

The checks of the successful bidder will be returned upon acceptance of the 100% Performance Bond and separate 100% Payment Bond. Checks of other bidders not previously forfeited, will be returned as soon as it is determined that the bids represented by the checks will receive no further consideration by the Board.

## **11. WITHDRAWAL OF BIDS**

Bids may be withdrawn on written or fax request received from bidders prior to the time fixed for opening. Fax request must be received by the Owner in hardcopy form before bid opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

## **12. TIME IS OF THE ESSENCE AND AWARD OF CONTRACT**

Bidders must agree to commence work on this project upon Notice to Proceed and to substantially complete the project within the time limit stated in their bid proposal.

## **13. SCHEDULING WORK**

Contractor shall schedule work with the Principal of the school(s) involved so as to cause the least amount of interruption during school hours.

## **16. CONTINGENCY**

The Contractor shall include in his Base Bid a contingency amount of \$5,000.00. The contingency shall be utilized as authorized by the Architect (with concurrence of the Owner) for miscellaneous unforeseen items. The contingency draws will be processed similar to a change order (see General Conditions #16 "Changes in the Work") except that no General Contractor profit and overhead will be added to the amount. General Contractor profit and overhead for the contingency shall be included in the Base Bid. At the end of the project, any money remaining in the contingency will be refunded to the Owner by a Credit Changer Order.

## BID FORM

NAME OF BIDDER \_\_\_\_\_ Date \_\_\_\_\_

To the Board of Education of Ogden City School District  
2444 Adams Avenue  
Ogden, Utah 84401-2490

Gentlemen:

The undersigned, in compliance with your invitation for bids for the Ogden City School District, Mound Fort Jr. High Remodel having examined the Drawings and Specification and related documents as prepared by Richards Bott Architects, and the sites of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, do hereby propose to furnish all labor, material and supplies as required for the work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following addenda:

#1	Date
#2	Date
#3	Date
#4	Date

Base Bid: For all work shown on the Drawings and described in the Specification, I/We agree to perform for the sum of:

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

(In case of discrepancy, written amount shall govern)

I/We guarantee to complete the work as defined in the Drawings and Specifications, for the base bid, within Ninety (90) calendar days from the Notice to Proceed.

This Bid shall be good for 45 days after the bid opening.

Enclosed is \_\_\_\_\_ for bid security as required in the sum of \$ \_\_\_\_\_.

The undersigned Contractor's license number for Utah is \_\_\_\_\_ and my bid limit is \$ \_\_\_\_\_.

Upon receipt of Notice of Acceptance of this bid, the Undersigned agrees to execute the Contract and within five (5) days deliver Owner's Protective Bonds in the prescribed form in the amount of 100% of the General Construction Contract Price for faithful performance of the contract. The certified Check, Cashier's Check or Bid Bond attached, in the amount not less than five percent (5%) of the Bid shall become the property of the Board of Education of Ogden City School District in the Event that the Contract is not negotiated and/or the Owner's Protective Bonds delivered within the time set forth, as liquidated damages for the delay and additional expense caused thereby.

Respectfully submitted,

Seal  
(If a Corporation)

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Address

\_\_\_\_\_  
Authorized Signature



## CONTRACT

This agreement made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2015, by and between the Board of Education of Ogden City School District, with its main offices in Ogden City, Weber County, State of Utah hereinafter referred to as the Board, and the contracting firm of \_\_\_\_\_ with its main offices in \_\_\_\_\_ City, \_\_\_\_\_ County, State of Utah hereinafter referred to as the Contractor.

WITNESSETH:

1. The Board owns Mound Fort Jr. High School located at 1396 Liberty Avenue, Ogden, Utah and for which building the Board intends to remodel portions of the building as described by construction documents prepared by Richards Bott Architects.
2. The Contractor is duly licensed by the State of Utah and qualified to act as a contractor and is engaged in the general business of roofing.
3. The Board hereby employs the Contractor to provide the work noted in paragraph one, and as shown on Contract Documents, including Addenda prepared by Richards Bott Architects. The Contractor acknowledges receipt of and has full knowledge of the true meaning of those drawings and specifications and all parts thereof.
4. The Board shall pay to the Contractor for these services and materials the amount of \_\_\_\_\_ Dollars  
( \$ \_\_\_\_\_ ).

On or before the first day of each month of this agreement the contractor shall submit to the Board an itemized statement for this project showing the nature of the work performed and materials furnished and the percentage of the work completed with a billing for payment of the dollar amount represented by the percentage of work completed during the preceding calendar month on the project; provided, however, that until Substantial Completion the Board will pay 90% of the amount due the Contractor on account of progress payments. Final payment shall be due within 30 days after final completion and acceptance of the work.

The Board shall remit payment of each billing to the Contractor within 30 days of receiving the billing should the billing be found to be correct.

5. The Contractor shall commence work upon Notice to Proceed, and shall complete all work within Ninety (90) calendar days. The Contractor shall propose a schedule and coordinate activities on the site, subject to approval by the Board.
6. All work herein provided to be performed by the Contractor shall be performed to the satisfaction of the Board.
7. The Contractor shall not in any way change the scope of work herein above contracted to do without first having obtained the written acceptance of the Board.
8. The Contract Documents are dated 04.20.15 and are as follows:

DRAWINGS: SHEET G1.1, SD1.1, SD1.2, SD1.3, SD2.1, D1.1, D1.2, A1.1, A1.2, A1.3, A2.1, E1.1, E1.2, 31.3, E1.4, E1.5.

PROJECT MANUAL:  
NOTICE TO CONTRACTORS  
INSTRUCTIONS TO BIDDERS  
BID FORM  
CONTRACT  
BID BOND  
PAYMENT BOND  
PERFORMANCE BOND

GENERAL CONDITIONS  
SUPPLEMENTARY CONDITIONS

TECHNICAL SPECIFICATIONS

DIVISION 1

- GENERAL REQUIREMENTS

DIVISION 2

- EXISTING CONDITIONS

02 4119 SELECTIVE STRUCTURE DEMOLITION

DIVISION 3

- CONCRETE

03 3000 CAST-IN-PLACE CONCRETE

03 3543 BONDED ABRASIVE POLISHED CONCRETE FLOORS

DIVISION 6

- WOOD AND PLASTICS

06 1000 ROUGH CARPENTRY

DIVISION 7

- THERMAL AND MOISTURE PROTECTION

07 2100 THERMAL INSULATION

07 9200 JOINT SEALANTS

DIVISION 8

- OPENINGS

08 1213 HOLLOW METAL FRAMES

08 1416 FLUSH WOOD DOORS

08 7100 DOOR HARDWARE

DIVISION 9

- FINISHES

09 2216 NON-STRUCTURAL METAL FRAMING

09 2900 GYPSUM BOARD

09 5113 ACOUSTICAL PANEL CEILINGS

09 6513 RESILIENT BASE AND ACCESSORIES

09 9123 INTERIOR PAINTING

DIVISION 10

- SPECIALTIES

10 4413 FIRE PROTECTION CABINETS

10 4416 FIRE EXTINGUISHERS

DIVISION 26

- ELECTRICAL

26 0001 ELECTRICAL GENERAL PROVISIONS

26 0050 BASIC MATERIALS AND METHODS

26 0070 ELECTRICAL CONNECTIONS FOR EQUIPMENT

26 0110 CONDUIT RACEWAYS

26 0120 CONDUCTORS AND CABLES

26 0135 ELECTRICAL BOXES AND FITTINGS

26 0136 SUPPORTING DEVICES

26 0140 WIRING DEVICES

26 0452 GROUNDING

26 0721 FIRE ALARM AND DETECTION SYSTEMS

DIVISION 31

- EARTHWORK

31 0700 GENERAL SITE REQUIREMENTS



DIVISION 32  
- EXTERIOR IMPROVEMENTS  
32 1216 ASPHALT PAVING - MARSHALL

9. The Contractor shall provide to the Board a one hundred per cent performance bond in the amount of the contract price, and a one hundred per cent full payment bond.
10. Title VI of the Civil Rights Act of 1964 is hereby referred to and by reference is made a part of this agreement. The Contractor agrees that the requirements thereof shall be fully complied with in all matters pertaining to this agreement.
11. The Contractor shall comply with the requirements of Executive Order 11246, entitled "Equal Employment Opportunity" as amended by Executive Order 11375 and as supplemented in Department of Labor Regulations (41 CFR, Part 60).
12. The Contractor shall comply with the Copeland "Anti-Kick Back" Act (18USC874) as supplemented in Department of Labor Regulations (29 CFR, Part 3).
13. The Contractor shall comply with Section 103 and 107 of the Contract Work Hours and Safety Act (40USC327-330) as supplemented by Department of Labor Regulations (29 CFR, Part 5).
14. Time is hereby made the essence of this contract.
15. It is agreed that the Board shall have the right to terminate this contract, and in such event the Owner shall be liable to the Contractor only for an amount to be determined as follows:
  - A. The actual cost of all acceptable materials for which orders have been placed by the Contractor for use under this contract, it being agreed that, if required by the Owner, the Contractor shall make every possible effort to cancel such orders;
  - B. The actual cost of acceptable materials called for hereunder, fabricated and in the Contractor's shop or in transit;
  - C. The actual cost of labor performed and materials installed in the work; provided, however, that all the foregoing, including (a) and (b), are in accordance with the terms of this contract, the drawings and specifications.

Provided, however, that such costs are not in excess of reasonable market prices for the same, or similar materials. From the total of all the foregoing costs so determined shall be deducted all payments previously made and all proper charges to the Contractor.
16. Should the Contractor neglect to prosecute the work properly or fail to perform any provision of the contract, the Board, after giving 10 days written notice to the Contractor to make good the deficiencies, and after the failure of the Contractor to do so, may terminate the Contract and take possession of all materials, tools and appliances and finish the work by such means as it sees fit and at the usual and prevailing price for work of this character in the community, and if the unpaid balance of the contract price exceeds the expense of finishing the work, such excess shall be paid to the contractor, but if such expense exceeds such unpaid balance, the Contractor shall pay the difference to the Board.
17. Any change order which increases the contract amount as herein set forth shall be subject to prior written certification that the change order is within the determined contract budget price as herein established. This certification shall be made by the Superintendent or one designated by him and shall be only after he has secured the necessary funds to cover that change order from the Board. If the certification discloses a resulting increase in the contract price it shall not be executed nor the change order made until sufficient funds are available or the scope of the contract is adjusted to permit the degree of completion feasible within the total contract price as herein established as it existed prior to the change order under consideration. However, with respect to the validity, as to the Contractor, of any executed change order upon which the contractor has reasonably relied, it shall be presumed that there has been compliance with the provisions of this contract.

18. The Contractor shall not assign any if its rights or interests under this contract to a third party without the written permission to do so being first obtained from the Board.
19. Pricing Data:
- A. Adjustment in price and time for performance shall be made as herein provided for the following:
- (1) The Board shall have the unilateral right to order in writing changes in the work within the scope of the contract that do not alter the scope of the contract work;
  - (2) For suspension of work ordered by the Board.
- B. Adjustments in price pursuant to clauses promulgated under subsection (1) shall be computed in one or more of the following ways:
- (1) By agreement on a fixed price adjustment before commencement of the pertinent performance or as soon thereafter as practicable;
  - (2) By unit prices specified in the contract or subsequently agreed;
  - (3) By the costs attributable to the events or situations under the clauses with adjustment of profit or fee, all as specified in this contract or such as may be subsequently agreed upon;
  - (4) In any other manner as the contracting parties may mutually agree;
  - (5) In the absence of agreement by these parties, by a unilateral determination by the Board of the costs attributable to the events or situations under the clauses with adjustment of profit or fee, all as computed by the Board in accordance with the applicable section of the Utah Procurement Code (U.C.A. 1953, as amended, Title 63, Chapter 56).
- C. A Contractor shall be required to submit cost or pricing data if any adjustment in contract price is subject to the provisions of U.C.A. 1953, as amended, 63-56-28.
20. The Contractor hereby agrees to hold the Board and Architect harmless from or for any claim of or liability for personal injury, property damage, contract rights or tort actions which arise from or through the work to be done under this agreement by the Contractor and by or through it, its employees, invitees or to the property of the Board while the Contractor, its employees or invitees are or should be in control of the site and building involved in this agreement.
21. The Contractor has no authorization, either expressed or implied, to bind the Board to any agreement or act of any type or nature as the agent of the Board except as may be expressly set forth in this agreement.
22. On site inspections of the work of the contractor may be made by the Board or any duly authorized agent or representative of any of them, at any reasonable time during the term of this agreement.
23. Should either party hereto default in the performance of any of the provisions of this agreement it is agreed that the defaulting party shall pay to the other party hereto attorneys' fees and other expenses incurred by the other party in enforcing its rights under the terms of this agreement with or without legal action being commenced.

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the day and date first above written.

THE CONTRACTOR

\_\_\_\_\_  
Name of Firm

\_\_\_\_\_  
Representative of Firm

\_\_\_\_\_  
Title

THE BOARD OF EDUCATION OF OGDEN  
CITY SCHOOL DISTRICT

BY:\_\_\_\_\_  
President

BY:\_\_\_\_\_

BY:\_\_\_\_\_  
Business Administrator



## BID BOND

\_\_\_\_\_  
Date Bond Executed

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Sum of Bond

KNOW ALL MEN OF THESE PRESENT, that we, the PRINCIPAL AND SURETY above named, are held and firmly bound unto THE BOARD OF EDUCATION OGDEN CITY SCHOOL DISTRICT, IN THE SUM OF THE AMOUNT STATED ABOVE, FOR THE PAYMENT OF WHICH SUM WELL AND TRULY TO BE MADE, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents. THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying bid, dated as shown above, for

\_\_\_\_\_  
NOW THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said Principal shall execute a contract and give bonds to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

\_\_\_\_\_  
INDIVIDUAL OR PARTNERSHIP PRINCIPAL

\_\_\_\_\_  
Corporate Principal

\_\_\_\_\_  
Business Address

SEAL

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

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

\_\_\_\_\_  
Corporate Surety

\_\_\_\_\_  
Business Address

SEAL

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

Attorney-in Fact: \_\_\_\_\_

NOTE: If certified or cashier's check is used in lieu of bid bond, a certificate from an approved surety company guaranteeing execution of a full performance bond must accompany bid.

STATE OF UTAH               )  
COUNTY OF WEBER          )ss:

\_\_\_\_\_ being duly sworn, on oath disposes and says that he is the Attorney-in-Fact of the above-named Surety Company, and that he is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My commission expires \_\_\_\_\_

Notary Public

### Attorney-in-Fact

## PAYMENT BOND

(Title 63, Chapter 56, U.C.A. 1953, as Amended)

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ hereinafter referred to as the "Principal" and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_ with its principal office in the City of \_\_\_\_\_, hereinafter referred to as the "Surety", are held and firmly bound unto \_\_\_\_\_,

hereinafter referred to as the "Obligee", in the amount of \_\_\_\_\_

\_\_\_\_\_ DOLLARS

(\$ \_\_\_\_\_) for payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_, 2015, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to him or his subcontractors in the prosecution of the work provided for in said contract, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended and all liabilities on this bond to all such claimants shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

WITNESS OR ATTESTATION:

\_\_\_\_\_

\_\_\_\_\_

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

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

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

Principal

Surety

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

WITNESS:

\_\_\_\_\_

STATE OF UTAH            )  
  ) :ss  
COUNTY OF WEBER        )

\_\_\_\_\_being first duly sworn on oath deposes and says that he is the Attorney-in-Fact of the and that he is duly authorized to execute and deliver the foregoing obligation that said Company is authorized to execute the same, and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at:

My Commission Expires \_\_\_\_\_



## PERFORMANCE BOND

(Title 63, Chapter 56, U.C.A. 1953, as Amended)

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ hereinafter referred to as the "Principal" and \_\_\_\_\_ a corporation organized and existing under the laws of the State of \_\_\_\_\_ with its principal office in the City of \_\_\_\_\_, hereinafter referred to as the "Surety", are held and firmly bound unto \_\_\_\_\_, hereinafter referred to as the "Obligee", in the amount of \_\_\_\_\_ DOLLARS (\$\_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the \_\_\_\_ day of \_\_\_\_\_, 2015, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the contract in accordance with the drawings, specifications and conditions thereof, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as Amended, and all liabilities on this bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

WITNESS OR ATTESTATION:

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

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

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

Principal

PERFORMANCE BOND (Cont'd)

\_\_\_\_\_  
Surety

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

WITNESS:

\_\_\_\_\_

STATE OF UTAH            )  
  ) :ss  
COUNTY OF WEBER        )

\_\_\_\_\_ being first duly sworn on oath deposes and says that he is the Attorney-in-Fact of the \_\_\_\_\_ and that he is duly authorized to execute and deliver the foregoing obligation that said Company is authorized to execute the same, and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

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

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2015.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at:

My Commission Expires \_\_\_\_\_

# BOARD OF EDUCATION OF OGDEN CITY SCHOOL DISTRICT

## GENERAL CONDITIONS

### 1. DEFINITIONS:

(a) The Contract Documents consist of the Agreement, the General and Supplementary Conditions of the Contract, the Drawings and Specifications, including all modifications thereof incorporated in the documents before their execution. These form the Contract.

(b) The Owner, the Contractor, and the Architect, or pronouns used in place thereof, are those mentioned as such in the Agreement. They are treated through the Contract Documents as if each were in the singular number and masculine gender.

(c) The term "Subcontractor," as employed herein, includes anyone having a direct contract with anyone except the Owner to provide material and/or labor under this contract, and it includes one who furnishes material worked to a special design according to the plans and/or specifications of this work, but does not include one who merely furnishes material not so worked.

(d) The word "Owner," or pronoun used in place thereof, is to designate The Board of Education of Ogden City School District.

(e) The term "work" of the Contractor or Subcontractor includes labor or materials or both.

(f) The applicable laws of the State of Utah shall govern the execution of the work embodied in the contract Documents.

### 2. CORRELATION AND INTENT OF DOCUMENTS:

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment, and transportation necessary for the proper and complete execution of the work, and equal in quality and workmanship to the highest standards. The Contractor is to abide by and comply with the true intent and meaning of all drawings and specifications taken as a whole; and is not to avail himself, to the detriment of the work, of any manifestly unintentional error or omissions, should any exist. All minor details of work which are not shown on the drawings, as well as such items as are not specifically mentioned in the specifications but are obviously necessary for the proper completion of the work, shall be considered as incidental and as being part of the work.

### 3. COPIES FURNISHED:

Unless otherwise provided in the Contract Documents, the Architect will furnish to the Contractor, free of charge, all copies, up to a maximum of twelve sets of drawings and specifications reasonably necessary for the execution of the work.

### 4. DIMENSIONS:

Where no figures or memoranda are given, the drawings shall be accurately followed according to their scale, but figures or memoranda are to be preferred to the scale, in all cases of difference, and the larger scale details shall take preference over those of smaller scale.

### 5. DETAIL DRAWINGS AND INSTRUCTIONS:

The Architect shall furnish with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonable inferable therefrom. The work shall be executed in conformity therewith and the Contractor shall do no work without proper drawings and instructions. Any work performed by the Contractor in advance of these drawings and instructions shall be entirely at the Contractor's risk.

### 6. DRAWINGS AND SPECIFICATIONS ON THE WORK:

The Contractor shall keep one copy of all drawings and specifications on the work in good order, available to the Owner, the Architect, and their representatives.

7. OWNERSHIP OF DRAWINGS:

All copies of drawings and specifications furnished the Contractor by the Architect are the property of the Architect. They are not to be used by the contractor on other work, and are to be returned to the Architect, upon request, at the completion of the work.

8. SHOP DRAWINGS:

The Contractor shall submit to the Architect with such promptness as to cause no delay in his work or in that of any other Contractor, six copies of all shop or setting drawings and schedules required for the work of the various trades; and the Architect shall pass upon them with reasonable promptness, making desired corrections. Said Corrections shall pertain to conformance with the basic design concepts embodied in the Contract Documents. The Contractor shall make any corrections required by the Architect. The Architect shall distribute the corrected drawings as follows: One drawing to the Owner, three drawings back to the General Contractor, one drawing to the Project Inspector (if one is assigned to the job), and one drawing for the Architect. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing, called the Architect's attention to such deviations at the time of submission; and has received the Architect's written approval of such deviation; nor shall it relieve him from responsibility for errors of any sort in shop drawings or schedules.

9. SAMPLES:

The Contractor shall furnish to the Architect for approval, all samples as directed. The work shall be in accordance with approved samples.

10. MATERIALS, APPLIANCES, EMPLOYEES:

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, transportation, and other facilities and services necessary for the execution and completion of the work.

Unless otherwise specified, all material shall be new, and both workmanship and material shall be of high quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall, at all times, enforce strict discipline and order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

11. ROYALTIES AND PATENTS:

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof.

12. SURVEYS, PERMITS AND REGULATIONS:

It shall be the responsibility of the Contractor, to obtain all permits required and provide survey work required.

13. PROTECTION OF WORK AND PROPERTY:

The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Owner's property from injury or loss arising in connection with this contract. He shall make good any such damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. He shall adequately protect adjacent property as provided by law and the Contract Documents.

The Contractor shall take all necessary precautions for the safety of employees on the work and shall comply with all applicable provisions of Federal, State and Municipal safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the work is being performed. He shall erect and

properly maintain at all times as required by the conditions and progress of the work, all necessary safeguards for the protection of workmen and the public and shall post danger signs warning against hazardous conditions.

14. INSPECTION OF WORK:

The Owner, the Architect, and their representatives shall at all times have access to the work; and the Contractor shall provide proper facilities for such access and for inspection.

If in the specifications, the Owner or the Architect requires any work to be specially tested or approved, the Contractor shall give the Owner and the Architect timely notice of its readiness for inspection. Inspections shall be promptly made, and where practicable, at the source of supply. If any work should be covered up without approval or consent of the Architect, it must, if required by the Architect, be uncovered for examination at the Contractor's expense.

15. SUPERINTENDENCE AND SUPERVISION:

The contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Owner and the Architect. The superintendent shall represent the Contractor in his absence, and all directions given to him shall be as binding as if given to the Contractor.

The Contractor shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications and other instructions, and shall at once report to the Architect any error, inconsistency, or omission which he may discover; but shall not be held responsible for their existence or discovery.

16. CHANGES IN THE WORK:

The Owner may order or authorize extra work or make changes in the contract, in which case the contract sum shall be adjusted accordingly, all without invalidating the contract. The conditions of the original contract shall apply to all such work except that the time of completion may be adjusted by the Owner at the time such change is ordered. Except in case of an emergency endangering life or property, no extra work of change shall be made other than as authorized by a written change order from the Owner. No claim for an addition to the contract sum shall be valid unless so ordered.

Where the Owner has assigned an Architect/Engineer to the project, the Contractor shall submit such proposals to the Architect/Engineer in sufficient number that one copy may be transmitted to the Owner, one to the project inspector, and one retained by the Architect/Engineer. Upon receipt of the proposal they will review it and will respond in writing to the Architect/Engineer their acceptance or rejection of the proposal or any additions or changes that they feel are necessary for acceptance. Upon acceptance of the proposal by all parties a written change order will be issued.

Whenever a request for a change order proposal is received by the Contractor, he shall indicate thereon his proposed price to be added or deducted from the contract sum due to the change, together with his request for any adjustment in time of final completion of the entire contract. This price will be computed on the basis of unit prices stated in the Contract if applicable.

Whenever the unit prices in the Contract do not apply, the Contractor will submit a proposed price which must be supported by full and completely detailed estimates of the cost of the added or omitted work.

1. For added or omitted work by the Prime Contractor (not including unit prices): the Contractor shall furnish to the Owner, a detailed estimate of the actual cost of labor, materials, taxes and equipment required for the performance of such work. Equipment rental rates shall not exceed those shown in the latest EQUIPMENT RENTAL RATE manual established by the Utah State Department of Transportation for use in State financed projects.
2. For added or omitted work by a Subcontractor (not including unit price) the Prime Contractor shall furnish to the Owner a detailed estimate of the actual cost to the subcontractors for labor, materials, taxes and equipment to be used for such work. Each such estimate of the costs shall have added thereto a fee to cover supervision, overhead, bond and profit.

The Contractor and Subcontractor agree that a total fixed fee (up to 15%) as added shall be full compensation to cover all costs of supervision, overhead, bond, profit and any other general expenses. It is further agreed that all time extensions to the completion date of the Contract and any costs or changes in the Contract price from any cause whatsoever that may be incurred as a result of the change order(s) are included in the change order as authorized.

17. CLAIMS FOR EXTRA COST:

If the Contractor claims that any instructions by drawings or otherwise involve extra cost under this contract, he shall give the Owner and the Architect written notice thereof, within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work; and the procedure shall then be as provided for changes in the work. No such claim shall be valid unless so made.

18. DEDUCTIONS FOR UNCORRECTED WORK:

If the Owner and the Architect deem it inexpedient to correct work damaged or done not in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

19. DELAYS AND EXTENSION OF TIME:

If the Contractor be significantly delayed at any time in the progress of the work by any act or neglect of the Owner or the Architect, or of any employee of either, or by any separate Contractor employed by the Owner, or by significant changes ordered in the work or by strikes, lockouts, fire, unavoidable casualties or any causes beyond the Contractor's control, or by any cause which the Owner shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Owner may decide.

No action shall lie against the Owner for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the Owner or its agents; however, the Contractor may receive an extension of time in which to complete the work under this Contract as provided above. The right to apply for such an extension of time shall be the exclusive remedy available to the Contractor or any Subcontractor as against the Owner for such loss.

Any request for extension of extension of time shall be made to the Owner in writing within seven days from the time of occurrence of cause for delay. In case of a continuing cause of delay, only one claim is necessary.

20. CORRECTION OF WORK BEFORE FINAL PAYMENT:

The contractor shall promptly remove from the premises all work condemned by the Owner and/or the Architect as failing to conform to the Contract, whether incorporated or not; and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may have the material removed and stored at the expense of the Contractor.

21. CORRECTION OF WORK AFTER FINAL PAYMENT:

Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of substantial completion of the work unless a longer period is specified. The Owner will give notice of observed defects with reasonable promptness.

22. THE OWNER'S RIGHT TO DO WORK:

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the Owner, after five days written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23. OWNER'S RIGHT TO TERMINATE CONTRACT:

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is granted, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to Subcontractors, or for material or labor, or persistently disregard laws, ordinances, or the instructions of the Architect and the Owner, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner may without prejudice to any other right or remedy, and after giving the Contractor seven days written notice, terminate the employment of the Contractor and take possession of premises and of all materials, tools and appliances thereon, and finish the work by whatever method the Owner deems expedient. In such cases, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract sum shall exceed the expense of finishing the work, including compensation for additional administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

24. APPLICATION FOR PAYMENTS:

The Contractor shall submit an application monthly for progress payments to the Architect for his approval. If the Architect approves the payment, he shall then obtain the approval and signature of the Owner's inspector, if one is assigned to continuous on-the-job inspection, and transmit the application to the Owner for payment. A copy of each month's payment request, with proper schedule of work values listed, shall be posted at the job site by the Contractor. Receipts or other vouchers showing payments for the materials and labor, including payments to subcontractors shall be submitted with the application if required.

If payments are made on valuation of work done, such applications shall be submitted at least ten days before each payment falls due. The Contractor shall, before the first application, submit a schedule of values for the various parts of the work, including quantities, aggregating the total sum of the Contract, divided so as to facilitate payments as outlined above and made out in such form as the Owner, the Architect and the Contractor may agree upon, and supported by such evidence as to its correctness as the Architect and/or the Owner may direct. This schedule, when approved by the Architect and the Owner shall be used as a basis for payment, unless it be found to be in error. In applying for payments, the Contractor shall submit in triplicate a statement based upon this schedule and itemized in such form and supported by such evidence as the architect and/or the Owner may direct, showing his right to the payment claimed.

In making payments to the Contractor for completed work or for materials stored on site, it is understood between the Owner and the Contractor that proportionate parts of such payments will be transmitted to such subcontractors and/or suppliers within ten (10) days after receipt of such payments by the Contractor. The submittal of an application by a Contractor for a progress payment shall constitute prima facie representation by that Contractor that all previous proportionate payments made by the Owner to the Contractor for completed work of subcontractors and/or suppliers have been transmitted to all appropriate subcontractors and/or suppliers for their completed work within ten (10) days after receipt of respective payments.

25. CERTIFICATION AND APPROVAL OF PAYMENTS:

If the Contractor has made application for payment as stipulated above, the Architect shall promptly signify to the Owner and the Contractor, in writing, his approval or disapproval of the application as submitted. If the application is disapproved, the Architect shall state, in writing, his reasons for withholding approval.

26. CONTRACTOR'S LIABILITY INSURANCE:

The Contractor shall maintain for the duration of this project statutory Workmen's Compensation Insurance. In the event any work is subcontracted, the Contractor shall require the Subcontractor to either obtain said insurance coverage for his (subcontractor's) portion of the work or reimburse the Contractor for providing it. Contractor shall also maintain for the duration of the work a Comprehensive General and Automobile Liability Policy. Such policies shall protect him from claims for bodily injury, including death, to his employees and all others and from claims for property damage, any and all of which may arise out of or result from the Contractor's operations, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by either of them and he may require similar insurance from his subcontractors in the same manner as set forth above. Contractor and/or subcontractor shall verify his insurance requirements to prevent duplication of insurance costs. Such liability insurance with the following minimum limits shall be maintained:

	<u>Bodily Injury</u>	<u>Per Occurrence</u>
(a)	General Liability Insurance	\$1,000,000
(b)	Automobile Liability Insurance	\$1,000,000
	<u>Property Damage</u>	<u>Aggregate</u>
(a)	General Liability Insurance	\$1,000,000
(b)	Automobile Liability Insurance	\$1,000,000

Contractor shall not begin work until he has obtained all required insurance and certificates of such filed with the Architect and such insurance has been approved by the Owner. This requirement also applies to subcontractors. Approval of insurance shall not relieve or decrease liability of the Contractor.

Insurance required by this Article must be written by a company licensed in Utah at the time the policy is issued; the company must be acceptable to Owner.

Contractor shall not cause any insurance to be canceled or permit it to lapse. Each insurance policy shall contain a clause that the policy cannot be canceled or reduced, restricted or limited during the construction period until ten (10) days after written notice as evidenced by return receipt of registered or certified letter has been given to Contractor, Owner, and Architect.

Certificates of insurance shall contain transcripts from policies authenticated by proper office of insurer, evidencing in particular those insured, extent of the insurance, location of and operations to which insurance applies, expiration date and above mentioned notice of cancellation clause.

In the event Owner elects to waive this insurance requirement, the Contractor shall credit the Owner for the amount of any returned premium and the contract price shall be reduced in the amount of the premium returned.

Without invalidating the above paragraphs, the Contractor agrees that he shall at all times protect and indemnify and save harmless the Owner and its agencies and institutions and the Architect and his agents and employees from any and all claims, demands, judgments, expenses, including reasonable attorney's fees and all other damages of every kind and nature made, rendered or incurred, by or in behalf of, any person or corporation whatsoever, including the parties hereto and their employees that may arise, occur or grow out of any acts, actions, work or other activity done by the said Contractor in the performance and execution of this contract.

## 27. FIRE INSURANCE:

Remodel Work:

In accordance with current State form, the Owner shall effect and maintain insurance against fire and/or related perils upon the structure(s) on which the work of this contract is to be done.

Payment of Claims:

Contractor and/or Owner will be reimbursed for only that portion which the insurance company has an obligation to pay under the terms of the policy.

## 28. OWNER'S PROTECTIVE LIABILITY INSURANCE:

The Contractor shall maintain, during the life of this Contract, complete Owner's Protective Liability Insurance with the Owner and Architect as named insureds in the amounts as follows:

Bodily Injury:	Per person -	\$1,000,000
	Per Occurrence -	\$1,000,000
Property Damage:	Per Occurrence -	\$1,000,000
	Aggregate -	\$1,000,000

Contractor and/or subcontractor shall verify his insurance requirements to prevent duplication of insurance costs.



Contractor shall not begin work until he has obtained all required insurance and certificates of such are approved and filed with the Owner. Approval of insurance shall not relieve or decrease liability of the Contractor.

Insurance required by this Article must be written by a company licensed in Utah at the time the policy is issued; the company must be acceptable to the Owner.

29. GUARANTEE BONDS:

The Contractor shall include in his bid, as part of the quoted total, all costs involved in securing and furnishing the following bonds based on the completed cost of the contract:

- a. A full 100% Performance Bond covering the faithful execution of the contract and,
- b. A full 100% Payment Bond of all obligations arising thereunder.

30. LIENS:

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of this contract, or receipts in full in lieu thereof, and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and materials for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remain unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

31. ASSIGNMENT:

The Contractor shall not assign the contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

32. MUTUAL RESPONSIBILITY OF CONTRACTORS:

Should the Contractor cause damage to any separate contractor on the work, the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall defend such proceedings at his own expense and, if any judgement against the Owner arises therefrom, the Contractor shall pay or satisfy it in its entirety.

33. SEPARATE CONTRACTS:

The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Architect and the Owner any defects in such work that render it unsuitable for such proper execution and results. His failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of his work. To insure the proper execution of his subsequent work, the Contractor shall measure work already in place and shall at once report to the Architect any discrepancy between the executed work and the Drawings.

34. SUBCONTRACTS:

The two apparent low bidders shall furnish to the Owner, within twenty-four (24) hours after the opening of bids, a list of the subcontractors by name and amounts where subcontractors' bids are in excess of \$5,000.00 and shall not employ any that the Owner may, within a reasonable time, object to as incompetent or unfit. Bidders shall

not list themselves or "self" under any category as subcontractor unless the bidder intends to perform as the subcontractor for which he lists "self," and unless he generally and regularly performs that type of subcontract work. The Architect and/or the Owner shall, on request, furnish to any subcontractor, wherever practicable, evidence of the amounts certified on this account.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor or supplier and the Owner.

35. RELATIONS OF CONTRACTOR AND SUBCONTRACTOR:

The Contractor agrees to bind every subcontractor and every subcontractor agrees to be bound by the terms of the Agreement, the General Conditions, the Drawings and Specifications as far as applicable to his work. Nothing in this article shall create any obligation on the part of the Owner to pay or to see to the payment of any sums to any subcontractor.

36. OWNER'S INSPECTION:

The Owner, at his option, may assign a staff inspector to the project. Such staff inspector will cooperate with the Design Architect/Engineer in noting deviations from, or necessary adjustments, to the contract documents, or of deficiencies or defects in the construction. The staff inspector's presence on the project, however, shall in no way relieve the Design Architect/Engineer of the prime responsibilities as set forth herein.

37. ARCHITECT'S STATUS

Neither the Architect or the Owner assumes the responsibility for construction means, methods, techniques, sequences, or procedures, or for safety procedures, precautions and programs employed by the Contractor, Subcontractor, their employees, or any material supplier. The Architect does not guarantee the Contractor's performance or commitment to the Owner.

Any requests for interpretation of the Contract Documents must be submitted to the Architect not later than four (4) working days (not including Saturday, Sunday, or State Holidays) prior to bid opening.

38. ARCHITECT'S DECISIONS:

The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

39. CASH ALLOWANCES:

The Contractor shall include in the contract sum all allowances named in the contract documents and shall cause the work so covered to be done by such contractors and for such sums as the Architect may specify and certify, the contract sum being adjusted in conformity therewith, upon approval of Owner.

40. USE OF PREMISES:

The Contractor shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permit or directions of the Architect and shall not unreasonably encumber the premises with his materials. The Contractor shall not load or permit any part of the equipment or structure to be loaded with a weight that will endanger its safety or the safety of any person on the premises.

41. CUTTING, PATCHING AND DIGGING:

The Contractor shall do all cutting, patching, or fitting of his work that may be required to make its several parts come together properly and fit it to receive or to be received by work of other contractors shown upon, or reasonably implied by, the Drawings and Specifications for the completed structure and he shall make good after them as the Architect may direct.

Any cost caused by defective or ill-timed work shall be borne by the party responsible therefor.

The Contractor shall not endanger any work, by cutting, digging or otherwise, and shall not cut or alter the work of any other contractor save with the consent of the Architect.

42. CLEANING UP:

The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all his rubbish from and about the building and all his tools, scaffolding and surplus materials and shall leave his work "boom-clean" or its equivalent, unless more exactly specified. In case of dispute, the Owner may remove the rubbish and charge the cost to the several contractors as the Architect shall determine to be just.

43. SUBSTITUTIONS:

Where reference is made to one or more proprietary products but restrictive descriptive material of only one manufacturer is used, it is understood that the products of other manufacturers will be accepted provided they equal or exceed the standards set forth in the drawings and specification and are compatible with the intent and purpose of the design, subject to the written approval of the Owner and the Architect prior to the opening of bids. Requests for and information pertaining to said approval must be submitted to the Architect no later than four (4) working days (not including Saturday, Sunday or State Holidays) prior to bid opening. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design.

The Contractor may propose the substitution of any material as a supplement to his bid with the monetary amount, additive or deductive as may be the case, clearly stated; manufacturer's information, catalog numbers, and complete descriptive information shall be included with the proposed substitution. This shall be completely apart and separate from the base bid quotation and shall be solely for the information of the Owner and the use of such proposed substitution shall be strictly at the decision of the Owner. If the substitution is accepted by the Owner, the contract sum shall be adjusted from the base bid either up or down as indicated on the supplementary list.

44. LAYING OUT WORK:

The contractor shall be held strictly responsible for the accuracy of the laying out of his work and for its strict conformity with the existing conditions of the building, and shall determine all changes and chases and openings before work is commenced.

45. EMERGENCIES:

In an emergency affecting the safety of life, or of the structure, or of adjoining property, then the Contractor, without special instruction or authorization from the Architect or the Owner, shall act at his discretion to prevent such threatened loss or injury. Any compensation claimed to be due him therefrom shall be determined as provided for under "Changes in the Work."

46. TESTING OF MATERIALS:

In case the Architect shall direct that any materials be tested or analyzed, then the Contractor shall furnish a sample for the test, such sample being selected according to the directions of the Architect. The cost of testing or analysis of such sample or samples shall be borne by the manufacturer or supplier of the product. This provision shall not apply to the testing of concrete. The cost of concrete testing shall be borne by the Owner.

47. TEMPORARY ENCLOSING, DRYING OUT, ETC.

When openings are made in exterior walls, the Contractor shall, if required by the Architect on account of weather or security conditions, close up all exterior openings, (except one or more which are to be provided with battened doors, padlocks, etc.) with temporary frames covered with approved material.

The Contractor must, at all times, protect the building from damage from weather, surface water or subsoil drainage. He must keep the excavations dry, if necessary, by pumping, while concrete or masonry is being laid.

48. EXAMINATION OF SITE:

The Contractor shall visit the site of the building and examine for himself the site and soil conditions. He shall furnish all labor and materials necessary for preparation of the site for the execution of this contract.

49. STORAGE AND CARE OF MATERIALS:

The Contractor shall provide, maintain and remove when directed, suitable, substantial, watertight storage sheds upon the premises where directed in which he shall store his materials. All cement, lime and other materials affected by moisture shall be covered and protected to keep from damage while it is being transported to the site.

50. BUILDING RISKS:

The building and all materials and work connected therewith shall be at the Contractor's risk until they are accepted, and he will be held responsible for and liable for their safety in the amount paid to him by the board on account thereof.

51. TEMPORARY APPURTENANCES AND CONVENIENCES:

The Contractor shall provide well-fastened ladders and other means to facilitate inspection of the work.

52. SCAFFOLDING, TOOLS, ETC.:

The Contractor shall provide and erect all the necessary platforms, scaffolds, and supports of ample strength required for the handling of the materials and all other loading to be imposed. The same shall apply to all derricks and hoisting machinery, all appliances and materials, ladders, horses, poles, planks, ropes, wedges, centers, moulds, and other tools and materials, and the cartage thereof to and from the building as may become necessary for the performance of his contract.

53. REFUSE:

Refuse containers are to be provided by the Contractor for the workmen's lunch boxes and papers.

54. REMOVING WATER:

The Contractor shall remove at his expense from all excavations and/or from the building all unwanted water appearing from any cause during any stage of the work, until the building is accepted by the Owner. All excavations shall be free from water before any concreting or other work is done in them.

55. TAXES:

The Contractor shall include in his bid the cost of Social Security, Unemployment Compensation, Sales and Use Taxes as required by the Federal and State laws.

56. CITIZENS PREFERRED:

Preference shall be given in hiring citizens of the United States or those having declared their intention of becoming citizens; failure to comply may result in the Owner declaring the contract void.

57. CODE REQUIREMENTS:

The provisions of the 1997 Uniform Building Code, with amendments, the 1998 International Mechanical Code with amendments the 1999 National Electrical Code, with amendments, and the 1997 International Plumbing Code shall apply except as specific variances therewith may be authorized by the Owner.

If the Drawings and Specifications fail to meet the minimum standards of the above-mentioned codes, it shall be the responsibility of the Contractor to bring such information to the attention of the Architect or Engineer having jurisdiction. Subcontractors shall also inform the Contractor of any infractions of the above-mentioned codes regarding their own particular trades.

In the event that workmanship or incidental materials are not specified or indicated, they shall at least conform to the above-mentioned codes and shall be incorporated into the work without any additional cost to the Owner. If the drawings and specifications call for items or workmanship which exceed the codes, the drawings and specifications hold precedence over any code requirements.

58. NONDISCRIMINATION AND AFFIRMATIVE ACTION:

In order to comply with the provisions of the Utah Anti-Discrimination Act of 1965, relating to unfair employment practices, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, sex, religion, ancestry or national origin.
- B. In all solicitations or advertisements for employees, the contractor will state that all qualified applicants will receive consideration without regard to race, color, sex, religion, ancestry or national origin.
- C. The Contractor will send to each labor union or workers' representative notices to be provided, stating the Contractor's responsibilities under the statute.
- D. The Contractor will furnish such information and reports as requested by the Division for the purpose of determining compliance with the statute.
- E. Failure of the Contractor to comply with the statute, the rules and regulations promulgated thereunder and this nondiscrimination clause shall be deemed a breach of contract and it may be canceled, terminated or suspended in whole or in part.
- F. The Contractor will include the provisions of Paragraphs A through F in every subcontract or purchase order (unless excepted under the statute or rules and regulations) so that such provisions will be binding upon such subcontractor or vendor.

Monthly Employment Compliance Reports must be submitted to the Owner by the prime contractor and all subcontractors with contracts in excess of \$10,000 at the Owner's option.

AFFIRMATIVE ACTION:

The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

A written Affirmative Action Program must be submitted to the Owner within thirty (30) days of Notice to Proceed by the prime contractor and all subcontractors with contracts in excess of \$50,000. All exempt contractors should have a program on file and available for review by the Owner upon request.

Guidelines for an affirmative action program are available from the Owner.

At its discretion the Owner may perform a compliance review at the office and project of the Contractor to check on compliance in hiring practices, record keeping, contacting of agencies and unions, advertising, informing of personnel of the requirements under this provision and etc. If the visit to the project site or other information received indicates need to perform a compliance review more frequently on a project, this will be done. The size of the project, compliant situation, and past record of the Contractor in his program will determine the frequency of on-the-job compliance reviews.

Any Deficiencies found in the affirmative action program of the Contractor during either a compliance review or as determined from reports submitted will be discussed with the Contractor and confirmed in writing. The Contractor must then Submit in writing specific commitments to correct such deficiencies.

59. SAFETY:

The Contractor shall institute a safety program at the start of construction to minimize accidents, such program to continue to end of the job and conform to the latest general safety orders of the State Industrial Commission, as contained in the Utah Occupational Safety and Health Act of 1973. The manual of Accident Prevention in Construction may be used as a guideline for safety practices. Contractor shall post signs erect barriers, etc., as necessary to implement this program. The Contractor shall have all workmen and all visitors on site wear safety hard hats and obey all safety rules and regulations and statutes as soon as the Contractor proceeds. The Contractor shall post a sign regarding hats in a conspicuous location and furnish extra hats at his expense for visitors.

60. RUBBISH DISPOSAL:

Rubbish, trash, etc., shall not be burned on the premises unless approved by the local fire authority, but rather, hauled from the site and legally disposed of.

61. SUBCONTRACTORS FINANCIAL BID LIMITS AND LICENSE CLASSIFICATION:

The Contractor shall verify the license classification and bid limit of each of his subcontractors. Regulations prohibit work of the subcontractors exceeding their respective bid limit and working outside of license classification as determined by the Commission of Business Regulation, Department of Contractors.

In the event that the bid limit or classification is not complied with, the respective subcontractor(s) will be disqualified by the Commission of Business Regulation and the Department of Contractors, and the Contractor shall be responsible to provide a suitable and properly qualified subcontractor as approved by the Owner without a change in the contract price.

62. BALANCING AND TESTING:

It is the intent of this specification that the building, when presented to the Owner for final acceptance, be complete and operable in all respects, including, but not limited to mechanical, utilities, and other systems which are tuned, tested, and balanced to the satisfaction of the Architect, or his appropriate Engineers and Consultants; and the Owner. Any and all testing and balancing necessary shall be done as part of the contract.

During, or in connection with, the inspection of the work, the Contractor or appropriate Subcontractor(s) shall perform such tests and/or demonstrations of the operation of the systems, or its components, as may be requested by the Owner and/or Architect or his appropriate Engineers and Consultants as necessary to adequately determine the acceptability of the installation.

63. SUBSTANTIAL COMPLETION:

The Architect and Owner will conduct inspections to determine the Dates of Substantial Completion and final payment; the Architect will receive written guarantees and related documents required by the contract and assembled by the Contractor and submit these to the Owner, and will issue a final Certificate for Payment.

The Date of Substantial Completion of the work or designated portion thereof, is the date certified by the Owner when construction is sufficiently complete in accordance with the contract documents, so the Owner may occupy the work or designated portion thereof for the use for which it is intended. When the Contractor determines that the work or a designated portion thereof acceptable to the Owner is substantially complete, the Owner shall prepare a list of items to be completed or corrected. The failure to include any item on such list does not alter the responsibility of the Contractor to complete all work in accordance with the contract documents. When the Owner, on the basis of an inspection, determines that this work is substantially complete, the Architect then will prepare a Certificate of Substantial Completion which shall establish a Date of Substantial Completion; shall state the responsibilities of the Owner and the Contractor for maintenance, heat, utilities and insurance, and shall fix the time within which the Contractor shall complete the items listed therein, said time to be within the contract time unless extended pursuant to Article, "Delays and Extension of Time." The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such certificate. The Certificate of Substantial Completion shall be on A.I.A. Form G-704.

If within one year after the Date of Substantial Completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract documents, if any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition.

64. NON-ASBESTOS MATERIALS:

All materials used in the work shall be asbestos-free or shall be certified by independent testing laboratories to contain less asbestos than is allowed by EPA regulations.





## **SUPPLEMENTARY CONDITIONS**

### **ITEM 1. LIQUIDATED DAMAGES:**

For each day after the expiration of the Contract time that the work is not substantially complete, the Contractor shall pay the Owner Five-Hundred and No/100 Dollars (\$250.00) as Liquidated Damages for the Owner's loss of use of the project and the added Administrative expense to the Owner to Administer the project during the period of delay.

### **ITEM 2. TAX EXEMPT STATUS:**

Modify General Conditions' Item 55 as follows: The Ogden City School District is exempt from Utah State Sales Tax. The Owner will provide the successful Contractor with State Form TC-721 which will be needed to claim the exemption.



## OCS - MOUND FORT JR. HIGH REMODEL

### DIVISION 1 - GENERAL REQUIREMENTS:



## **DIVISION 01 - GENERAL REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 REGULATIONS AND CODES**

- A. Install all work in full accordance with the latest rules prescribed by local and /or State Codes, and /or ordinances including the International Building Code, specific codes governing the work trades, State and local health department ordinances, the latest rules of the National Boards of Fire Underwriters. Regulations of the State and/or local Fire Marshall and with any prevailing rules and regulations pertaining to moving parts, hazardous locations and hazardous materials.

#### **1.2 PERMITS AND FEES**

- A. No permits or fees are required.

#### **1.3 VISIT THE SITE**

- A. By the submission of a bid, the contractor and each of his subcontractors represent that they have visited the site of the proposed work and examined the existing buildings and thoroughly acquainted themselves with all conditions affecting the work.
- B. No allowance will be made because of lack of knowledge of such conditions which were apparent prior to start of work. Contractor shall verify all measurements at the site and the existing buildings and fully acquaint himself with the existing conditions before beginning the work.

#### **1.4 DELIVERY AND STORAGE OF MATERIALS**

- A. Deliver, store and handle all materials so as to preclude the inclusion of foreign materials and the damage of materials by water or breakage. Deliver and store package materials in original packages until ready for use. Packages showing evidence of water or other damage: rejected.

#### **1.5 FIRE PROTECTION**

- A. Immediately following the initial delivery and storage of combustible materials to the site, and throughout the construction period, the Contractor shall supply and maintain suitable fire protection for such materials.

#### **1.6 WORKMANSHIP**

- A. Each trade shall use the "best trade" practices and shall obtain first class work. Use only qualified craftsmen, skilled in each trade.

#### **1.7 GUARANTEE**

- A. In addition to general guarantees/warranties, the Contractor shall guarantee his work for one year after date of Substantial Completion. All items found to be defective within this period of time shall be repaired or replaced at no cost to the Owner.

## **PART 2 - PRODUCTS (NOT APPLICABLE)**

## **PART 3 - EXECUTION**

### **3.1 GENERAL FIELD WORK**

- A. Contractor shall verify all measurements at the site and the existing building and fully acquaint himself with the existing conditions before beginning the work.
- B. The Contractor assumes full responsibility for proper provisions to insure coordination of all divisions of the entire work.
- C. Lay out the entire building for all work; build to dimensions or measurements.

### **3.2 REMODELING**

- A. The work of this contract includes the remodeling of portions of the existing building.
- B. The specific work involved is more completely describe on the drawings and in the various trades of the Specifications.
- C. Make all parts of the remodeled work neat, complete, and sound. Do all misc. items of patching, repairing and finishing even though not specifically mentioned or shown.
- D. Remove or relocate piping and electrical circuits or equipment as necessary to complete remodeling.
- E. Finally, all portions of the existing building affected by demolition of work necessary to connect to it, shall be neatly repaired, painted and finished. Generally, painting and finishing shall be extended to the nearest corner, column, or natural break in the building surfaces to obviate the appearance of remodeling.

### **3.3 MEASUREMENTS**

- A. The drawings are made reasonably accurate as to scale, and bear figured dimensions for all important points and required sizes. Figured dimensions shall govern in preference to scaled measurements. Verify dimensions in the existing building or site.
- B. Verify all measurements at the building for items to be fabricated to special designs or workmanship. Contractor for that item shall be responsible for correctness of all measurements. No extra charge or compensation will be allowed on account of differences between actual measurements and the dimensions indicated on the drawings.
- C. Submit any difference which may be found to the Architect for consideration before proceeding with the work.

### **3.4 INSPECTION AND ACCEPTANCE OF WORK DONE BY OTHER TRADES**

- A. Where a subcontractor or craftsman is to apply his work or materials over work or surfaces of another trade he shall before commencing his work and report in writing to the Architect and General Contractor any defects which may, in his opinion, affect satisfactory finish, accuracy and/or stability of the work under his contract. Commencement of work by the subcontractor or tradesman shall indicate acceptance of such work or surfaces prepared by other trades and he shall not be relieved of responsibility and obligations for first class workmanship or under his guarantee.

### 3.5 PROJECT CLOSE OUT

- A. Record Drawings: Submit to Architect Record Drawings indicating in red ink or pencil all changes to the project.
- B. Operation and Maintenance Manuals: Submit 1 copy in a three ring binder with embossed label on front cover and back edge. Index shall include products, local supplier, supplier's address and phone number and local repair service center if different from supplier.
- C. Guarantees and Warranties: Submitted in a three-ring binder in sequence according to Specification Sections with a typed index listing product, supplier, supplier's address and phone number.
- D. Miscellaneous Tools, Keys, etc.: Submit to Architect properly tagged and marked stating type of tool, location of item requiring this tool and purpose of tool.
- E. Locks: Submit keys to Architect with a type list of key identification and number of keys.
- F. Prefinal Inspection: Conducted by Architect and Owner when all work is completed. The Architect will prepare a list of items requiring completion or correction. Prior to the time of the prefinal inspection submit to Architect all operation and maintenance manuals, balancing reports, warranties, guarantees, "Record" contract drawings, etc. for review.
- G. Substantial Completion: Conducted by Architect and Owner or Owner's representative and Contractor at which time a final inspection report of corrective measures required will be prepared.
- H. Submit payment releases:
  - 1. Contractor's Affidavit of Payment of Debts and Claims, A.I.A. Document G-706.
  - 2. Contractor's Affidavit of Release of Liens, AIA Document G-706-A.
  - 3. Consent of Surety of Final Payment, AIA Document G-707.

END OF SECTION 01 0000





## OCS - MOUND FORT JR. HIGH REMODEL

**DIVISION 2 - EXISTING CONDITIONS:**  
02 4000 Demolition and Structure Moving  
02 4119 Selective Structure Demolition



## **SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Demolition and removal of selected site elements.

#### **1.2 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and store them for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### **1.3 SUBMITTALS**

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of stairs, and locations of temporary partitions and means of egress.
- B. Predemolition Photographs or Videos: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 01 Section "Photographic Documentation." Submit before Work begins.

#### **1.4 QUALITY ASSURANCE**

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Predemolition Conference: Conduct conference at Project site.

#### **1.5 PROJECT CONDITIONS**

- A. Owner will occupy portions of existing building. Conduct selective demolition so Owner's operations will not be disrupted.

- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

### **3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### **3.3 PREPARATION**

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

### **3.4 SELECTIVE DEMOLITION**

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 5. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."
- B. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area on-site.
  - 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.
  - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### **3.5 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
- B. Burning: Do not burn demolished materials.

- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### **3.6 CLEANING**

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

**END OF SECTION 02 4119**

## OCS - MOUND FORT JR. HIGH REMODEL

### DIVISION 3 - CONCRETE:

- 03 3000 Cast-In-Place Concrete
- 03 3543 Bonded Abrasive Polished Concrete Floors





## **SECTION 03 3000 - CAST-IN-PLACE CONCRETE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes cast-in-place concrete for floor slab patch and repair work, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

#### **1.3 DEFINITIONS**

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

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

#### **1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
  - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- D. Preinstallation Conference: Conduct conference at Project site.

### **PART 2 - PRODUCTS**

#### **2.1 FORM-FACING MATERIALS**

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
  - 1. Plywood, metal, or other approved panel materials.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
  - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

## **2.2 STEEL REINFORCEMENT**

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 deformed.

## **2.3 REINFORCEMENT ACCESSORIES**

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

## **2.4 CONCRETE MATERIALS**

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type V, gray. Supplement with the following:
    - a. Fly Ash: ASTM C 618, Class F or C.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
  - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.
- D. Soil Corrosion potential: On-site soils contain sulfates in sufficient concentration to be corrosive to concrete. Therefore, concrete exposed to on-site soils shall be designed in accordance with provisions provided in the American Concrete Institute Manual of Concrete Practice (ACI) 318.08, Section 4.3 and section 1904.3 of the 2012 IBC.
  - 1. Table 4.3.1 of ACI 318-08 shall be followed utilizing a sulfate exposure class of S2, and a sulfate exposure severity of "severe".

## 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
  - 1. Color: As selected by Architect from manufacturer's full range to match existing stained concrete slab.
  - 2. Manufacturers:
    - a. Davis Colors, [www.daviscolors.com](http://www.daviscolors.com).
    - b. L.M. Scofield, [www.scofield.com](http://www.scofield.com).

## 2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

## 2.7 RELATED MATERIALS

- A. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

## 2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
  - 2. Combined Fly Ash and Pozzolan: 25 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

- D. Color Pigment: Where colored concrete is noted on drawings, add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with existing concrete slab.

## **2.9 CONCRETE MIXTURES FOR BUILDING ELEMENTS**

- A. Slabs-on-Grade: Proportion normal-weight concrete mixture as indicated in the structural notes and as follows:
  - 1. Minimum Compressive Strength: 4500 psi at 28 days.
  - 2. Slump Limit: 4 inches plus or minus 1 inch
  - 3. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

## **2.10 FABRICATING REINFORCEMENT**

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

## **2.11 CONCRETE MIXING**

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F reduce mixing and delivery time to 60 minutes.

# **PART 3 - EXECUTION**

## **3.1 FORMWORK**

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- G. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- H. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

## **3.2 REMOVING AND REUSING FORMS**

- A. General: Formwork for walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing

concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### **3.3 STEEL REINFORCEMENT**

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

### **3.4 JOINTS**

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
  - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groove or tool marks on concrete surfaces.
  - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-de joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

### **3.5 CONCRETE PLACEMENT**

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

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

### **3.6 FINISHING FORMED SURFACES**

- A. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

### **3.7 MISCELLANEOUS CONCRETE ITEMS**

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

### **3.8 CONCRETE PROTECTING AND CURING**

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

- C. Formed Surfaces: Cure formed concrete surfaces, including supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

### **3.9 CONCRETE SURFACE REPAIRS**

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- C. Repair materials and installation not specified above may be used, subject to Architect's approval.

**END OF SECTION 03 3000**





## **SECTION 03 3543 BONDED ABRASIVE POLISHED CONCRETE FLOORS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes: Products and procedures for [coloring and] bonded abrasive polishing concrete floors using multi-step wet/dry mechanical process, and accessories indicated, specified, or required to complete polishing to 800 grit resin.

#### **1.2 DEFINITIONS**

- A. Terminology: As defined by CPAA.
- B. Polished Concrete: The act of changing a concrete floor surface, with or without aggregate exposure, to achieve a specified level of gloss.
- C. Bonded Abrasive Polished Concrete: The multi-step operation of mechanically grinding, honing, polishing of a concrete floor surface with bonded abrasives to cut a concrete floor surface and to refine each cut to the maximum potential to achieve a specified level of finished gloss as defined by the CPAA. This yields the most durable finish and requires the least amount of maintenance.

#### **1.3 SUBMITTALS**

- A. Product Data: Manufacturer's technical literature for each product indicated, specified, or required. Include manufacturer's technical data, application instructions, and recommendations.
- B. Installer Qualifications: Data for company, principal personnel, experience, and training specified in PART 1 "Quality Assurance" Article.
- C. Maintenance Data: For inclusion in maintenance manual required by Division 01.
  - 1. Include instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use.
  - 2. Include precautions against cleaning products and methods which may be detrimental to finishes and performance.

#### **1.4 QUALITY ASSURANCE**

- A. Polisher Qualifications:
  - 1. Experience: Company experienced in performing specified work similar in design, products, and extent to scope of this Project; with a record of successful in-service performance; and with sufficient production capability, facilities, and personnel to produce specified work.
  - 2. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman - Level I or higher by CPAA.
  - 3. Manufacturer Qualification: Approved by manufacturer to apply liquid applied products.
- B. Field Mock-up: Before performing work of this Section, provide following field mock-up to verify selections made under submittals and to demonstrate aesthetic effects of polishing. Approval does not constitute approval of deviations from Contract Documents, unless Architect specifically approves deviations in writing.
  - 1. Form, reinforce, and cast concrete slab for 10 foot square field mock-up.

2. Concrete shall be same mix design as scheduled for Project.
  3. Placement and finishing work shall be performed by same personnel as will place and finish concrete for Project.
  4. Mock-up shall be representative of work to be expected.
  5. Perform grinding, honing, and polishing work as scheduled for Project using same personnel as will perform work for Project.
  6. Approval is for following aesthetic qualities:
    - a. Compliance with approved submittals.
    - b. Compliance with specified aggregate exposure.
    - c. Compliance with specified finished gloss level.
    - d. Compliance with specified color.
  7. Obtain Architect's approval before starting work on Project.
  8. Protect and maintain approved field mock-ups during construction in an undisturbed condition as a standard for judging completed work.
- C. Pre-Installation of Concrete Conference: Prior to placing concrete for areas scheduled for polishing, conduct conference at Project to comply with requirements of applicable Division 01 Sections.
1. Required Attendees:
    - a. Owner.
    - b. Architect.
    - c. Contractor, including supervisor.
    - d. Concrete polisher, including supervisor.
  2. Minimum Agenda: Polisher shall demonstrate understanding of work required by reviewing and discussing procedures for, but not limited to, following:
    - a. Tour field mock-up and representative areas of required work, discuss and evaluate for compliance with Contract Documents, including substrate conditions, surface preparations, sequence of procedures, and other preparatory work performed by other installers.
    - b. Review Contract Document requirements.
    - c. Review approved submittals and field mock-up.
    - d. Review procedures, including, but not limited to:
      - 1) Applicable Division 03 Section on cast-in-place concrete
        - a) Specific mix design.
        - b) Specified curing methods/procedures.
        - c) Projected 3, 10, and 28 day compression strength test related to specified aggregates exposure for finished floor and project phasing.
        - d) Protection of concrete substrate during construction and prior to polishing process
        - e) Project phasing and scheduling for each step of grinding, honing and polishing operations including, but not limited to:
          - i. Quality of qualified personnel committed to project.
          - ii. Quality and size of grinders committed to project.
          - iii. Proper disposal of concrete slurry and/or concrete dust.
      - f) Details of each step of grinding, honing, and polishing operations.
        - i) Application of color.
        - ii) Application of liquid applied products.
        - iii) Protecting polished concrete floors after polishing work is complete.
  3. Reports: Record discussions, including decisions and agreements reached, and furnish copy of record to each party attending.

## **1.5 FIELD CONDITIONS**

- A. Damage and Stain Prevention: Take precautions to prevent damage and staining of concrete surfaces to be polished.
  - 1. Prohibit use of markers, spray paint, and soapstone.
  - 2. Prohibit improper application of liquid membrane film forming curing compounds.
  - 3. Prohibit vehicle parking over concrete surfaces.
  - 4. Prohibit pipe-cutting operations over concrete surfaces.
  - 5. Prohibit storage of any items over concrete surfaces for not less than 28 days after concrete placement.
  - 6. Prohibit ferrous metals storage over concrete surfaces.
  - 7. Protect from petroleum, oil, hydraulic fluid, or other liquid dripping from equipment working over concrete surfaces.
  - 8. Protect from acids and acidic detergents contacting concrete surfaces.
  - 9. Protect from painting activities over concrete surfaces.
- B. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting liquid applied product application.

## **PART 2 - PRODUCTS**

### **2.1 PRODUCTS**

- A. Color: Ameripolish surelock dye concentrate applied with water not acetone.
- B. Densifier / Guard: Consolideck LS and LS Guard.
- C. Epoxy Border: H & C / SW Tile Clad HS or PPG Aquapon.
- D. Crack / Joint Sealer: Xtra Bond 9500 green modified polyurethane sealant.
- E. Patching / Minor Repair: Rapid Set cement all mixed with acrylic fortifier and water.

### **2.2 ACCESSORIES**

- A. Three (3) head planetary grinders to best follow contours of floor with same brand diamond tooling as machine manufacturer.
- B. One (1) Hepa filter equipped dust extractor equipped with Longopac dust bagging system with minimum of 250 cfm for every grinder used.
- C. All edge grinders must be equipped with dust shrouds / vacuum attachment.
- D. All crack chasing equipment must be equipped with dust shroud / vacuum attachment.
- E. Diamond v-shape crack chasing tools.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Acceptance of Surfaces and Conditions:
  - 1. Examine substrates to be polished for compliance with requirements and other conditions affecting performance.
- B. Proceed only when unsatisfactory conditions have been corrected in a manner complying with Contract Documents.
- C. Starting work within a particular area will be construed as acceptance of surface conditions.

### **3.2 POLISHING CONCRETE FLOORS**

- A. Remove glue by grinding with pcdds or 30 grit metal bond diamond abrasives.
- B. After removal of glue, grind with metal bond diamonds (30g, 70g, & 120g) diamonds at 50% overlap and minimum of four passes per grit. Each pass is to be in a different direction or pattern from the last. All edges despite an epoxy border must be ground to 120g metals to minimize grinding marks.
- C. After grinding with metal bond diamonds, the honing process with concrete begins with 50g, 100g, 200g, 400g (50g & 100g resin diamonds may be substituted with 100g hybrid ceramic / resin diamonds). A minimum of 4 passes will be performed with all resins up to 200g and a minimum of 2 passes with 400g all with 50% overlap. Color will be applied after 200g resin and a thorough cleaning performed with an auto scrubber before 400g is started. "Consolideck LS" densifier applied by sprayer and microfiber mop at a rate of no less than 500 ft<sup>2</sup> per gallon, undiluted, will be applied and allowed to dry (surface must remain wet for a minimum of 5 min. or reapplication is required) prior to starting the next grit.
- D. After honing with 400g, polishing is performed with 800g resin. Two (2) passes at 50% overlap minimum is required.
- E. Floor then is thoroughly cleaned by means of an auto-scrubber and allowed to dry. After floor is dry two (2) coats of "Consolideck LS Guard" will be applied by sprayer and microfiber mop at a rate no more than 2000 ft<sup>2</sup> per gallon, undiluted, and allowed to dry. Once "Consolideck LS Guard" is completely dried, burnishing will be performed with either 8500 grit resin diamond burnishing abrasives or only diamond impregnated burnishing pads. No other substitutions excepted, such as hogs hair or synthetic burnishing pads. A minimum of two (2) passes are required.

### **3.3 CLOSEOUT ACTIVITIES**

- A. Maintenance Training: CPAA Craftsman shall train Owner's designated personnel in proper procedures for maintaining polished concrete floor.

### **3.4 PROTECTION**

- A. Covering: After completion of polishing, protect polished floors from subsequent construction activities with protective covering.

**END OF SECTION 03 3543**

## OCS - MOUND FORT JR. HIGH REMODEL

DIVISION 6 - WOOD AND PLASTICS:  
06 1000 Rough Carpentry



## **SECTION 06 1000 - ROUGH CARPENTRY**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Framing with dimension lumber.
  - 2. Wood blocking and nailers.

#### **1.2 SUBMITTALS**

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

### **PART 2 - PRODUCTS**

#### **2.1 WOOD PRODUCTS, GENERAL**

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

#### **2.2 DIMENSION LUMBER FRAMING**

- A. Maximum Moisture Content: 19 percent.
- B. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade of any species.

#### **2.3 MISCELLANEOUS LUMBER**

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Furring.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
  - 1. Mixed southern pine, No. 2 grade; SPIB.
  - 2. Eastern softwoods, No. 2 Common grade; NeLMA.
  - 3. Northern species, No. 2 Common grade; NLGA.
  - 4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

#### **2.4 METAL FRAMING ANCHORS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Products: Subject to compliance with requirements, provide comparable products by one of the following:
  - 1. Alpine Engineered Products, Inc.

2. Cleveland Steel Specialty Co.
3. Harlen Metal Products, Inc.
4. KC Metals Products, Inc.
5. Simpson Strong-Tie Co., Inc.
6. Southeastern Metals Manufacturing Co., Inc.
7. USP Structural Connectors.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Do not splice structural members between supports, unless otherwise indicated.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

**END OF SECTION 06 1000**



## OCS - MOUND FOR JR. HIGH REMODEL

### DIVISION 7 - THERMAL AND MOISTURE PROTECTION:

07 2100 Thermal Insulation  
07 9200 Joint Sealants



## SECTION 07 2100 - THERMAL INSULATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Glass-fiber blanket insulation.
- B. Related Sections:
  - 1. Section 09 2900 "Gypsum Board" for installation in metal-framed assemblies of insulation specified by referencing this Section.

#### 1.3 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

### PART 2 - PRODUCTS

#### 2.1 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. CertainTeed Corporation.
  - 2. Guardian Building Products, Inc.
  - 3. Johns Manville; a Berkshire Hathaway company.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Clean substrates of substances that are harmful to insulation or that interfere with insulation attachment.

### **3.2 INSTALLATION, GENERAL**

- A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

### **3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION**

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  - 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

### **3.4 PROTECTION**

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

**END OF SECTION 07 2100**

## **SECTION 07 9200 - JOINT SEALANTS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Silicone joint sealants.

#### **1.2 SUBMITTALS**

- A. Product Data: For each joint-sealant product indicated.
- B. Warranties.

#### **1.3 WARRANTY**

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS, GENERAL**

- A. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

#### **2.2 SILICONE JOINT SEALANTS**

- A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 2. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
    - a. BASF Building Systems.
    - b. Dow Corning Corporation.
    - c. GE Advanced Materials - Silicones.
    - d. May National Associates, Inc.
    - e. Pecora Corporation.
    - f. Polymeric Systems, Inc.
    - g. Schnee-Morehead, Inc.
    - h. Sika Corporation; Construction Products Division.
    - i. Tremco Incorporated.
    - j. As approved by Architect prior to bidding.
  - 3. Type: Single component (S).
  - 4. Grade: Pourable (P).
  - 5. Class: 100/50.
  - 6. Uses Related to Exposure: Traffic (T).

## **2.3 JOINT SEALANT BACKING**

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

## **2.4 MISCELLANEOUS MATERIALS**

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

# **PART 3 - EXECUTION**

## **3.1 PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
  - 1. Remove laitance and form-release agents from concrete.
  - 2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

## **3.2 INSTALLATION**

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

**END OF SECTION 07 9200**

## OCS - MOUND FORT JR. HIGH REMODEL

### DIVISION 8 - OPENINGS:

08 1213	Hollow Metal Frames
08 1416	Flush Wood Doors
08 7100	Door Hardware





## **SECTION 08 1213 - HOLLOW METAL FRAMES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes hollow-metal frames.
- B. Related Requirements:
  - 1. Section 08 1416 "Flush Wood Doors" for wood doors installed in hollow-metal frames.

#### **1.3 DEFINITIONS**

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

#### **1.4 COORDINATION**

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

#### **1.5 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.6 ACTION SUBMITTALS**

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

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
  - 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each unit to permit air circulation.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- 1. Any current member of Steel Door Institute.
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

## **2.2 INTERIOR FRAMES**

- A. Construct interior frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Hollow-Metal Frames: NAAMM-HMMA 860. At locations indicated in the Door and Frame Schedule.
  - 1. Physical Performance: Level A according to SDI A250.4.
  - 2. Materials: Uncoated steel sheet, minimum thickness of 16 gage.
  - 3. Construction: Face welded.
  - 4. Exposed Finish: Prime.

## **2.3 FRAME ANCHORS**

- A. Jamb Anchors:
  - 1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.

## **2.4 MATERIALS**

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- D. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. density; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

## **2.5 FABRICATION**

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  - 2. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches high.
- C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
  - 1. Reinforce frames to receive nontemplated, mortised, and surface-mounted hardware.
  - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

- D. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
  - 1. Provide fixed frame moldings on outside of exterior and on secure side of interior frames.
  - 2. Provide loose stops and moldings on inside of hollow-metal work.
  - 3. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## **2.6 STEEL FINISHES**

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap frames to receive nontemplated, mortised, and surface-mounted hardware.

### **3.3 INSTALLATION**

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.
- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
  - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. Install frames with removable stops located on secure side of opening.
    - b. Install door silencers in frames before grouting.
    - c. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
  - 2. In-Place Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
  - 3. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

- b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
- c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
- d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

### **3.4 ADJUSTING AND CLEANING**

- A. Final Adjustments: Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

**END OF SECTION 08 1213**

## **SECTION 08 1416 - FLUSH WOOD DOORS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Solid-core doors with wood-veneer faces.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Requirements:
  - 1. Section 08 1213 Hollow Metal Panels.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
  - 1. Dimensions and locations of blocking.
  - 2. Dimensions and locations of mortises and holes for hardware.
  - 3. Dimensions and locations of cutouts.
  - 4. Undercuts.
  - 5. Requirements for veneer matching.
  - 6. Doors to be factory finished and finish requirements.
- C. Samples for Initial Selection: For factory-finished doors.
- D. Samples for Verification:
  - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
  - 2. Frames for light openings, 6 inches long, for each material, type, and finish required.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

#### **1.5 FIELD CONDITIONS**

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.

- B. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during remainder of construction period.

## **1.6 WARRANTY**

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inchection.
    - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inchpan.
  - 2. Warranty Period for Solid-Core Interior Doors: Life of installation.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Algoma Hardwoods, Inc.
  - 2. Ampco, Inc.
  - 3. Buell Door Company Inc.
  - 4. Chappell Door Co.
  - 5. Eagle Plywood & Door Manufacturing, Inc.
  - 6. Eggers Industries.
  - 7. Graham; an ASSA Abloy Group company.
  - 8. Haley Brothers, Inc.
  - 9. Ideal Architectural Doors & Plywood.
  - 10. Ipik Door Company.
  - 11. Lambton Doors.
  - 12. Marlite.
  - 13. Marshfield Door Systems, Inc.
  - 14. Mohawk Flush Doors, Inc.; a Masonite company,
  - 15. Oshkosh Architectural Door Company.
  - 16. Poncraft Door Company.
  - 17. Vancouver Door Company.
  - 18. VT Industries Inc.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

### **2.2 FLUSH WOOD DOORS, GENERAL**

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards.
- B. Particleboard-Core Doors:
  - 1. Particleboard: ANSI A208.1, Grade LD-1 or Grade LD-2.
  - 2. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

### **2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH**

- A. Interior Solid-Core Doors:

1. Grade: Premium, with Grade AA faces.
2. Species: Maple.
3. Cut: Quarter sliced.
4. Match between Veneer Leaves: Slip match.
5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
6. Core: Particleboard.
7. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

## **2.4 LIGHT FRAMES AND LOUVERS**

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.

1. Wood Species: Same species as door faces.
2. Profile: Flush rectangular beads.

## **2.5 FABRICATION**

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
  1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

## **2.6 FACTORY FINISHING**

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
  1. Grade: Premium.
  2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" System 5, conversion varnish.
  3. Staining: As selected by Architect from manufacturer's full range.
  4. Sheen: Satin.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
  1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2      INSTALLATION**

- A.     Hardware: For installation, see Section 08 7100 "Door Hardware."
- B.     Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- C.     Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D.     Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### **3.3      ADJUSTING**

- A.     Operation: Rehang or replace doors that do not swing or operate freely.
- B.     Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

**END OF SECTION 08 1416**



## SECTION 08 7100 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Mechanical door hardware for the following:
    - a. Swinging doors.
  - 2. Cylinders for door hardware specified in other Sections.
- B. Related Sections:
  - 1. Section 08 1213 "Hollow Metal Frames".
  - 2. Section 08 1416 "Flush Wood Doors".

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Other Action Submittals:
  - 1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
    - a. Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in Project construction schedule.
    - b. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
    - c. Content: Include the following information:
      - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
      - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
      - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
      - 4) Fastenings and other pertinent information.
      - 5) Explanation of abbreviations, symbols, and codes contained in schedule.
      - 6) Mounting locations for door hardware.
      - 7) List of related door devices specified in other Sections for each door and frame.

## **1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
- B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:
  - 1. For door hardware, an Architectural Hardware Consultant (AHC).
- C. Source Limitations: Obtain each type of door hardware from a single manufacturer.
- D. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- E. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf
  - 2. Comply with the following maximum opening-force requirements:
    - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
  - 3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch.
  - 4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

## **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

## **1.6 COORDINATION**

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

## **PART 2 - PRODUCTS**

### **2.1 SCHEDULED DOOR HARDWARE**

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.

- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.
  - 2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

## **2.2 HINGES**

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Interior:
      - 1) Hager: BB 1279.
      - 2) Ives: 5BBI.
      - 3) McKinney: TA 2714.
      - 4) MacPro / McKinney: MPB79.
      - 5) PBB: BB81.
      - 6) Stanley: FBB 179.

## **2.3 MECHANICAL LOCKS AND LATCHES**

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Trim:
  - 1. Levers.
- C. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

## **2.4 LOCK CYLINDERS**

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  - 1. Manufacturer: Same manufacturer as for locking devices.
- B. Construction Cores: Provide construction cores that are replaceable by permanent cores and are compatible with ASSA Cores.

## **2.5 KEYING**

- A. Keying System: Match Owner's System.

## **2.6 SURFACE CLOSERS**

- A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. Hold Open.
2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Arrow USA; an ASSA ABLOY Group Company.
  - b. Corbin Russwin Architectural Hardware; n ASSA ABLOY Group Company.
  - c. DORMA Architectural Hardware; Member of the DORMA Group North America.
  - d. Dor-O-Matic; an Ingersoll-Rand Company.
  - e. K2 Commercial Hardware; a Black & Decker Corp. Company.
  - f. LCN Closers; an Ingersoll-Rand Company.
  - g. Norton Door Controls; an ASSA ABLOY Group Company.
  - h. Rixson Specialty Door Controls; an ASSA ABLOY Group Company.
  - i. SARGENT Manufacturing Company; an ASSA ABLOY Group Company.
  - j. Yale Security Inc.; an ASSA ABLOY Group Company.

## 2.7 MECHANICAL STOPS AND HOLDERS

- A. Wall-Mounted Stops: BHMA A156.16; polished cast brass, bronze, or aluminum base metal.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Architectural Builders Hardware Mfg., Inc.
  - b. Baldwin Hardware Corporation.
  - c. Burns Manufacturing Incorporated.
  - d. Cal-Royal Products, Inc.
  - e. Don-Jo Mfg., Inc.
  - f. Door Controls International, Inc.
  - g. Hager Companies.
  - h. Hiawatha, Inc.
  - i. IVES Hardware; an Ingersoll-Rand Company.
  - j. Rockwood Manufacturing Company.
  - k. Stanley Commercial Hardware; Div. of The Stanley Works.
  - l. Trimco.
  - m. Hager Companies.

## 2.8 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Hager Companies.
  - b. M-D Building Products, Inc.
  - c. National Guard Products.
  - d. Pemco Manufacturing Co.; an ASSA ABLOY Group Company.
  - e. Reese Enterprises, Inc.
  - f. Rixson Specialty Door Controls; an ASSA ABLOY Group Company.
  - g. Sealeze; a unit of Jason Incorporated.
  - h. Zero International.

## 2.9 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Hager Companies.
- b. M-D Building Products, Inc.
- c. National Guard Products.
- d. Pemco Manufacturing Co.; an ASSA ABLOY Group Company.
- e. Reese Enterprises, Inc.
- f. Sealeze; a unit of Jason Incorporated.
- g. Zero International.

## **2.10 PROTECTIVE PLATES**

- A. Material – 0.050 inch thick stainless steel.
- B. Size:
  - 1. Kickplates: 10 inches by width of door less  $\frac{3}{4}$  inch on each side.

## **2.11 AUXILIARY DOOR HARDWARE**

- A. Auxiliary Hardware: BHMA A156.16.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Baldwin Hardware Corporation.
    - b. Cal-Royal Products, Inc.
    - c. Don-Jo Mfg., Inc.
    - d. Hager Companies.
    - e. Rockwood Manufacturing Company.
    - f. Stanley Commercial Hardware; Div. of The Stanley Works.
    - g. Trimco.

## **2.12 FABRICATION**

- A. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- B. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
  - 3. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
  - 4. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

## **2.13 FINISHES**

- A. US26D complying with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Steel Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

### **3.3 INSTALLATION**

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Frames: ANSI/SDI A250.8.
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Owner shall replace construction cores with permanent cores at Substantial Completion.
- E. Thresholds: Set thresholds for exterior doors in full bed of sealant complying with requirements specified in Section 07 9200 "Joint Sealants."
- F. Stops: Provide wall stops for doors unless other type stops are indicated in door hardware schedule. Floor stops are not to be used.
- G. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

### **3.4 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

### **3.5 CLEANING AND PROTECTION**

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### **3.6 DOOR HARDWARE SCHEDULE:**

- A. Hardware Group 20
  1. 3 each: Hinges.
  2. 1 each: Lockset, Classroom Lock.
  3. 1 each: Wall Stop.
  4. 1 each: Closer with Hold Open.
  5. 1 each: Kickplate.

**END OF SECTION 08 7100**





## OCS – MOUND FORT JR. HIGH REMODEL

### DIVISION 9 - FINISHES:

09 2216	Non-Structural Metal Framing
09 2900	Gypsum Board
09 5113	Acoustical Panel Ceilings
09 6513	Resilient Base and Accessories
09 9123	Interior Painted Gypsum Board, Plaster



## **SECTION 09 2216 - NON-STRUCTURAL METAL FRAMING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.

#### **1.3 ACTION SUBMITTALS**

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

### **PART 2 - PRODUCTS**

#### **2.1 FRAMING SYSTEMS**

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Runners: ASTM C 645.
  - 1. Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness: 20 gauge minimum.
    - b. Depth: As indicated on Drawings.
- C. Slip-Type Head Joints:
  - 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
- D. Cold-Rolled Furring Channels: 0.053-inch-coated-steel thickness, with minimum 1/2-inch-de flanges.
  - 1. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch
  - 2. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

#### **2.2 AUXILIARY MATERIALS**

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION, GENERAL**

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.

### **3.3 INSTALLING FRAMED ASSEMBLIES**

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
  - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb unless otherwise indicated.
    - b. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

**END OF SECTION 09 2216**

## **SECTION 09 2900 - GYPSUM BOARD**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Interior gypsum board.
- B. Related Requirements:
  - 1. Section 09 2216 "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

#### **1.3 ACTION SUBMITTALS**

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

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

#### **1.5 FIELD CONDITIONS**

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

### **PART 2 - PRODUCTS**

#### **2.1 GYPSUM BOARD, GENERAL**

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

#### **2.2 INTERIOR GYPSUM BOARD**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. American Gypsum.
2. Certaineed Corp.
3. Georgia-Pacific Gypsum.
4. National Gypsum.
5. Pabco Gypsum.
6. United States Gypsum.

B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch
2. Long Edges: Tapered.
3. Abuse Resistant.

## 2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.
2. Shapes:
  - a. Cornerbead.
  - b. LC-Bead: J-shaped; exposed long flange receives joint compound.

## 2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
  - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use finishing compound.
5. Skim Coat: For final coat of Level 5 finish, use finishing compound.

## 2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

C. Thermal Insulation: As specified in Section 07 2100 "Thermal Insulation."

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 APPLYING AND FINISHING PANELS, GENERAL**

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
  - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  - 2. Fit gypsum panels around ducts, pipes, and conduits.
  - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-deep joints to install sealant.
- F. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-deep spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- H. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.

### **3.3 APPLYING INTERIOR GYPSUM BOARD**

- A. Single-Layer Application:
  - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

- b. At stair wells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance rated assembly.
- 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

### **3.4 INSTALLING TRIM ACCESSORIES**

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners.
  - 2. LC-Bead: Use at exposed panel edges.

### **3.5 FINISHING GYPSUM BOARD**

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
  - 1. Level 1: Above finished ceilings, concealed areas, and where indicated.
  - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
    - a. Primer and its application to surfaces are specified in Section 09 9123 "Interior Painting."

### **3.6 PROTECTION**

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

**END OF SECTION 09 2900**



## **SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes acoustical panels and exposed suspension systems for ceilings.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples for Initial Selection: For components with factory-applied color finishes.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
  - 1. Acoustical Panel: Set of 6-inch-square Samples of each type, color, pattern, and texture.
  - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.

#### **1.5 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For finishes to include in maintenance manuals.

#### **1.6 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Panels: Full-size panels equal to 2 percent of quantity installed.

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

#### **1.8 FIELD CONDITIONS**

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient

temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. Seismic Performance: Acoustical ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
  2. Smoke-Developed Index: 450 or less.

### **2.2 ACOUSTICAL PANELS, GENERAL**

- A. Source Limitations:
  1. Acoustical Ceiling Panel: Obtain each type from single source from single manufacturer.
  2. Suspension System: Obtain each type from single source from single manufacturer.
- B. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system from single source from single manufacturer.
- C. Glass-Fiber-Based Panels: Made with binder containing no urea formaldehyde.
- D. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances unless otherwise indicated.
- E. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
  1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

### **2.3 ACOUSTICAL PANELS**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on drawings or comparable product, approved by Architect, by one of the following:
  1. Armstrong World Industries, Inc.
  2. Certainteed Corp.
  3. Chicago Metallic Corporation.
  4. USG Interiors, Inc.; Subsidiary of USG Corporation.
- B. Classification: Class A.
- C. Color: White.
- D. LR: .83
- E. NRC: Not less than .50, Type E-400 mounting according to ASTM E 795.

- F. CAC: 35.
- G. Edge/Joint Detail: Reveal sized to fit flange of exposed suspension-system members.
- H. Thickness: 3/4 inch.
- I. Modular Size:
  - 1. 30 by 60 inches.

## **2.4 METAL SUSPENSION SYSTEMS, GENERAL**

- A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
  - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
  - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire.
- D. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.
- E. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.
- F. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical panels in place.

## **2.5 METAL SUSPENSION SYSTEM**

- A. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation; with prefinished 15/16-inch-de metal caps on flanges.
  - 1. Structural Classification: Intermediate-duty system.
  - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
  - 3. Face Design: Flat, flush.
  - 4. Cap Material: Steel or aluminum cold-rolled sheet.
  - 5. Cap Finish: Painted white.

## **2.6 METAL EDGE MOLDINGS AND TRIM**

- A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
  - 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
  - 2. Edge molding and trim shall match the face width of the suspension system main and cross runners. Concealed seismic clips shall be used to meet seismic requirements.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

### **3.3 INSTALLATION**

- A. General: Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Install edge moldings, concealed seismic clips, and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
  - 1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet Miter corners accurately and connect securely.
- C. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
  - 1. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
  - 2. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
  - 3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

### **3.4 CLEANING**

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

## **END OF SECTION 09 5113**

## **SECTION 09 6513 - RESILIENT BASE AND ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Resilient base.

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Samples for Initial Selection: For each type of product indicated.

#### **1.4 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

#### **1.6 FIELD CONDITIONS**

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

## **PART 2 - PRODUCTS**

### **2.1 THERMOSET-RUBBER BASE "BR1"**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AFCO-USA.
  - 2. Armstrong World Industries.
  - 3. Burke Mercer.
  - 4. Johnsonite.
  - 5. Flexco.
  - 6. Mannington Commercial.
  - 7. Roppe Corporation.
- B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
  - 1. Style and Location:
    - a. Style B, Cove.
- C. Thickness: 0.125 inch.
- D. Height: 4 inches.
- E. Lengths: Cut lengths 48 inches long or coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Colors: As selected by Architect from full range of industry colors.

### **2.2 INSTALLATION MATERIALS**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
  - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### **3.3 RESILIENT BASE INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Preformed Corners: Install preformed corners before installing straight pieces.

### **3.4 RESILIENT ACCESSORY INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient accessories.

### **3.5 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
- C. Protect resilient products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

**END OF SECTION 09 6513**





## **SECTION 09 9123 - INTERIOR PAINTING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
  - 1. Gypsum board.
  - 2. Hollow metal door frames.
- B. Related Requirements:
  - 1. Section 09 9300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.

#### **1.3 DEFINITIONS**

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.

#### **1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 quart of each material and color applied.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

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

## **1.7 FIELD CONDITIONS**

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

## **PART 2 - PRODUCTS**

### **2.1 SYSTEMS**

- A. Reference Standards:
  - 1. The latest edition of the following reference standard shall govern all painting work:
    - a. MPI(a), 'Architectural Painting Specification Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.
- B. Performance
  - 1. Design Criteria:
    - a. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
    - b. All materials, preparation and workmanship shall conform to requirements of "Architectural Painting Specification Manual" by Master Painters Institute (MPI).
    - c. All paint manufacturers and products used shall be as listed under Approved Product List section of MPI Painting Manual.
    - d. Provide products of same manufacturer for each coat in coating system.
    - e. Where required, use only materials having minimum MPI "Environmentally Friendly" E1, E2, E3 rating based on VOC (EPA Method 24) content levels, where indoor air quality (odour) is an issue, use only MPI listed materials having minimum E2, E3, rating.
    - f. Color Levels:
      - 1) Color Level III:
        - a) Number and placement of interior and exterior paint colors and gloss levels shall be Color Level III from MPI Manual, PDCA P3-93 as modified in following paragraph.
        - b) Several paint colors or gloss levels will be selected for same substrate within designated interior rooms or exterior areas.
- C. Materials:
  - 1. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturers and by Architect. Include manufacturer approvals in Product Data submittal.
  - 2. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved

manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.

## **2.2 PAINT, GENERAL**

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Colors: As selected by Architect from manufacturer's full range.

## **2.3 PRIMERS/SEALERS**

- A. Primer Sealer, Latex, Interior: MPI #50.

## **2.4 METAL PRIMERS**

- A. Primer, Rust-Inhibitive, Water Based: MPI #107.

## **2.5 WATER-BASED PAINTS**

- A. Latex, Interior, (Gloss Level 4): MPI #43.
- B. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5): MPI #153.
- C. Waterborne Epoxy, Interior (Restrooms and Custodial Room), semi-gloss (Gloss Level 5): MPI #115.

## **2.6 SOURCE QUALITY CONTROL**

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
  - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  - 2. Testing agency will perform tests for compliance with product requirements.
  - 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

# **PART 3 - EXECUTION**

## **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Wood: 15 percent.
  - 2. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

- E. Proceed with coating application only after unsatisfactory conditions have been corrected.

- 1. Application of coating indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

### **3.3 APPLICATION**

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### **3.4 FIELD QUALITY CONTROL**

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### **3.5 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### **3.6 INTERIOR PAINTING SCHEDULE**

- A. Steel Substrates:
  - 1. Water-Based Light Industrial Coating System:
    - a. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
    - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    - c. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5), MPI #153.
- B. Gypsum Board Substrates:
  - 1. Waterborne Epoxy Finish System:
    - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
    - b. Topcoat: Epoxy, interior, Satin, (Gloss Level 4), MPI #115.
  - 2. High-Performance Architectural Latex System:
    - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
    - b. Intermediate Coat: Latex, Interior, High-Performance Architectural, matching topcoat.
    - c. Topcoat: Latex, interior, High-Performance Architectural (Gloss Level 4), MPI #140.

**END OF SECTION 09 9123**



## OCS - MOUND FORT JR. HIGH REMODEL

**DIVISION 10 - SPECIALTIES:**  
10 4413 Fire Protection Cabinets  
10 4416 Fire Extinguishers





## **SECTION 10 4413 - FIRE PROTECTION CABINETS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Fire-protection cabinets for the following:
    - a. Portable fire extinguishers.
- B. Related Requirements:
  - 1. Section 10 4416 "Fire Extinguishers."

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing semi-recessed, mounting method and relationships of box and trim to surrounding construction.
- B. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.

#### **1.4 COORDINATION**

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

### **PART 2 - PRODUCTS**

#### **2.1 FIRE-PROTECTION CABINET**

- A. Cabinet Type: Suitable for fire extinguisher.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. JL Industries, Bloomington.
    - b. Larsen's Manufacturing Co.
    - c. Modern Metal Products / Technico.
    - d. National Fire Equipment Ltd.
    - e. Potter-Roemer.
    - f. Samson Products Inc.
    - g. Seton Inc.
- B. Cabinet Construction: Nonrated.

- C. Cabinet Material: Aluminum sheet.
- D. Semi-recessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
  - 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- E. Cabinet Trim Material: Aluminum sheet.
- F. Door Material: Aluminum sheet.
- G. Door Style: Center glass panel with frame.
- H. Door Glazing: Tempered float glass (clear).
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
  - 1. Provide projecting door pull and friction latch.
  - 2. Provide manufacturer's standard hinge permitting door to open 180 degrees.
- J. Accessories:
  - 1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
    - a. Identify fire extinguisher in fire-protection cabinet with the words " FIRE EXTINGUISHER."
      - 1) Location: Applied to cabinet door.
      - 2) Application Process: Decals or Pressure-sensitive vinyl letters.
      - 3) Lettering Color: Red.
      - 4) Orientation: Vertical.
- K. Materials:
  - 1. Aluminum: ASTM B 221 with strength and durability characteristics of not less than Alloy 6063-T5 for aluminum sheet. ASTM B 221 or extruded shapes.
    - a. Finish: Clear anodic.
  - 2. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

## 2.2 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
  - 1. Weld joints and grind smooth.
  - 2. Provide factory-drilled mounting holes.
  - 3. Prepare doors and frames to receive locks.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
  - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
  - 2. Fabricate door frames of one-piece construction with edges flanged.
  - 3. Miter and weld perimeter door frames.

- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

## **2.3 GENERAL FINISH REQUIREMENTS**

- A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine walls and partitions for suitable framing depth and blocking where semi-recessed cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Prepare recesses for semi-recessed fire-protection cabinets as required by type and size of cabinet and trim style.

### **3.3 INSTALLATION**

- A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.
- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
- C. Identification: Apply decals or vinyl lettering at locations indicated.

### **3.4 ADJUSTING AND CLEANING**

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

## **SECTION 10 4416 - FIRE EXTINGUISHERS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.
- B. Related Requirements:
  - 1. Section 10 4413 "Fire Protection Cabinets."

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

#### **1.5 COORDINATION**

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

### **PART 2 - PRODUCTS**

#### **2.1 PERFORMANCE REQUIREMENTS**

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

#### **2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS**

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. JL Industries, Bloomington.
    - b. Larsen's Manufacturing Co.
    - c. Modern Metal Products / Technico.
    - d. National Fire Equipment Ltd.
    - e. Potter-Roemer.
    - f. Samson Products Inc.
    - g. Seton Inc.

- B. Clean-Agent Type in Steel Container: UL-rated 1-A:10-B:C, 10 lb nominal capacity, with HFC blend agent and inert material in enameled-steel container; with pressure-indicating gage.

## **2.3 MOUNTING BRACKETS**

- A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
  - 1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

**END OF SECTION 10 4416**

## OCS – MOUND FORT JR. HIGH REMODEL

### DIVISION 26: ELECTRICAL

26 0001	Electrical General Requirements
26 0050	Basic Materials and Methods
26 0070	Electrical Connections for Equipment
26 0110	Conduit Raceways
26 0120	Conductors and Cables
26 0135	Electrical Boxes and Fittings
26 0136	Supporting Devices
26 0140	Wiring Devices
26 0452	Grounding
26 0721	Fire Alarm and Detection Systems



## **SECTION 26 0001 - ELECTRICAL GENERAL PROVISIONS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The general provisions of the Contract, including the Conditions of The Contract (General, Supplementary and other conditions) and Division One apply to the work specified in this Section.
- B. This Section 260001 is a part of all other Sections of this Division 26.
- C. It is understood that Division 26 shall govern and be the direct responsibility of the Electrical Contractor, who shall comply with the specifications and the accompanying drawings to describe and provide for the furnishings, delivering, installing, testing and placing in satisfactory and successful operation all equipment, materials, devices, and necessary appurtenances to provide a complete electrical system for lighting, power and auxiliaries; together with such other equipment and devices furnished and installed under other contracts which shall be wired and connected under this contract.
- D. If a discrepancy occurs between the equipment supplied and the intent or function of the equipment, catalog numbers, discontinued products, drawings, specifications, etc., the Contractor shall bring this to the attention of the Architect or Engineer in writing prior to bidding. Failure to report any conflict does not relieve the Contractor from meeting the intent of the contract documents nor shall it change the contract cost. It shall further be understood that if the contractor is unable to interpret any part of the plans and specifications, or should he find discrepancies therein, he shall call attention of the fact to the Architect prior to bid date. The Architect will issue additional instructions to Bidders before the project is bid.
- E. State Licensed Contractor - All contractors shall have a current state contracting license for the trade engaged in.

#### **1.2 DESCRIPTION OF WORK**

- A. The work covered by these specifications consists of furnishing all labor, materials, equipment, supervision and service necessary for the proper completion of all electrical work shown on the drawings and hereinafter specified. Items shown or described in either the drawings or specifications and/or all items necessary to make the electrical system complete and workable shall be understood to form a part of the work.
- B. The main items of work are enumerated below. The work shall include but is not necessarily limited to the following items:
  - 1. Convenience and power outlets.
- C. Work and materials not included under this Division:
  - 1. Supply of heating and ventilation control equipment unless noted on the electrical drawings. See mechanical drawings for division 26 requirements.
- D. Auxiliary Systems:
  - 1. Fire Alarm System

#### **1.3 VISITING SITE**

- A. Visit the site during the bidding period to determine existing conditions that will affect the electrical and other work as it pertains to the construction of this structure. All costs arising from site conditions and/or preparation shall be included in the base bid. No additional charges will be allowed due to inadequate site inspection.

#### **1.4 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS**

- A. At the time of bidding, contractor shall familiarize himself with the drawings and specifications of this project. Any questions, misunderstandings, conflicts, deletions, etc, shall be submitted to the Architect in writing for clarifications prior to issuance of the final addendum and bidding of the project. After signing the contract, the contractor shall meet the intent, purpose, and function of the contract documents; and any costs of materials, labor, and equipment arising therefrom, to make each system complete and operable, shall be paid by the contractor, which shall not result in any change in contract cost.



- B. At the time of bidding, the electrical contractor shall be responsible to coordinate with the general contractor regarding any references to other divisions or trades on the electrical drawings or specifications.

## 1.5 DRAWING INTERPRETATION

- A. The electrical contractor shall refer to the architectural and/or mechanical drawings for exact placement of all electrical equipment. The electrical drawings unless specifically dimensioned are to be considered diagrammatic and are not to be scaled for placement of equipment.

## 1.6 CODES-REGULATIONS AND PERMITS

- A. In the installation of this work, comply in every way with the requirements of the laws, ordinances and rules of the State and National Board of Fire Underwriters, The National Electrical Code, and the rules and regulations of local ordinances.
- B. If a conflict occurs between these rules and this specification, the rules are to govern. Accept this condition upon submitting bid, and no extra charge will be allowed after the electrical contract is awarded. This shall not be construed as relieving the Contractor from complying with any requirements of the plans or specifications which may be in excess of requirements of the hereinbefore mentioned rules and not contrary to same. All materials and equipment installed, including lighting fixtures, shall have been tested and approved by Underwriter's Laboratory and shall be so labeled.
- C. All fees shall be included in the contract price. The Contractor shall furnish a certificate of approval to the Architect from the Inspection Authority at completion of the work.

## 1.7 SUPERVISION

- A. Workmanship shall be neat, have a good mechanical appearance and conform to the best electrical construction practices. A competent superintendent shall be in charge of the work at all times. Any person employed and found incompetent shall be removed at once and replaced by someone satisfactory when requested by the Architect. All work shall be carried out under the direction of the Architect to fulfill the true intent and meaning of the drawings and specifications. Only licensed master or journeyman craftsmen may be engaged in this project, except apprentice electricians may be used on not more than a 1:1 ratio with the total number of master or journeyman electricians.

## 1.8 FIELD DESIGN CHANGES

- A. No field changes, additions, or locations shall be made without written approval.
- B. Current red line drawings must be on site at all times.

## 1.9 SHOP DRAWINGS

- A. It is understood that, before the manufacture or installation of any equipment under this contract is carried forward, shop drawings of such work shall be submitted for review. It is the responsibility of the electrical contractor to check the shop drawings for detailed compliance with the contract documents. Prior to submitting the drawings for review, verify that all dimensions, contract document requirements, ballast voltages, and correlation at job site have been checked. **The electrical contractor shall indicate any corrections to the shop drawings or any exceptions to the contract document requirements, by notation on the shop drawings and by cover letter. IF THIS IS NOT DONE THE DRAWINGS WILL BE RETURNED.** At least eight (8) catalog sheets or shop drawings shall be submitted in ample time, no work being executed until each review has been completed.
- B. Fire alarm shop drawing submittal process -
  1. After award of Contract and prior to purchase of equipment, submit seven sets of shop drawings with specifications and calculations to Architect and two sets to local jurisdiction having authority for fire prevention for review. Provide manufacturer's cut sheet information for components required.
  2. Integrate Architect's and local jurisdiction's comments into drawings.
  3. Submit revised documents to area office and local jurisdiction having authority for fire prevention for final approval.
  4. After final approval submit four copies of approved documents to Architect. Include manufacturer's cut sheet information.
  5. Failure of system to meet requirements of authority having jurisdiction shall be corrected at no additional cost to Owner.

- C. The review of shop drawings by the engineer is only to determine if they are in general compliance with the information given in the contract documents, and serves to determine the contractors understanding of the design concept. If some errors are detected but others are overlooked during the review this does not grant the contractor permission to proceed in error. Regardless of any information contained in the shop drawings, the requirements of the contract documents must be followed and are not waived or superseded in any way by the shop drawing review.
- D. The following shop drawings are required within 20 days after signing of the contract.
  - 1. Fire Alarm Equipment
  - 2. Wiring Devices
- E. One month after the contract is signed, bind and numerically index four (4) complete sets of all shop drawings and submit to the mechanical contractor for inclusion in the operation and maintenance manual. Each unit type shall have its own individual catalog sheet giving characteristics, data, dimensions, catalog numbers and parts lists. (Example: If two items of equipment A & D appear on the same sheet, an individual sheet shall be provided for each unit specified.) The manual shall be numerically indexed with an index sheet explaining the contents of each section.

#### **1.10 QUANTITY TAKE OFF**

- A. The contractor shall be responsible for accurate quantity take-off of all materials shown on the plans. Such things as a number designation for light fixture types (example 6, T-1) are intended to show design intent and/or improve drawing clarity and are NOT intended as an aid in determining a quantity for bidding purposes.

#### **1.11 GUARANTEE**

- A. The entire electrical system installed under this contract shall be left in proper working order and be in compliance with the drawings, specifications and/or authorized changes to the satisfaction of the Owner's Representative. Without additional charge, replace any work or materials which develop defects, except from ordinary wear and tear, within one year from the date of final acceptance. Exception: Incandescent and fluorescent lamps which shall be guaranteed for a period of two months from acceptance of the installation by the Owner or his agent. A written guarantee covering the above provisions shall be signed and delivered to the Architect after the project has final acceptance by the Inspecting Authority.

### **PART 2 - PRODUCTS**

#### **2.1 SPECIFIED PRODUCTS**

- A. The contractors under this division shall thoroughly familiarize themselves with all specified products and their application relating to their work. Any objections to the use of any specified product shall be submitted to the architect in writing prior to bidding.

#### **2.2 MATERIALS AND WORKMANSHIP**

- A. All materials and equipment furnished and installed shall be of high quality, new, and meet the standards of NEMA, IPCA, LS, UL, NFPA, IBC, UOSHA, NEC, and shall bear their label wherever standards have been established and label service is available. Where materials and equipment are specified by manufacturer's name, the type and quality required is thereby denoted. The Architect shall be afforded every facility, deemed necessary to inspect and examine the materials and apparatus being installed to prove their quality, skill and competency of workmanship.

#### **2.3 SUBSTITUTIONS**

- A. The equipment specified carries brand names and catalog numbers and shall be interpreted as establishing a standard of quality unless otherwise noted. Substitutions will be considered if a duplicate written application (2 copies) is at the offices of the Architect and Engineer at least four (4) working days prior to issue of the final addendum. The application shall include the following: 1) A statement declaring the equipment proposed is equal to that specified by having the same physical characteristics and dimensions and meet the drawings layout and structural conditions as well as load requirements; 2) The specified and submittal catalog numbers of the equipment under consideration; 3) A pictorial and specification brochure.
- B. Any conflict arising from the use of substituted equipment shall be the responsibility of the contractor, who shall bear all costs required to make the equipment comply with the intent of the plans and specifications.

- C. At the option of the Architect, samples may be required for non-standard or substituted items before installation during construction.
- D. No materials or apparatus shall be substituted after the bid opening except where the equipment manufacturer has been discontinued or delivery becomes a problem, then written approval of the Architect is required.
- E. Bidding - only equipment specified in the contract documents and/or approved by an addendum will be used in the base bid.

## **PART 3 - EXECUTION**

### **3.1 PROGRESS AND COORDINATION OF WORK**

- A. The electrical work shall be laid out in advance of construction to eliminate unnecessary cutting, drilling, channeling, etc. Where such cutting and drilling, or channeling becomes necessary for proper installation; perform with care, use skilled mechanics of the trades involved, repair damage to building and equipment at no additional cost to the Owner. Cutting work of other trades shall be done only with the consent of the General Contractor. Cutting of structural members shall be done only with the approval of the Architect.
- B. Cooperate with other trades to coordinate locations of electrical outlets and apparatus.
- C. Before any electrical panels, disconnects & motor starters or their associated feeders are installed, the electrical contractor shall be responsible to inform all other trades on the job of the requirements of N.E.C. 110-26. If any conflicts are noted he shall notify the architect immediately, along with notification in writing. No additional cost, to the job under the electrical contract, will be allowed for relocating electrical panels after installation.
- D. Perform for other trades the electrical wiring and connections for all devices or apparatus where not specified herein or indicated on the drawings. Consult the Architectural and Mechanical drawings to avoid the location of switches, outlets and other equipment from being hidden behind doors, cabinets, counters, heating equipment, etc. Buried electrical devices and/or connections shall be relocated as directed, at no additional cost to the Owner.
- E. Where conduit, outlets or apparatus is to be cast in concrete or encased, it must be located and secured by a journeyman or foreman present at the point of installation. He shall check the locations of the electrical items before and after the concrete and masonry installation and shall relocate displaced items.
- F. No changes shall be made in the design or location of apparatus unless specifically approved in writing.

### **3.2 DRAWINGS**

- A. Architectural and Mechanical drawings are a part of the electrical work insofar as they apply, as if referred to in full.
- B. Since the drawings of floor and ceiling installation are made at small scale, outlets, devices, equipment, etc., are indicated only in their approximate location, unless dimensioned. Locate outlets and apparatus symmetrically on floors, walls and ceilings where not dimensioned, and coordinate such locations with work of other trades to prevent interferences. All dimensions on the job shall be verified. Do not scale the electrical drawings, but refer to the architectural and mechanical drawings and dimensions.
- C. The standard industry symbols together with the special symbols, noted and instructions indicated on the drawings describe the work, materials, apparatus and outlets required and all are to be included as a part of this specification.

### **3.3 EQUIPMENT CONNECTIONS**

- A. Provide the materials and make the electrical connections to all equipment having electrical requirements as indicated in the Architectural and/or Mechanical section of the specifications and drawings. This includes Owner furnished equipment.

### **3.4 CLEAN-UP**

- A. Clean up all equipment, conduit, fittings, packing cartons and other debris that is a direct result of the installation of the equipment under this contract.

### **3.5 STORAGE AND PROTECTION OF MATERIALS**

- A. Provide storage space for storage of materials and apparatus and assume complete responsibility for all losses due to any cause whatsoever. In no case shall storage interfere with traffic conditions in any public thoroughfare or constitute a hazard to persons in the vicinity. Protect completed work, work underway, and apparatus against loss or damage.

### **3.6 DEMOLITION**

- A. This Contractor shall be responsible for block-outs or demolition work pertaining to the installation of the electrical system.
- B. Seal around all electrical equipment penetrating outside walls, roofs, unheated spaces, air plenums, etc., with Dow Corning Silicone RTV foam.
- C. Seal around all electrical equipment penetrating fire walls with a noncombustible sealer approved for the purpose.
- D. See drawings for demolition notes of existing electrical systems.

### **3.7 COMPLETION OF WORK AND TESTS**

- A. Before any underground service entrance circuits or feeder circuits are energized, make megger ground tests on the conductors. Record the readings along with ambient temperature and moisture conditions and submit to the Architect.
- B. Submit with a letter of guarantee a record of all voltage reading and amp meter reading on all feeders and motors. If there are any abnormal conditions, they shall be brought to the attention of the Architect in writing as a part of this submittal.
- C. Leave the job in complete order ready for use. All fixtures and equipment shall be tight, fully equipped and completely cleaned. All equipment shall have been operated, checked and approved by the Owner before the project can be accepted.
- D. At the time of final construction review, the project foreman shall accompany the reviewing party, and remove cover plates, panel covers and other access panels for the reviewing engineer, to allow complete observation of the electrical system.
- E. Submit a letter of transmittal of spare parts (the fuses, diffusers, lamps, etc.) to owner with a copy to the Architect.

### **3.8 DETAILED INSTRUCTIONS**

- A. The respective factory representative shall at no additional expense to the owner give detailed instructions to train a designated Owner's employee on the care, adjustment, and operation of the fire alarm system equipment. The instruction date shall be set at or before the time of the final construction review, by the contractor and the owner's representative.

**END OF SECTION 26 0001**



## SECTION 26 0050 - BASIC MATERIALS AND METHODS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. All wiring shall be run concealed, except at surface mounted panels and apparatus - See raceways for type of materials and additional information. All wiring shall be run in conduit unless specifically noted otherwise.
- B. All branch circuit splices, taps, fixture connections, etc., shall be made with an approved pressure connector or wire nuts such as Ideal Spring type. Pigtails at each outlet or device box shall be 6 inches long.
- C. Labeling: Engraved black formica w/white core labels, 1/16" thick shall be bolted on the interior and the exterior of branch panels (panel name and voltage) and the exterior of disconnect switches, motor controls, major J-boxes (power and auxiliary), push buttons, thermal switches, time switches and similar equipment. The labels shall be 1/4" high engraved letters, such as 1-1/2 HP FAN, F-1, PANEL - A.
- D. Provide label on branch panels to identify the feeder or main panel they are fed from. "Feed from panel \_ \_ \_ \_".
- E. The phase of each feeder conductor shall be color coded at each end in panels and junction boxes.
- F. Write with a felt tip pen that contains permanent ink on the inside of each device box the circuit to which the device is connected. Example: Circuit "A-1".
- G. The Contractor is responsible for all demolition, patching and repair of all finished interior surfaces pertaining to the installation of this particular phase of work. All surfaces shall be finished (Painted, Etc.) to match the adjacent materials, finishes and color. Work shall be done by professional tradesmen on the job.
- H. Hard surfaces: Whenever demolition or excavation is required for installation of the electrical system, it shall be the responsibility of this contractor to make repairs and/or replacements of hard finish surfaces such as concrete, asphalt, etc.
- I. The method of patching and repair should follow good construction practices and all finished surfaces shall match materials and finish wherein the demolition occurred. Coordinate with other Divisions for patching requirements.

**END OF SECTION 26 0050**



## **SECTION 26 0070 - ELECTRICAL CONNECTIONS FOR EQUIPMENT**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is part of each Division-26 section making reference to electrical connections.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of electrical connection for equipment includes final electrical connection of all equipment having electrical requirements. Make final connections for all owner furnished equipment. See other applicable portions of specification for building temperature control wiring requirements.
- B. Refer to Division-23 sections for motor starters and controls furnished integrally with equipment; not work of this section.
- C. Refer to Division-23 section for control system wiring; not work of this section.
- D. Refer to sections of other Divisions for specific individual equipment power requirements.

#### **1.3 QUALITY ASSURANCE**

- A. NEC Compliance: Comply with applicable portions of NEC as to type products used and installation of electrical power connections.
- B. UL-Labels: Provide electrical connection products and materials which have been UL-listed and labeled.

### **PART 2 - PRODUCTS**

#### **2.1 GENERAL**

- A. For each electrical connection indicated, provide complete assembly of materials, including but not necessarily limited to, raceways, conductors, cords, cord caps, wiring devices, pressure connectors, terminal (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wire nuts, and other items and accessories as needed to complete splices, terminations, and connections as required. See Section 260110, Conduit Raceways; Section 260140 Wiring Devices; and Section 260120 Wire and Cables for additional requirements. Provide final connections for equipment consistent with the following:
  - 1. Permanently installed fixed equipment - flexible seal-tite conduit from branch circuit terminal equipment, or raceway; to equipment, control cabinet, terminal junction box or wiring terminals. Totally enclose all wiring in raceway.
  - 2. Other methods as required by the National Electrical Code and/or as required by special equipment of field conditions.
- B. All electrical equipment for power connections, required for operation of mechanical equipment not furnished as an integral part of that equipment shall be furnished and installed under Division 26.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION OF ELECTRICAL CONNECTIONS**

- A. Make electrical connections in accordance with connector manufacturer's written instructions and with recognized industry practices, and complying with requirements of NEC and NECA's "Standard of Installation" to ensure that products fulfill requirements.



- B. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams.
- C. Coordinate installation of electrical connections for equipment with equipment installation work.
- D. Verify all electrical loads (voltage, phase, full load amperes, number and point of connections, minimum circuit ampacity, etc.) for equipment furnished under other Divisions of this specification, by reviewing respective shop drawings furnished under each division. Meet with each subcontractor furnishing equipment requiring electrical service and review equipment electrical characteristics. Report any variances from electrical characteristics noted on the electrical drawings to Architect before proceeding with rough-in work.
- E. Obtain and review the equipment shop drawings to determine particular final connection requirements before rough-in begins for each equipment item.
- F. Location of disconnect switches as shown on the drawings is approximate. Electrical contractor is responsible for proper location for required code clearances.
- G. Electrical contractor to verify motor sizes with mechanical before ordering overload heaters for starters.
- H. Refer to Section 260120, Conductors, for identification of electrical power supply conductor terminations.

**END OF SECTION 26 0070**

## **SECTION 26 01 10 - CONDUIT RACEWAYS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is part of each Division-26 section making reference to electrical raceways and specified herein.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of raceways is indicated by drawings and schedules.
- B. Types of raceways in this section include the following:
  - 1. Electrical Metallic Tubing
  - 2. Flexible Steel Conduit
  - 3. Liquid-tight Flexible Steel Conduit
  - 4. Rigid Metal Conduit
  - 5. Plastic Rigid Conduit

#### **1.3 QUALITY ASSURANCE**

- A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required, whose products have been in satisfactory use in similar service for not less than three (3) years.
- B. Standards: Comply with applicable portions of NEMA standards pertaining to raceways. Comply with applicable portions of UL safety standards pertaining to electrical raceway systems; and provide products and components which have been UL-listed and labeled. Comply with NEC requirements as applicable to construction and installation of raceway systems.
- C. Submittals: Not required.

### **PART 2 - PRODUCTS**

- A. Provide and install raceways for the electrical system as shown on the plans, or as required by N.E.C. The raceways shall be concealed except at surface mounted panels and/or apparatus and open truss ceilings. Minimum conduit size is 3/4".
- B. Acceptable raceways (metallic conduit to be galvanized):
  - 1. Galvanized Rigid Conduit (GRC) - may be used in all locations. When installed in earth, cover with one layer of scotch wrap.
  - 2. Electrical Metallic Tubing (EMT) - may be used in indoor, dry locations not subject to damage, not in contact with earth, and not embedded in the concrete floor slab (slab on earth grade only). EMT shall not be used outdoors.
  - 3. Plastic Rigid Conduit (PVC) - PVC schedule 40 may be used underground, or below concrete. (See ground conductors). All bends greater than 30 degrees shall be GRC. (This includes rising up through the floor). All connections to concrete or structure shall be a minimum of 10' of GRC at the end of the PVC run. All conduits passing horizontally through concrete shall be GRC for 5' before and after passing through the concrete (not applicable to stub up through floor slab). All underfloor conduits shall be run below the concrete slab.
  - 4. Flexible Steel Conduit: 1/2" minimum used for indoor final connections to equipment.
  - 5. Liquid Tight Flexible Steel Conduit: 1/2" minimum used for outdoor final connections to equipment.

### **PART 3 - EXECUTION**

- A. All exposed conduit shall be installed parallel with or at right angles to the building structure lines. Raceways above ceilings in accessible attics shall be considered as exposed installations.
- B. All branch circuit conduit runs shall be installed concealed in walls and ceilings. Conduit installation in existing walls that requires cutting and patching shall have patch and finish work done under the Division 26 contract. All work shall be done by the professional finish subcontractor on the job and shall subcontract the work under the Division 26 subcontractor.
- C. When installing conduit, all cuts shall be smooth and square with the run and inside and outside burrs removed. Conduit joints in concrete or in the earth shall be made water tight with compound seal.
- D. Install accessible junction boxes or condulets in conduit runs as required by NEC, and at 100 ft. intervals on long runs. Each junction box shall be supported independent of the conduit. Support vertical conductor runs per NEC 300-19.
- E. The open ends of conduit shall be capped to keep out debris until the project is complete.
- F. All mechanical exterior equipment shall be connected with vinyl covered flexible conduit with accompanying grounding conductor.
- G. Pull a mandril and swab through all conduit before installing conductors.
- H. All empty conduit shall be left with a 200-lb. nylon pull cord installed.

### **END OF SECTION 26 0110**

## **SECTION 26 0120 - CONDUCTORS AND CABLES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is part of each Division-26 section making reference to conductors and cables specified herein.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of electrical conductor and electrical cable work is indicated by drawings and schedules.
- B. Types of conductors and cables in this section include the following:
  - 1. Copper conductors (600V)
- C. Applications for conductors and cables required for project include:
  - 1. Branch Circuits

#### **1.3 QUALITY ASSURANCE**

- A. Comply with NEC as applicable to construction and installation of electrical conductors and cable. Comply with UL standards and provide electrical conductors and cables which have been UL-listed and labeled.
- B. Comply with applicable portions of NEMA/Insulated Cable Engineers Association standards pertaining to materials, construction and testing of conductors and cable.
- C. Comply with applicable portions of ANSI/ASTM and IEEE standards pertaining to construction of conductors and cable.

#### **1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's data on electrical wire, cable and connectors.

### **PART 2 - PRODUCTS**

- A. COPPER CONDUCTORS (600V): insulation types THHN, THWN, XHHW as required by application.
- B. Provide factory-fabricated conductors of sizes, ratings, materials, and types indicated for each service. Where not indicated provide proper selection to comply with project's installation requirements and NEC standards.
- C. Provide color and coding of conductors as follows:
  - 1. Wire sizes of #8 and smaller shall be factory colored throughout. Larger conductors shall be identified with a minimum of 6" of color wrapped tape at junction boxes and termination.  
120/208V  
A-Phase – Black  
B-Phase - Red  
C-Phase – Blue  
Neutral – White  
Ground - Green
  - 2. Switch legs and travellers shall be colors other than those listed above.
  - 3. When two voltage systems are used on the same project the switch legs and travelers of one system shall not use the colors noted for the other system.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. General: Install electrical conductors and cables as indicated, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standards of Installation", and in accordance with recognized industry practices.
- B. Coordinate installation work with electrical raceway and equipment installation work, as necessary for proper interface.
- C. Use pulling compound or lubricant, where necessary; compounds must not deteriorate conductor or insulation.
- D. Keep conductor splices to minimum.
- E. Install splices and tapes which have mechanical strength and insulation rating equivalent-or-better than conductor.
- F. Use splice and tap connectors which are compatible with conductor material.

### **3.2 FIELD QUALITY CONTROL**

- A. Prior to energization, test cable and wire for continuity of circuitry, and also for short circuits. Correct malfunctions when detected.
- B. Subsequent to wire and cable connections, energize circuitry and demonstrate functioning in accordance with requirements.
- C. Provide a full sized ground wire in all paralleled conduits per NEC 250-122.

**END OF SECTION 26 0120**

## **SECTION 26 0135 - ELECTRICAL BOXES AND FITTINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including general and Supplementary Conditions and Division-1 Specifications sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is a part of each Division-26 section making reference to electrical wiring boxes and fittings specified herein. See Section 260110, Raceways, for additional requirements.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of electrical box and electrical fitting work is indicated by drawings and schedules.
- B. Types of electrical boxes and fittings in this section include the following:
  - 1. Outlet boxes
  - 2. Junction boxes
  - 3. Pull boxes
  - 4. Conduit bodies
  - 5. Bushings
  - 6. Locknuts
  - 7. Knockout closures
  - 8. Miscellaneous boxes and fittings

#### **1.3 QUALITY ASSURANCE**

- A. Comply with NEC as applicable to construction and installation of electrical boxes and fittings. Comply with ANSI C 134.1 (NEMA Standards Pub No. OS 1) as applicable to sheet-steel outlet boxes, device boxes, covers and box supports. Provide electrical boxes and fittings which have been UL-listed and labeled.

#### **1.4 SUBMITTALS**

- A. None required.

### **PART 2 - PRODUCTS**

#### **2.1 FABRICATED MATERIALS**

- A. Fittings: Compression or set screw type (screws must have a full set) connectors and couplings used on EMT shall be steel. INDENTER TYPE OR DIE CAST FITTINGS ARE NOT ACCEPTABLE.
- B. Clamp type malleable iron fittings shall be used for standard steel flex conduit.
- C. Interior Outlet Boxes: Provide one piece, galvanized flat rolled sheet steel interior outlet wiring boxes, of types, shapes and sizes, including box depths, to suit each respective location and installation; construct with stamped knockouts in back and sides, and with threaded screw holes with corrosion-resistant screws for securing box covers and wiring devices; minimum depth 2-1/8". Boxes shall be sized as required to meet N.E.C. requirements for number of conductors in boxes.
- D. Interior Outlet Box Accessories: Provide outlet box accessories as required for each installation, including mounting brackets, hangers, extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used and fulfilling requirements of individual wiring applications.
- E. Junction and Pull Boxes: Provide code-gage sheet steel junction and pull boxes, with screw-on covers; of types, shapes and sizes to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

- F. Conduit Bodies: Provide galvanized cast-metal conduit bodies, of types, shapes and sizes to suit respective locations and installation, construct with threaded-conduit-entrance ends, removable covers, and corrosion-resistant screws.
- G. Bushings, Knockout Closures and Locknuts: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and malleable iron conduit bushings and offset connectors, of types and sizes to suit respective uses and installation.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS**

- A. General: Install electrical boxes and fittings where indicated, complying with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.
- B. Raceway expansion fittings shall be installed on all runs that cross a building expansion joint. This shall include provisions for the safe movement of contained conductors.
- C. All connectors shall have insulated throats.
- D. Switch, Telephone and Receptacle Outlet Boxes: Shall be a minimum of 4" Square, 2 1/8" deep, with deep adapting plaster rings set flush with the finished surfaces. A gang box (nonsectional) shall be used where more than two switches or devices are located at one point. Care and good coordination will be required to install boxes flush with the wall surface.
- E. Coordinate depth of all outlet boxes with architectural finish schedule so outlet box is flush with finish surface.
- F. Telephone outlet boxes shall be mounted at convenience outlet height unless otherwise indicated on the drawings or required by millwork.
- G. Standard switch box height shall be 48" to top of box and convenience outlet height 16" to bottom of box unless otherwise indicated on drawings or required by millwork or architectural details.
- H. Coordinate installation of electrical boxes and fittings with wire/cable and raceway installation work.
- I. Provide cover plates for all boxes. See Section 260140, Wiring Devices.
- J. Provide weatherproof outlets for interior and exterior locations exposed to weather or moisture. Use cast metal in-use cover.
- K. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- L. Install boxes and conduit bodies to ensure ready accessibility of electrical wiring. Install recessed boxes with face of box or ring flush with adjacent surface.
- M. Fasten boxes rigidly to substrates or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry. USE BAR HANGERS FOR STUD CONSTRUCTION. Use of nails for securing boxes is prohibited. Set boxes on opposite sides of common wall with minimum 10" of conduit between them.
- N. Provide electrical connections for installed boxes.

#### **END OF SECTION 26 0135**

## **SECTION 26 0136 - SUPPORTING DEVICES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is a part of each Division-26 section making reference to supports, anchors, sleeves, and seals specified herein.

#### **1.2 DESCRIPTION OF WORK**

- A. Extent of supports, anchors and sleeves is indicated by drawings and schedules and/or specified in other Division-26 sections. See Section 260110, Raceways, for additional requirements.
- B. Work of this section includes, supports, anchors, sleeves and seals required for a complete raceway support system, including but not limited to: clevis hangers, riser clamps, C-clamps, beam clamps, one and two hole conduit straps, offset conduit clamps, expansion anchors, toggle bolts, threaded rods, U-channel strut systems, all associated accessories, and seismic bracing for electrical equipment. Nail drive straps for supporting conduit are prohibited.

#### **1.3 QUALITY ASSURANCE**

- A. Comply with NEC as applicable to construction and installation of electrical supporting devices. Comply with applicable requirements of ANSI/NEMA Std Pub No. FB 1, "Fittings and Supports for Conduit and Cable Assemblies". Provide electrical components which are UL-listed and labeled. Comply with the latest edition of the Uniform Building Code for seismic bracing.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURED SUPPORTING DEVICES**

- A. General: Provide supporting devices; complying with manufacturer's standard materials, design and construction in accordance with published product information, and as required for a complete installation; and as herein specified. See drawings for additional requirements.

### **PART 3 - EXECUTION**

#### **3.1 SEISMIC RESTRAINTS**

- A. Anchor and brace all electrical equipment for UBC seismic zone 3. Provide supports designed to withstand lateral and vertical "g" loadings equal to or greater than UBC requirements for equipment that is secured to the building or structure. Provide seismic restraints capable of resisting horizontal and vertical "g" loadings equal to or greater than UBC requirements for equipment mounted on vibration isolators.
- B. Install seismic supports on all T-Bar type fixtures consisting of galvanized 10 ga. wires connected from two corners of the fixture to structure.

#### **3.2 INSTALLATION OF SUPPORTING DEVICES**

- A. Install hangers, anchors, sleeves, and seals as required, in accordance with manufacturer's written instructions and with recognized industry practices to insure supporting devices comply with requirements. Comply with requirements of NECA, NEC and ANSI/NEMA for installation of supporting devices.
- B. Coordinate with other electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work.



- C. Install hangers, supports, clamps and attachments to support piping properly from building structures. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze type hangers where possible.
- D. Raceways: Support raceways which are rigidly attached to structure at intervals not to exceed 5 feet on center and within 12" of each horizontal bend and vertical 90N bend, junction box, outlet or fitting. Support raceway (as it is installed) in accordance with the following:
- | NUMBER OF RUNS | 3/4" TO 1-1/2"      | 1-1/2" & LARGER  |
|----------------|---------------------|------------------|
| 1              | Full straps, clamps | Hanger           |
| 2              | Full straps, clamps | Mounting Channel |
| 3 or more      | Mounting Channel    | Mounting Channel |
- E. Support suspended raceways on trapeze hanger systems; or individually by means of threaded rod and straps, clamps, or hangers suitable for the application. Do not use "tie wire" as a portion of any raceway support system; do not support raceway from ceiling support wires.

**END OF SECTION 26 0136**

## SECTION 26 0140 - WIRING DEVICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. This section is a Division-26 Basic Materials and Methods section, and is part of each Division-26 section making reference to wiring devices specified herein.

#### 1.2 DESCRIPTION OF WORK

- A. The extent of wiring device work is indicated by drawings and schedules. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.
- B. Types of electrical wiring devices in this section include the following:
  - 1. Receptacles
  - 2. Switches
  - 3. Cover plates

#### 1.3 QUALITY ASSURANCE

- A. Comply with NEC and NEMA standards as applicable to construction and installation of electrical wiring devices. Provide electrical wiring devices which have been UL listed and labeled.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's data on electrical wiring devices.

### PART 2 - PRODUCTS

#### 2.1 FABRICATED WIRING DEVICES

- A. General: Provide factory-fabricated wiring devices, in types, and electrical ratings for applications indicated and complying with NEMA Stds Pub No. WD 1.
- B. Provide wiring devices (of proper voltage rating) as follows:
  - 1. Convenience Outlets: (Provide Decora equal if required by Owner)

<u>Mfr.</u>	<u>Standard</u>	<u>Isolated Ground</u>	<u>Surge Protected</u>	<u>Isolated Ground Surge Protected</u>
Hubbell	HBL5352	IG 5362	5352 IS	IG 5352 IS
P & S	5362	IG 6300	<u>No</u>	<u>No</u>
Leviton	5362		<u>Substitute</u>	<u>Substitute</u>
Cooper	5352			

- 2. Switches: (Provide Decora equal if required by Owner)

<u>Mfr.</u>	<u>1 pole</u>	<u>3 way</u>	<u>4 way</u>	<u>W-Pilot</u>
Hubbell	HBL1221	HBL1223	HBL1224	HBL1221-PL
P & S				
Leviton	1221	1223	1224	1221-PL
Cooper	1221	1223	1224	

- C. Provide devices in colors to match wall surfaces, brown, ivory, white, or gray per architect's direction. Provide isolated ground outlets in ivory, orange, or gray per architect's direction.

## **2.2 WIRING DEVICE ACCESSORIES**

- A. Wall Plates: Provide coverplates for wiring devices; plate color to match wiring devices to which attached. Provide nylon coverplates in all finished areas. Provide galvanized steel plates in unfinished area.

## **PART 3 - EXECUTION**

- A. Install wiring devices as indicated, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation" and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate with other work, including painting, electrical box and wiring work, as necessary to interface installation of wiring devices with other work. Install devices in boxes such that front of device is flush and square with coverplate. Drawings are small scale and, unless dimensioned, indicate approximate locations only of outlets, devices, equipment, etc. Locate outlets and apparatus symmetrically on floors, walls and ceilings where not dimensioned and coordinate with other work. Verify all dimensioned items on job site. Consult architectural cabinet, millwork, and equipment shop drawings before beginning rough-in of electrical work. Adjust locations of all electrical outlets as required to accommodate work in area, and to avoid conflicts with wainscot, back splash, tackboards, and other items.
- C. Install wiring devices only in electrical boxes which are clean; free from excess building materials, dirt, and debris. Mark each device box (for each type of wiring device) with a permanent ink felt tip marker, indicating the circuit to which the device is connected. Example: "CKT A-1".
- D. Convenience outlets shall be installed flush with the wall surface and firmly mounted. Provide steel washers behind device ears where outlet boxes are recessed from wall surface.
- E. Install blank plates on all boxes without devices.
- F. Delay installation of wiring devices until wiring work is completed. Delay installation of wall plates until after painting work is completed.
- G. Where dedicated equipment is connected by cord and plug, provide a single receptacle as required by code.
- H. Protection of wall plates and receptacles: At time of substantial completion, replace those items which have been damaged, including those stained, burned and scored.
- I. Grounding: Provide electrically continuous, tight grounding connections for wiring devices, unless otherwise indicated.
- J. Testing: Prior to energizing circuitry, check wiring devices for electrical continuity and proper polarity connections. After energizing circuitry, test wiring devices to demonstrate compliance with requirements

## **END OF SECTION 26 0140**

## **SECTION 26 0452 - GROUNDING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-26 Basic Materials and Methods sections apply to work specified in this section.

#### **1.2 DESCRIPTION OF WORK**

- A. Provide grounding as specified herein, and as indicated on drawings.
- B. Types of grounding in this section include the following:
  - 1. Enclosures
  - 2. Systems
  - 3. Equipment
  - 4. Other items indicated on drawings
- C. Requirements of this section apply to electrical grounding work specified elsewhere in these specifications.

#### **1.3 QUALITY ASSURANCE**

- A. Comply with NEC as applicable to electrical grounding and ground fault protection systems. Comply with applicable ANSI and IEEE requirements. Provide products which have been UL listed and labeled.

#### **1.4 SUBMITTALS**

- A. None required.

### **PART 2 - PRODUCTS**

#### **2.1 GROUNDING**

- A. Materials and Components: General: Except as otherwise indicated, provide each electrical grounding system as specified herein, and as shown on drawings, including but not necessarily limited to, cables/wires, connectors, terminals (solderless lugs), grounding rods/electrodes and plate electrodes, bonding jumper braid, and other items and accessories needed for complete installation.
- B. Where Materials or Components are not otherwise indicated, comply with NEC, NEMA and established industry standards for applications indicated.
- C. Electrical Grounding Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding connections matching power supply wiring materials and sized according to NEC.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. All plastic conduit runs shall include a grounding conductor as per N.E.C. requirements. Conduit sizes shown are for steel conduit. If plastic conduit is used the contractor shall verify conduit size to accommodate the required grounding conductor.

#### **3.2 INSTALLATION OF GROUNDING SYSTEMS**

- A. Install electrical grounding systems in accordance with manufacturer's written instructions and with recognized industry practices to ensure grounding devices comply with requirements.

- B. Provide grounding for the entire raceway, enclosure, equipment and device system in accordance with NEC. All non-metallic raceways shall include copper grounding conductor sized in accordance with NEC.
- C. See drawings for additional grounding requirements.

**END OF SECTION 26 0452**

## **SECTION 26 0721 - FIRE ALARM AND DETECTION SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 SCOPE AND RELATED DOCUMENTS**

- A. The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials, and performance of all operations in connection with the installation of the fire alarm system as shown on drawings and as herein specified.
- B. The requirements of the conditions of the contract, supplementary conditions and general requirements, apply to the work specified in this section.
- C. The complete installation shall conform to the applicable sections of NFPA-72 (F), Local code requirements and National Electrical Code (article 760).

#### **1.2 QUALITY ASSURANCE**

- A. Each and all items of the fire alarm system shall be listed as a product of a SINGLE fire alarm system manufacturer under the appropriate category by the Underwriters' Laboratories, Inc. (UL), and shall bear the "U.L." label. All control equipment shall be listed under UL category UOJZ as a single control unit. Partial listing shall NOT be acceptable.
- B. In addition to the UL UOJZ requirement listed above, the system controls shall be UL listed for Power Limited Applications per NEC 760. All circuits must be marked in accordance with NEC Article 760-23.
- C. General: Furnish and install a complete fire alarm system as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition. The system shall use closed loop initiating device circuits with addressible devices, individual indicating appliance circuit supervision, incoming and standby power supervision. Include a control panel, manual pull stations, automatic fire detectors, horns, flashing lights, all wiring, connections to devices, outlet boxes, junction boxes, and all other necessary material for a complete operating system.
- D. Through the use of a program mode dip-switch the fire alarm control panel shall allow for loading or editing any special instructions or operating sequences as required. No special tools, modems, or an off-board programmer shall be required to program the system so as to facilitate ease of expansion, building parameter changes or changes as required by local codes. All instructions shall be stored in a resident non-volatile programmable memory.
- E. All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component. Approved manufacturers approved by Engineer but subject to approval by owner include: Notifier, Simplex.
- F. Equipment submissions must include a minimum of the following:
  - 1. Complete descriptive data indicating UL listing for all system components.
  - 2. Complete sequence of operations of the system.
  - 3. Complete system wiring diagrams for components capable of being connected to the system and interfaces to equipment supplied by others.
  - 4. A copy of any state or local fire alarm system equipment approvals (if required by local jurisdiction).

#### **1.3 OPERATION**

- A. The system alarm operation subsequent to the alarm activation of any manual station, automatic detection devices, or sprinkler flow switch shall be as follows:
- B. The appropriate initiating device circuit red LED shall flash on the control panel until the alarm has been silenced at the control panel. Once silenced, this same LED shall latch on. A subsequent alarm received after silencing shall flash the subsequent zone alarm LED on the control panel.
- C. A pulsing alarm tone shall occur with the control panel until silenced.

- D. All alarm-indicating appliances shall sound in a pattern until silenced by the alarm silence switch at the control panel or the remote annunciator.
- E. A supervised signal to notify an approved central station shall be activated.
- F. A fire alarm shall deactivate the air handling systems as required.
- G. Activation of fire door smoke detectors shall activate the adjacent door release device.
- H. The audible alarms shall automatically time out and switch off after ten (10) minutes of alarm operation.
- I. The alarm-indicating appliances may be silenced by authorized personnel upon entering the locked control cabinet and operating the alarm silence switch. A subsequent zone alarm shall reactivate the signals.
- J. The activation of any standpipe or sprinkler tamper switch shall activate a distinctive system supervisory audible signal and illuminate a "Sprinkler Supervisory Tamper" LED at the system controls. There shall be no confusion between valve tamper activation and opens and/or grounds on fire alarm initiation circuit wiring.
- K. Activating the trouble silence switch will silence the supervisory audible signal while maintaining the "Sprinkler Supervisory Tamper" LED indicating the tamper contact is still activated.
- L. Restoring the valve to the normal position shall cause the audible signal and LED to pulse at March Time Rate.
- M. Activating the trouble silence switch will silence the supervisory audible signal and restore the system to normal.
- N. The actuation of the program "Test Set-Up" switch at the control panel shall activate the "Walk Test" mode of the system which shall cause the following to occur:
  - 1. The city connection circuit shall be disconnected.
  - 2. Control relay functions shall be bypassed.
  - 3. The control panel shall show a trouble condition.
  - 4. The alarm activation of any initiation device shall cause the audible signals to pulse one round of code identifying the initiation circuit. (e.g.: an activated smoke detector connected to zone 4 shall pulse the audible signals 4 times in rapid succession).
  - 5. The panel shall automatically reset itself.
  - 6. Any momentary opening of an initiating or indicating appliance circuit shall cause the audible signals to sound for 4 seconds to indicate the trouble condition.
- O. A manual evacuation switch shall be provided to operate the systems indicating appliances or initiate "Drill" procedures.
- P. Activation of an auxiliary bypass switch shall override the automatic functions either selectively or throughout the system and initiate a trouble condition at the control panel.

#### **1.4 SUPERVISION**

- A. The system shall contain Class A independently supervised. The alarm activation of any initiation circuit shall not prevent the subsequent alarm operation of any other initiation circuit.
- B. There shall be one supervisory initiation circuit for connection of all sprinkler valve tamper switches to perform the operation listed above. Wiring methods which affect any fire alarm initiation circuits to perform this function shall be deemed unacceptable; i.e.: sprinkler and standpipe tamper switches (N/C contacts) shall NOT be connected to circuits with fire alarm initiation devices (N/O contacts). This independent initiation circuit shall be labeled "Sprinkler Supervisory Tamper" and shall differentiate between tamper switch activation and wiring faults.
- C. There shall be independently supervised and independently fused indicating appliance circuits for alarm (horns).
- D. All auxiliary manual controls shall be supervised so that all switches must be returned to the normal automatic position to clear system trouble.

- E. Each independently supervised circuit shall include a discrete amber "Trouble" LED to indicate disarrangement conditions per circuit.
- F. The incoming power to the system shall be supervised so that any power failure shall be audibly and visually indicated at the control panel. A green "power on" LED shall be displayed continuously while incoming power is present.
- G. The system batteries shall be supervised so that disconnection of a battery shall be audibly and visually indicated at the control panel.
- H. The system expansion modules connected by ribbon cables shall be supervised for module placement. Should a module become disconnected from the C.P.U. the system trouble indicator shall illuminate and audible trouble signal shall sound.

## **1.5 POWER REQUIREMENTS**

- A. The control panel shall receive 120 VAC power (as noted on the plans) via a dedicated circuit.
- B. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal supervisory mode for a period of forty-eight (48) hours with five (5) minutes of alarm indication at the end of this period or as required by AHJ. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate to provide a minimum of 70% capacity in 12 hours.
- C. All circuits requiring system operating power shall be 24 VDC and shall be individually fused at the control panel.

## **PART 2 - PRODUCTS**

### **2.1 APPROVED MANUFACTURERS**

- A. Approved Manufacturers: Silent Knight Non-proprietary

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION:**

- A. Provide and install the system in accordance with the plans and specifications, all applicable codes and the manufacturer's recommendations. All wiring shall be installed in conduit and shall be in a completely separate conduit system.
- B. All junction boxes shall be sprayed red and labelled "Fire Alarm". Wiring color code shall be maintained throughout the installation.
- C. Installation of equipment and devices that pertain to other work in the contract shall be closely coordinated with the appropriate sub-contractors.
- D. Cleaning: The contractor shall clean all dirt and debris from the inside and the outside of the fire alarm equipment after completion of installation.
- E. The manufacturer's authorized representative shall provide on site supervision of installation.

### **3.2 WIRING**

- A. Wiring in the Fire Alarm System shall be a pair of wires which connect in a series parallel loop. All break glass stations and detectors are to be wired across this loop.
- B. This wiring is for each zone and each zone must terminate at the F.A. Master with two (2) wires from this loop. This is a Class A loop system.



- C. Horns are to be wired in a parallel loop using two (2) wires to all horns with two (2) wires for each horn circuit terminating in the F.A. master. Wiring to be a Class A loop.
- D. Put each flow valve tamper switch in fire sprinkler system on separate zones. Run two (2) wires out for each flow valve. Run two (2) wires from Fire Alarm Master to each tamper switch.
- E. Run two (2) wires to fan shutdown equipment supplied under mechanical section of these specifications.
- F. Run two (2) wires to each temperature alarm device for freezer and cooler.

### **3.3 COLOR CODE**

- A. The color code for wiring is to be as follows:
  - 1. Alarm loop - One (1) purple and one (1) pink.
  - 2. Horn loop - One (1) blue and one (1) orange.
  - 3. Fans - Two (2) brown.
  - 4. Door holders - Two (2) yellow.
  - 5. Smoke Detector Power - One (1) red and one (1) black.
  - 6. For additional wiring, contact manufacturer.
- B. **All wiring shall be #14 TW or THHN and shall meet requirements of National, State, and Local Codes. Wiring may be run open where allowed by code. Otherwise run in minimum ¾" conduit.**

### **3.4 TESTING**

- A. The completed fire alarm system shall be fully tested in accordance with NFPA-72H by the fire alarm factory representative in the presence of the owner's representative and the local Fire Marshal. Upon completion of a successful test, the contractor shall so certify in writing to the owner and general contractor. After completion and test, the manufacturers representative shall meet with the code enforcing authorities and demonstrate the system and obtain field approval.

### **3.5 WARRANTY**

- A. The Contractor shall warrant the completed fire alarm system wiring and equipment to be free from inherent mechanical and electrical defects for a period of one (1) year from the date of the completed and certified test or from the date of the first beneficial use.
- B. The equipment manufacturer shall make available to the owner a maintenance contract proposal to provide a minimum of two (2) inspections and tests per year in compliance with NFPA-72H guidelines.

**END OF SECTION 26 0721**

## OCS - MOUND FORT JR. HIGH REMODEL

### DIVISION 31: EARTHWORK:

31 0700 General Site Requirements



## **SECTION 31 0700 - GENERAL SITE CONSTRUCTION REQUIREMENTS**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Includes But Not Limited to
  - 1. General procedures and requirements for Site Work.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Site Verification of Conditions
  - 1. 48 hours minimum prior to performing any work on site, contact Dig Line to arrange for utility location services.
  - 2. Perform minor, investigative excavations to verify location of various existing underground facilities at sufficient locations to assure that no conflict with the proposed work exists and sufficient clearance is available to avoid damage to existing facilities.
  - 3. Perform investigative excavating 5 days minimum in advance of performing any excavation or underground work.
  - 4. Upon discovery of conflicts or problems with existing facilities, notify Architect by phone or fax within 24 hours. Follow telephone or fax notification with letter and diagrams indicating conflict or problem and sufficient measurements and details to evaluate problem.
  - 5. Notify Owner of utilities a minimum of 48 hours prior to a work taking place.

#### **3.2 PREPARATION**

- A. Protection
  - 1. Spillage -
    - a. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
    - b. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.
  - 2. Dust Control -
    - a. Take precautions necessary to prevent dust nuisance, both on-site and adjacent to public and private properties.
    - b. Correct or repair damage caused by dust.
  - 3. Erosion Control -
    - a. Take precautions necessary to prevent erosion and transportation of soil downstream, to adjacent properties, and into on-site or off-site drainage systems.
    - b. Develop, install, and maintain an erosion control plan if required by law.
    - c. Repair and correct damage caused by erosion.
  - 4. Existing Plants And Features - Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Architect. Do not damage other plants and features which are to remain.
  - 5. Protect site from fire caused by welding, cutting, smoking, or other sources of ignition.
- B. If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

#### **3.3 REPAIR / RESTORATION**

- A. Adjust existing covers, boxes, and vaults to grade.

- B. Replace broken or damaged covers, boxes, and vaults.
- C. Independently confirm size, location, and number of covers, boxes, and vaults which require adjustment.

#### **3.4 FIELD QUALITY CONTROL**

- A. Notify Architect 48 hours prior to performing excavation or fill work.
- B. If work has been interrupted by weather, scheduling, or other reason, notify Architect 24 hour's minimum prior to intended resumption of grading or compacting.
- C. Owner reserves right to require additional testing to re-affirm suitability of completed work including compacted soils which have been exposed to adverse weather conditions.

**END OF SECTION 31 0700**

## OCS - MOUND FORT JR. HIGH REMODEL

**DIVISION 32: EXTERIOR IMPROVEMENTS:**  
32 1216 Asphalt Paving - Marshall



## **SECTION 32 1216 - ASPHALT PAVING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Cold milling of existing hot-mix asphalt pavement.
  - 2. Hot-mix asphalt paving.
  - 3. Pavement-marking paint.
- B. Related Sections:
  - 1. Division 02 Section "Structure Demolition" for demolition, removal, and recycling of existing asphalt pavements, and for geotextiles that are not embedded within courses of asphalt paving.
  - 2. Division 31 Section "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
  - 3. Division 32 Sections for other paving installed as part of crosswalks in asphalt pavement areas.
  - 4. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants and fillers at paving terminations.

#### **1.3 DEFINITION**

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
  - 1. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
  - 2. Job-Mix Designs: For each job mix proposed for the Work.
- B. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Samples: For each paving fabric, 12 by 12 inches minimum if used.
- D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
  - 1. Each paving fabric, 12 by 12 inches minimum.
  - 2. Each type and color of preformed traffic-calming device.
  - 3. Each pattern and color of imprinted asphalt and precut marking material.
- E. Qualification Data: For qualified manufacturer and Installer.
- F. Material Certificates: For each paving material, from manufacturer.



- G. Material Test Reports: For each paving material.
- H. Fire Marshal Approval: For the striping plan as it relates to fire lanes and the marking thereof.

## **1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Provide copy of manufacturer's experience for verification of qualifications.
- B. Installer Qualifications: Imprinted-asphalt manufacturer's authorized installer who is trained and approved for installation of imprinted asphalt required for this Project.
- C. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.
- D. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of city and DOT for asphalt paving work.
  - 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.
- E. Pre-installation Conference: Conduct conference at Project site
  - 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
    - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
    - b. Review condition of subgrade and preparatory work.
    - c. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
    - d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

## **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
  - 1. Prime Coat: Minimum surface temperature of 60 deg F. Not used if paving takes place within 48 hours of final grading and final compaction of road base.
  - 2. Tack Coat: Minimum surface temperature of 60 deg F.
  - 3. Slurry Coat: Comply with weather limitations in ASTM D 3910.
  - 4. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
  - 5. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
- B. Imprinted Asphalt Paving: Proceed with coating imprinted pavement only when air temperature is at least 50 deg F and rising and will not drop below 50 deg F within 8 hours of coating application. Proceed only if no precipitation is expected within two hours after applying the final layer of coating.

## **PART 2 - PRODUCTS**

### **2.1 AGGREGATES**

- A. General: Use materials and gradations that have performed satisfactorily in previous installations. Provide project history where mix design has been used and when.
- B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D 1073 or AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.
  - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- D. Mineral Filler: ASTM D 242 or AASHTO M 17, rock or slag dust, hydraulic cement, or other inert material.

### **2.2 ASPHALT MATERIALS**

- A. Asphalt Cement: AC 20 per ASTM D 3381 for viscosity-graded material except use ductility at 39.2 deg. F., >5 for AC 20 and delete the loss on heating requirement on residue from "Thin-Film Oven Test".
- B. Prime Coat: Not required if paving is done within 48 hours of final compaction.
- C. Tack Coat: ASTM D 977 or AASHTO M 140 emulsified asphalt, or ASTM D 2397 or AASHTO M 208 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- D. Fog Seal: ASTM D 977 or AASHTO M 140 emulsified asphalt, or ASTM D 2397 or AASHTO M 208 cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- E. Water: Potable.
- F. Undersealing Asphalt: ASTM D 3141, pumping consistency.

### **2.3 AUXILIARY MATERIALS**

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073 or AASHTO M 29, Grade Nos. 2 or 3.
- C. Paving Geotextile: AASHTO M 288, nonwoven polypropylene; resistant to chemical attack, rot, and mildew; and specifically designed for paving applications.
- D. Joint Sealant: ASTM D 6690 or AASHTO M 324, Type I Type II or III Type IV, hot-applied, single-component, polymer-modified bituminous sealant.

### **2.4 MIXES**

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:
  - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located. Provide mix with the following characteristics:

- a. Number of compaction blows each end of specimen: 50.
  - b. Satiability based on ASTM D5581: 1200 minimum.
  - c. Flow in 0.01-inch units per ASTM D5581: 10-18.
  - d. Voids in mineral aggregate VMA: 14.
  - e. The percentage of bituminous material by weight added to aggregate will be between 4% and 7% of the weight of the bituminous mixture.
2. Surface Course: 3-inch minimum compacted thickness and as indicated on the drawings with aggregate meeting the following gradation table
 

¾ inch	100
½ inch	74-99
3/8 inch	69-91
No. 4	49-65
No. 8	33-47
No. 16	21-35
No. 50	6-18
No. 200	2-6
- B. Emulsified-Asphalt Slurry: ASTM D 3910, Type 1.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that subgrade is dry and in suitable condition to begin paving.
- B. Verify that the road base has been properly compacted and is at the correct line, grade, and slope.
- C. Verify that the road base thickness is as indicated on the project plans.
- D. Verify that sufficient depth at curbs, walks, lips and other vertical edges is available to place the required thickness of compacted asphalt.
- E. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
  1. Completely proof-roll subgrade in one direction. Limit vehicle speed to 3 mph.
  2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons or other vehicle with similar axel weight.
  3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- F. Proceed with paving only after unsatisfactory conditions have been corrected.
- G. Verify that utilities, traffic loop detectors, and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation of imprinted asphalt.

### **3.2 PATCHING**

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Re-compact existing unbound-aggregate base course to form new subgrade.
- B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.

1. Pump hot undersealing asphalt under rocking slab until slab is stabilized or, if necessary, crack slab into pieces and roll to reseat pieces firmly.
  2. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Re-compact existing unbound-aggregate base course to form new subgrade.
- C. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.
- E. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

### **3.3 REPAIRS**

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
1. Clean cracks and joints in existing hot-mix asphalt pavement.
  2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
  3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

### **3.4 SURFACE PREPARATION**

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Herbicide Treatment: Not used.
- C. Prime Coat: Do not use if paving takes place not more than 48 hours after final compaction and grading of road bases. If paving must be delayed significantly, re-grade and re-compact road base or apply Prime Coat. Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure.
1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
  2. Protect primed substrate from damage until ready to receive paving.
- D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings.
  3. Remove and replace items damaged by overspray or clean affected surfaces as directed by architect at no additional cost to owner.

### **3.5 HOT-MIX ASPHALT PLACING**

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
  - 1. Place hot-mix asphalt surface course in single lift if design thickness is less than 3-inches. If design thickness is more than 3-inches, place in multiple lifts with a minimum thickness of 1.5-inches and a maximum thickness of 3-inches.
  - 2. Spread mix at minimum temperature of 250 deg F.
  - 3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
  - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
  - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

### **3.6 JOINTS**

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
  - 1. Clean contact surfaces and apply tack coat to joints.
  - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
  - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
  - 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
  - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

### **3.7 COMPACTION**

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
  - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density: 96 percent of reference laboratory density according to ASTM D 6927 or AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Place asphalt so that final compacted asphalt is even with lip of gutter on curbs that drain away from the curb and gutter (open face or depressed curb and gutter). Place asphalt so that final compacted asphalt is 1/4-inch above lip of gutter on curbs that carry water (slope of parking lot is towards the curb). In transition areas, use extra care to make sure that no ponds, bird baths, or depressions are left after paving.
- G. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- H. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- I. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### **3.8 INSTALLATION TOLERANCES**

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
  - 1. Surface Course: Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
  - 1. Surface Course: 1/8 inch.
  - 2. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.
- C. After paving is complete, pour water on paved areas and identify ponds, bird baths, and depressions. Identify the same at open face and transition sections of curb and gutter. Remove and replace asphalt, curb and gutter, road base, and or sub-base as necessary to fix ponds, bird baths, or depressions at no additional cost to owner.

### **3.9 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. In-Place Density: Testing agency will take samples of un-compacted paving mixtures and compacted pavement according to ASTM D 979 or AASHTO T 168.
  - 1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
  - 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726. Cores will also be measured for compacted thickness. The owner and architect may also direct additional cores to be taken at locations of their choosing to verify final pavement thickness.
    - a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
    - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
    - c. Coordinate the time and locations of all holes so that cores may be filled.

- E. The contractor will replace and compact hot-mix asphalt where core tests were taken.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

### **3.10 DISPOSAL**

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
  - 1. Do not allow milled materials to accumulate on-site.

**END OF SECTION 32 1216**