
BIDDING INSTRUCTIONS & FORMS

Santa Fe Elementary Security Upgrades
12801 S. Santa Fe
Oklahoma City, OK 73170

OMNI CONSTRUCTION
1909 S Eastern Ave Moore, OK 73160

TABLE OF CONTENTS

Santa Fe Elementary Security Upgrades

Division 0	Bidding Instructions and Forms	Page 2
Document 100	Solicitation for Bids (State of Oklahoma Form)	Page 3
Document 200	Instructions to Bidders	Page 4
	1) Solicitation	Page 5
	2) Bid Documents and Contracts Documents	Page 6
	3) Site Assessment	Page 7
	4) Qualifications	Page 8
	5) Bid Submissions	Page 8
	6) Bid Enclosure/Requirements	Page 9
	7) Offer Acceptance/Rejection	Page 10
Document 300	Bid Forms	Page 11
	1) General Bid Form	Page 11
	2) Non-Collusion Affidavit	Page 13
	3) Non-Kickback Affidavit	Page 14
	4) Non-Asbestos Affidavit	Page 15
	5) Non-Sex Offender Affidavit	Page 16
	6) Business Relationship Affidavit	Page 17
Document 400	General Bid Package Items	Page 18
	1) General	Page 18
	2) Project Schedule	Page 19
	3) Safety	Page 20
Document 500	Bid Package 1 thru 16	Page 21
	1) Sitework (Not Used)	Page 21
	2) Concrete	Page 22
	3) Masonry	Page 24
	4) Metals	Page 25
	5) Wood & Plastic (Not Used)	Page 26
	6) Thermal & Moisture Protection (Not Used)	Page 27
	7) Doors & Hardware (Not Used)	Page 28
	8) Finishes (Ceiling Systems) (Not Used)	Page 29
	9) Specialties (Accessories) (Not Used)	Page 30
	10) Flooring (Not Used)	Page 31
	11) Painting	Page 32
	12) Fire Suppression (Not Used)	Page 33
	13) Mechanical (Not Used)	Page 34
	14) Plumbing (Not Used)	Page 35
	15) Electrical/Cabling/IT	Page 37
	16) Fences and Gates	Page 39

Santa Fe Elementary Security Upgrades
12801 S. Santa Fe
Oklahoma City, OK 73170

Division 0

Bidding Instructions

&

Forms

ARCHITECT OF RECORD:

AGP – the Abla Griffin Partnership, LLC
201 N. Broadway, Suite 210
Moore, OK 73160 405-735-
3477

CONSTRUCTION MANAGER:

OMNI Construction, LLC
1909 S. Eastern Ave.
Moore, OK 73160 405-
735-3992

DOCUMENT 100
SOLICITATION FOR BIDS
(BID NOTICE)

Sealed proposals will be received by the Board of Education, Independent School District No. I-002, Moore, Cleveland County, Oklahoma, at the Moore Public Schools Administration Service Center, 1500 SE 4th Street, Moore, Oklahoma, until 2:00 P.M., Central Standard Time, on the 24th, day of April 2024, at which time said bids will be opened for furnishing all labor and materials for the construction of the Santa Fe Elementary Security Upgrades including the following Bid Packages:

- Bid Package 1 – Demo/Sitework (Not Used)
- Bid Package 2 – Concrete
- Bid Package 3 – Masonry
- Bid Package 4 – Metal
- Bid Package 5 – Wood & Plastic (Not Used)
- Bid Package 6 – Thermal & Moisture Protection (Not Used)
- Bid Package 7 – Doors & Hardware (Not Used)
- Bid Package 8 – Finishes (Ceiling Systems) (Not Used)
- Bid Package 9 – Specialties (Accessories) (Not Used)
- Bid Package 10 – Flooring (Not Used)
- Bid Package 11 – Painting
- Bid Package 12 – Fire Suppression (Not Used)
- Bid Package 13 – Mechanical (Not Used)
- Bid Package 14 – Plumbing (Not Used)
- Bid Package 15 – Electrical/Cabling/IT
- Bid Package 16 – Fences & Gates

Bids received more than ninety-six (96) hours, excluding Saturdays, Sundays, and holidays, before the time set for opening bids, as well as bids received after the time set for opening bids, will not be considered, and will be returned unopened.

Bids will be publicly opened and read aloud at the above-mentioned office immediately following the closing time stated above.

Complete sets of General Conditions, Plans, and Specifications, and other bidding documents may be obtained through OMNI Construction, LLC, and the RPG Plan Room.

OMNI Construction
1909 S. Eastern Ave.
Moore, OK 73160
405-735-3992
www.omnioklahoma.com

RPG Plan Room
www.rpgplanroom.com

A cashier's check, a certified check, or a surety bond in the amount of five percent (5%) of the bid shall accompany the sealed proposal of each bidder if the proposal is \$50,000.00 or larger. Bid Guarantees will be returned to the unsuccessful bidders.

The Board of Education reserves the right to accept or reject any and all bids.

The time period within which a contract will be executed following award to the successful bidder will not exceed thirty (30) days.

DOCUMENT 200

INSTRUCTIONS TO BIDDERS

To be considered, bids must be made in accordance with these instructions to bidders.

- Section 1 Solicitation**
- 1) Bid Submission
 - 2) Intent
 - 3) Work Identified in the Contract Documents
 - 4) Contract Time
- Section 2 Bid Documents and Contract Documents**
- 1) Definitions
 - 2) Contract Documents Identification
 - 3) Availability
 - 4) Examination
 - 5) Queries/Addenda
 - 6) Product Substitution
- Section 3 Site Assessment**
- 1) Site Examination
- Section 4 Qualifications**
- 1) Evidence of Qualifications
 - 2) Subcontractors/Suppliers/Others
- Section 5 Bid Submission**
- 1) Submission Procedure
 - 2) Bid Ineligibility
- Section 6 Bid Enclosure/Requirements**
- 1) Security Deposit
 - 2) Performance Assurance
 - 3) Bid Form Requirements
 - 4) Bid Form Signature
- Section 7 Offer Acceptance/Rejection**
- 1) Duration of Offer
 - 2) Acceptance of Offer

Section 1-
SOLICITATION

1.1) BID SUBMISSION

- A. Sealed proposals will be received by the Board of Education, Independent School District No. I-002, Moore, Cleveland County, Oklahoma, at the Moore Public Schools Administration Service Center, 1500 SE 4th Street, Moore, Oklahoma, until 2:00 P.M., Central Standard Time, on Wednesday, the 24th day of April 2024, at which time said bids will be opened for furnishing all labor and materials for the complete construction of the Santa Fe Elementary Security Upgrades project.

Bid Packages: **Bid Package 1** – Demo/Sitework (Not Used)
Bid Package 2 – Concrete
Bid Package 3 – Masonry
Bid Package 4 – Metal
Bid Package 5 – Wood & Plastic (Not Used)
Bid Package 6 – Thermal & Moisture Protection (Not Used)
Bid Package 7 – Doors & Hardware (Not Used)
Bid Package 8 – Finishes (Ceiling Systems) (Not Used)
Bid Package 9 – Specialties (Accessories) (Not Used)
Bid Package 10 – Flooring (Not Used)
Bid Package 11 – Painting
Bid Package 12 – Fire Suppression (Not Used)
Bid Package 13 – Mechanical (Not Used)
Bid Package 14 – Plumbing (Not Used)
Bid Package 15 – Electrical/Cabling/IT
Bid Package 16 – Fences and Gates

- B. Bids received more than ninety-six (96) hours, excluding Saturdays, Sundays, and holidays, before the time set for opening bids, as well as bids received after the above time set for opening bids, will not be considered, and will be returned unopened.
- C. All forms identified in Section 300 shall be properly filled out and notarized.
- D. Bids will be publicly opened and read aloud at the above-mentioned office immediately following the closing time stated above.
- E. Amendments to submitted Bids will be permitted when received in writing prior to bid deadline and when endorsed by the same party or parties who signed and sealed the Bid.
- F. Bidders may withdraw their Bid by written request at any time before bid deadline.

1.2) INTENT

- A. The intent of this bid request is to obtain an offer to perform work to complete the construction of the Santa Fe Elementary Security Upgrades, 12801 S. Santa Fe, Oklahoma City, OK 73170, for a Stipulated Price contract, in accordance with the Contract Documents.
- B. The Owner has contracted with OMNI Construction to act as Construction Manager for the total Project. Selected parts of the work of the Project may be completed by the Construction Manager and other parts may be contracted by acceptance of public bids.

1.3) WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. Work of this proposed Contract comprises of bid package 1 thru 16 as noted in the Bid Manual
- B. The Scope of the work consists of furnishing all labor and materials for the complete construction, in accordance with the Contract Documents,
- C. The Base Proposal shall include all work as described in the Drawings, Project Manual and bid day instructions and forms. Each trade shall be responsible to review all sheets identified in the plan set and work that may pertain to their respected bid package.

1.4) CONTRACT TIME

- A. Construction Start Date = 5-14-2024
- B. Construction Completion Date = 1-29-2025

Section 2

BID DOCUMENTS AND CONTRACT DOCUMENTS

2.1) DEFINITIONS

- A. Bid Documents: Project Plans, Project Manual, Bidding Instructions and Forms.
- B. Bid: Executed Bid Form and required attachments submitted in accordance with these Instructions to Bidders.
- C. Bid Price: Monetary lump sum identified by the Bidder in the Bid Form.

2.2) CONTRACT DOCUMENTS IDENTIFICATION

- A. The Contract Documents (Drawings and Project Manual) are identified as prepared by the Architect, AGP – the Abla Griffin Partnership, LLC, and identified in their respective Table of Contents.

2.3) AVAILABILITY

- A. Refer to section 2.4- for availability of drawings.

2.4) EXAMINATION

- A. Bid Documents are on display at the offices of the following construction association plan room facilities:
 - [1] OMNI Construction, LLC
1909 S. Eastern Ave.
Moore, OK 73160 405-735-3992
www.omnioklahoma.com
 - [2] RPG Plan Room
www.rpgplanroom.com
- B. Upon receipt of Bid Documents verify that documents are complete. Notify the Architect or Construction Manager, OMNI Construction, LLC, should the documents be incomplete.

- C. Immediately notify the Architect or Construction Manager upon finding discrepancies or omissions in the Bid Documents.

2.5) QUERIES/ADDENDA

- A. Direct questions to AGP – the Abla Griffin Partnership L.L.C., 201 N Broadway, Suite 210, Moore, Oklahoma 73160, 405-735-3477 or AGP@theAGP.net. OMNI Construction, LLC, PO Box 892245 Oklahoma City, OK 73189, 405-735-3992 or omniconstructionllc@coxinet.net.
- B. Verbal answers are not binding on any party.
- C. Submit questions not less than 3 days before date set for receipt of Bids. Replies will be made by Addenda.
- D. Addenda may be issued during the Bidding period. Addenda become part of the Contract Documents. Include resultant costs in the Bid Price.
- E. List any addenda received on the Bid Form. Failure to receive any addenda shall not release the bidder from any obligations under his bid.

2.6) PRODUCT SUBSTITUTION

- A. Where the Bid Documents stipulate a particular Product, substitutions will be considered by the Architect up to seven (7) days before receipt of Bids.
- B. With each substitution request, provide sufficient information for Architect to determine acceptability of proposed products.
- C. When a request to substitute a Product is made, Architect may approve the substitution. Approved substitutions will be identified by Addenda.
- D. In submission of substitutions to products specified, Bidders shall include in their Bid, any changes required in the Work to accommodate such substitutions. Later claims by the Bidder for an addition to the Contract Time or Contract Sum/Price because of changes in Work necessitated by use of substitutions shall not be considered.

Section 3

SITE ASSESSMENT

3.1) SITE EXAMINATION

- A. Examine the project site before submitting a Bid.
- B. Each bidder shall carefully examine the project site, compared it to the Drawings and Project Manual, including all Addenda, and satisfied themselves as to the existing conditions under which their trade will be required to work, or that will affect the work under this contract.
- C. No allowances will be made on behalf of the Contractor for any error or negligence in determining these existing conditions. By submission of a bid on this project, the bidders agree to accept the existing project site in its present condition.
- D. Any and all site visits shall be scheduled through the Project Manager of record, OMNI Construction, LLC 405-735-3992.

Section 4

QUALIFICATIONS

4.1) EVIDENCE OF QUALIFICATIONS

- A. To demonstrate qualifications for performing the Work of this Contract, Bidders may be required to submit in writing, evidence of financial position, previous experience, and current commitments. The financial statement shall reflect the true financial condition of the bidder within three months prior to the date of the bid opening. To be eligible for the Contract a bidder, must be able to show his financial ability to carry on work until such time as he receives the first payment on the Contract agreement, and to finance the work between payments until the project is complete and accepted by the Owner.

4.2) SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. The Owner reserves the right to reject a proposed Subcontractor for reasonable cause.
- B. Refer to OMNI Construction's Master Service Agreement when OMNI is Construction Manager.

Section 5

BID SUBMISSION

5.1) SUBMISSION PROCEDURE

- A. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed.
- B. **Submit one copy of the executed offer on the Bid Forms provided, signed, and sealed with the required security in a closed opaque envelope, clearly identified with Bidder's name, project name, Owner's name, Bid Manual 1, Bid Package Number and Description, and Bid Date on the outside of the envelope.**
- C. Contents of the Proposal Packet:
 - 1. Complete Bid Forms (Document 300).
 - 2. Non-collusion Affidavit signed and notarized.
 - 3. Non-Kickback Affidavit signed and notarized.
 - 4. Affidavit of Asbestos Free Materials and Construction signed and notarized.
 - 5. Non-Sex Offender Affidavit signed and notarized.
 - 6. Business Relationship Affidavit signed and notarized.
 - 7. A cashier's check, a certified check, or surety bond.
- D. An abstract summary of submitted Bids will be made available to all Bidders following Bid opening.

5.2) BID INELIGIBILITY

- A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may be declared unacceptable at Owner's discretion.
- B. Bid Forms, Appendices, and enclosures which are improperly prepared, may at the discretion of the Owner, be declared unacceptable.
- C. Failure to provide security deposit, bonding or insurance requirements will at the discretion of the Owner, invalidate the Bid.

Section 6

BID ENCLOSURES/REQUIREMENTS

6.1) SECURITY DEPOSIT

- A. Bids shall be accompanied by a security deposit if more than \$50,000.00 for a sum not less than five percent (5%) of the Bid Price/Sum submitted, as a guarantee that the successful bidder will properly execute a Contract and file performance assurance bonds within seven (7) days of the date of notification of award, as follows:
 - 1. Bid Bond or
 - 2. Certified or cashier's check.
- B. Should the successful bidder fail to enter into a Contract Agreement or to comply with the specified requirements, the bidder's check or bond will become the property of the Owner as liquidated damages, but not as penalty.
- C. Endorse the Bid Bond in the name of the Owner as obliged, signed, and sealed by the Contractor as principal and the Surety. Surety Bonds shall be issued by a surety licensed to conduct business in the State of Oklahoma and shall be accompanied by the bond agent's power-of-attorney.
- D. Endorse the certified or cashier's check in the name of the Owner.
- E. The security deposit will be returned after delivery to the Owner of the required Performance and Statutory Payment Bonds by the accepted Bidder.
- F. The security deposit will be returned after delivery to the Owner of the required Performance and Labor and Material Payment Bond(s) by the accepted Bidder.
- G. Include the cost of Bid Security in the Bid Price.
- H. After a bid has been accepted, all securities will be returned to the respective Bidders and other requested enclosures.
- I. If no contract is awarded, all security deposits will be returned.

6.2) PERFORMANCE ASSURANCE

- A. Accepted Bidder: Provide Performance and Statutory Bonds in one hundred percent (100%) of the contract amount covering faithful performance of the contract, and payment of all obligations arising there-under, will be required by the Owner.
- B. Provide a Defect Bond in the amount of one hundred percent (100%) of the contract amount covering defective workmanship and materials for a period of one year after the acceptance of the project.
- C. Include the cost of performance assurance bonds in the Bid Price.
- D. Oklahoma law allows substitution of an Irrevocable Letter of Credit is included herewith. One such letter shall be required for each of the bonds noted above.
- E. Construction Manager reserves the right to enforce or waive the surety bond requirements.

6.3) BID FORM REQUIREMENTS

- A. Complete all requested information in Section 300 of the Bidding Instructions and Forms.

6.4) BID FORM SIGNATURE

- A. The Bid Form shall be signed by the Bidder, as follows:
 - 1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature.
 - 2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature.

3. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts, under each signature. Affix the corporate seal. If the Bid is signed by officials other than the President and Secretary of the company, or the President/Secretary/Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so, must also be submitted with the Bid Form in the Bid Envelope.
4. Joint Venture: Each party of the joint venture shall execute the Bid Form under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

Section 7

OFFER ACCEPTANCE/REJECTION

7.1) DURATION OF OFFER

- A. Bids shall remain open to acceptance and shall be irrevocable for a period of thirty (30) days after the Bid closing date.

7.2) ACCEPTANCE OF OFFER

- A. The Owner reserves the right to accept or reject any or all bids, or to accept any bid he considers advantageous and to waive formalities and irregularities.
- B. The Owner reserves the right to disqualify bids, before and after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of the bidder.
- C. The Contract will be awarded based on the lowest responsible bid.
- D. In case of a difference in written words and figures on the Bid Form, the amount stated in written words shall govern.
- E. After acceptance by the Owner, the Architect, on behalf of the Owner, will issue to the successful Bidder, a written Notice to Proceed.
- F. The time Period within which a contract will be executed following award to the successful bidder will not exceed thirty (30) days.
- G. In the event of a tie bid the coin toss method will be administered by the Construction Manager to determine the successful bidder.

DOCUMENT 300

BID FORMS

PROJECT NAME: Santa Fe Elementary Security Upgrades

DATE OF BID OPENING: _____

COMPANY NAME: _____

COMPANY ADDRESS: _____

CONTACT NAME: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

EMAIL ADDRESS: _____

PACKAGE NO. / DESCRIPTION	COMPLETE DESCRIPTION AS TO SCOPE OF WORK	AMOUNT

****Any proposal containing clarifications or exclusions shall not be considered.**

Base Bid: _____ (Written Words)

\$ _____ (Numeric Form)

IT IS UNDERSTOOD THE BASE BID DOES NOT INCLUDE THE COST OF THE PERFORMANCE BOND COVERING 100% OF THE CONTRACT AMOUNT. PRIOR TO AWARD, THE OWNER AND CONTRACTOR RESERVE THE RIGHT TO ADD A PERFORMANCE BOND FROM THE TRADE CONTRACT AGREEMENT. PLEASE INDICATE THE FOLLOWING INFORMATION WITH REGARDS TO YOUR PERFORMANCE BOND:

PERFORMANCE BOND RATE (%): _____

COST OF PERFORMANCE BOND (\$): _____ (Dollars)

Alternates:

Description of Alternate: _____

Add or Deduct: _____

**Please note that any and all items of the given package which are not specifically excluded in the bid document will be considered to be a part of the bid package.

SIGNATURE OF BIDDING PARTY

DATE

By initialing the line next to each item below you are acknowledging that you have included the following items:

_____ A cashier's check, a certified check, or a surety bond if bid is \$50,000 or greater.

_____ Non-Collusion Affidavit (Signed and Notarized)

_____ Non-Kickback Affidavit (Signed and Notarized)

_____ Affidavit of Asbestos Free Materials and Construction (Signed and Notarized)

_____ Non-Sex Offender Affidavit (Signed and Notarized)

_____ Business Relations Affidavit (Signed and Notarized)

_____ Acknowledge receipt of Addenda Numbers _ through _ issued for bidding.

SUBMITTED BY:

COMPANY NAME: _____

FULL PRINTED NAME: _____

SIGNATURE: _____

DATE: _____

NON-COLLUSION AFFIDAVIT

STATE OF _____)

)ss.

COUNTY OF _____)

_____, of lawful age, being first duly sworn on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity, quality or price in the prospective contract, or any other terms of said prospective contract; or in any discussions between bidders and any state official concerning exchange of money or other things of value for special consideration in the letting of contract.

Subscribed and sworn to me before this _____ day of _____, 20____

Notary Public

My Commission Expires:

NON-KICKBACK AFFIDAVIT

COMPANY NAME: _____

As required by Oklahoma State Statutes, Title 62, § 310.9, any contract for \$25,000.00 or more for the purchase of materials, goods, or services, must be accompanied by the signed statement described below. Please sign this statement as indicated below and return to Moore Public Schools at the address shown below.

MOORE PUBLIC SCHOOLS
Attn: Purchasing Department
1500 S.E. 4th Street
Moore, OK 73160-8232

The undersigned (architect, contractor, supplier, or engineer), of lawful age, being first duly sworn on oath says that this contract is true and correct. Affiant further states that the (work, services, or materials) will be (completed or supplied) in accordance with the plans, specifications, orders, or requests furnished the affiant. Affiant further states that (s)he has made no payment directly or indirectly to any elected official, officer, or employee of the State of Oklahoma, any county or local subdivision of the state, of money or any other thing of value to obtain or procure the contract or purchase order.

(Signature of contractor, supplier, engineer, or architect)

Subscribed and sworn to me before this _____ day of _____, 20____

Notary Public

My Commission Expires: _____

NON-ASBESTOS AFFIDAVIT

STATE OF OKLAHOMA _____)

SS)

COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by bidder to submit the attached bid. Affiant further states that the bidder has not included as a part of the bid and will not include in the finished construction, nor will said bidder allow any subcontractor or workman to include in the finished construction, any material which contains asbestos in any form in the amount equal to or in excess of the one percent (1%) by weight or volume.

Subscribed and sworn to me before this _____ day of _____, 20_____

Notary Public

My commission Expires:

NON-SEX OFFENDER AFFIDAVIT

The undersigned, _____ represents that he/she is the owner or an officer of _____, who has the authority to make this declaration to Moore Public Schools, as required by Section 6-101.48 of Title 70 of the Oklahoma Statutes.

I declare that no employee on school premises during normal working hours under the authority of the above-named company or business has been convicted in the State, the United States, or another state of any se offense subject to the sex Offenders Registration Act or is subject to other states or the federal sex offender registration provisions.

I further declare that no employee working on school premises during normal working hours under the authority f the above-named company or business has been convicted of a felony offense within the past ten (10) years in this State the United States, or another state.

I further understand that Title 57, Oklahoma Statutes, Section 589 provides as follows, to wit:
It is unlawful for any person registered pursuant to the Sex Offenders Registration Act to work with or provide services to children or to work on school premises, or for any person or business who offers or provides services to children or contracts for work to be performed on school premises to knowingly and willfully allow any employee to work with children or to work on school premises who is registered pursuant to the Sex Offenders Registration Act. Upon conviction for any violation of the provisions of the subsection, the violator shall be guilty of a misdemeanor punishable by a fine not to exceed One Thousand Dollars (\$1,000.00). In addition, the violator may be liable for civil damages.

Dated this _____ day of _____, 20_____

Vendor / Contractor’s Name and Address

Authorized Signer

Subscribed and sworn to me before this _____ day of _____, 20_____

Notary Public

My Commission Expires:

Business Relations Affidavit

State of _____

)ss.

County of _____

_____, of lawful age, being first duly sworn on oath that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect of which existed within one (1) year prior to the date of this statement which the architect, engineer, or other part of the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any official or director of the architectural or engineering firm or any other party to the project is as follows:

Affiant further states that the names of all persons who have any such business relationship and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships hereinabove mentioned exists, affiant should so state)

Name: _____

Title: _____

Subscribed and sworn before me this _____ day of _____, 20____

Notary Public

My Commission Expires: _____

DOCUMENT 400
GENERAL BID PACKAGE ITEMS

Each Bid Package shall include, but is not necessarily limited to the following General Bid Package Items:

Section 1-
General

- A. Subcontractor acknowledges that they have performed an onsite investigation, if desired, of the site conditions and acknowledges that all activities must be performed in close coordination with other Subcontractors. The Subcontractor shall be responsible for all means and methods for performing the work according to the contract documents, site conditions, and all applicable codes.
- B. Subcontractor shall comply with all provisions of the OMNI Construction contract, insurance, safety, and EEOC requirements.
- C. In addition to the Conditions of Specification, drawings, submittals, and Closeout Submittals the Subcontractor shall provide the following:
 - o Each Submittal shall be submitted under separate coversheet indicating the specific Specification Section to which it pertains.
 - o Subcontractor shall submit three (3) hard copies and one (1) digital copy of each submittal.
 - o Subcontractor shall submit two (2) hard copies and one (1) digital copy of Close-out Documents.
 - a. Subcontractor shall be responsible for timely submission of all submittals, including but not limited to: shop drawings, samples, product data sheets MSDS information, and all other submittals required by the contract documents.
 - b. Miscellaneous – This contract will be provided by OMNI Construction. All warranties and guarantees are to be transferred to Owner at the completion of this project.
 - c. Subcontractor shall sequence work as directed by OMNI without exception.
 - d. All correspondence for this project shall be directed to the designated Project Manager – OMNI Construction.
 - e. Coordination – Subcontractor shall have a designated Project Superintendent who will regularly attend construction meetings as required involving this project. The Superintendent/representative attending the meeting shall have the authority and ability to make binding commitments regarding the timing of the performance of Subcontractor’s work. Subcontractor, Field Project Manager or Superintendent may not be changed without mutual agreement with OMNI Construction. Subcontractor shall attend all schedule related meetings to coordinate access to work areas with the other Subcontractors, OMNI Construction and Owner work forces that are on site.
 - f. Subcontractor shall engage a qualified surveyor to establish exact points to act as working points as needed. Subcontractor shall include the cost to resurvey as needed to establish final dimensions and protect and maintain working points and survey control points from disturbance caused during construction. Construction Manager will provide two (2) Benchmarks to establish the layout.

- g. Subcontractor shall include all layout and field dimensions associated with this work.
- h. Subcontractor shall coordinate delivery of materials. Subcontractor shall provide equipment and personnel necessary to unload, stack, and store onsite. Subcontractor shall inventory all delivered items and inspect for damage or missing items. Any damaged or missing items shall be noted on the Bill of Lading. Subcontractor shall notify suppliers and arrange for replacement items to be shipped. Subcontractor shall file all damage claims with insurance carriers. Placement of staged items shall be coordinated with OMNI Construction.
- i. Subcontractor shall be responsible for any damage caused by the Subcontractor to any adjoining areas that remain.
- j. Subcontractor shall pay for all repairs to other Subcontractor's work damaged by contractor's personnel, suppliers, or subcontractors during construction.
- k. Subcontractor shall be responsible for daily clean-up to include but not limited to: Removal and/or proper storage of tools, equipment, and materials as required by the Construction Manager, disposal of scrap and waste material, and the sweeping of any dust and dirt generated by construction activities, including general foot traffic of the subcontractor. All debris will be removed from the working area and deposited in the dumpster or proper location by the subcontractor, as directed by the Construction Manager.
- l. Subcontractor is responsible for the proper back fill and testing of work put in place by the subcontractor in accordance with specification section 02200 Earthwork.
- m. Subcontractor is responsible for fire caulking and sealing of all penetrations, with an equal fire rating to that of the wall being penetrated by the subcontractor's work.

Section 2- **Project Schedule**

Project Sequence: Bidders will be required to adhere to the project schedule, which will be provided by OMNI Construction. Work will be performed as required to meet the overall completion date.

- A. The Subcontractor agrees that it will provide adequate manpower to complete the Subcontractor's Work in accordance with the time established by the Schedule during regular working hours. The Schedule is based on a 40-hour work week. The Work Week is Monday – Friday, from 7:00 a.m. – 4:00 p.m. It shall be the Subcontractor's responsibility to meet the Schedule. Any cost associated with additional manpower and or overtime hours required to meet the schedule are the responsibility of the Subcontractor. In addition, the Subcontractor will be liable to the Construction Manager in connection with any overtime required to meet the schedule due to Subcontractor's inability to meet the schedule during regular hours, including but not limited to, additional supervision and a reasonable markup for overhead and profit.
- B. Off hour and or Overtime may be required to complete select activities as may be directed by the Construction Manager and or Owner to meet the need of the school. These activities will be scheduled in advance.

- C. It shall be the responsibility of Subcontractor to provide in writing the following information on a weekly basis, in order to update the Master Project Schedule:
- Detailed Schedule including activities, anticipate durations and man loading
 - Subcontractor's daily report shall be submitted to OMNI Project Superintendent
 - Planned crew size and man-hours by week
 - Actual crew size and man-hours expended by week
 - Planned units by week
 - Actual units installed by week
- D. Subcontractor shall provide an estimated man-loading curve for the duration of the project. This curve will be used as a guide for man loading throughout project. Subcontractor shall coordinate with OMNI Construction to refine the schedule for manpower loading and timely completion of the project. This responsibility will be ongoing as updates are required.

Section 3-
Safety

- 3.1 Subcontractor shall implement a safety program meeting or exceed the requirements set forth by OSHA.
- 3.2 High visibility clothing and proper PPE will be required 100% of the time for the duration of this project.

DOCUMENT 500
BID PACKAGE 1-16

BID PACKAGE 1: DEMO/SITWORK (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 02050	Demolition	As applicable to Site Prep and Concrete
Section 02100	Site Preparation	Complete
Section 02200	Earthwork	As applicable to Concrete
Section 02910	Temporary Erosion Control	Complete
Section 02920	Landscape Grading	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the DEMO/SITWORK BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials, and equipment necessary to complete demo/sitework.
2. Testing to be paid for by others, but to be coordinated by contractor.
3. Include all dewatering required to perform this scope of work.
4. Provide construction entrance as set forth in specifications.
5. All miscellaneous equipment and material required for the proper completion of this scope of work.
6. Subcontractor is to ensure that all elevated work areas are made ready to protect all areas below and have OSHA approved fall protection for work to proceed.

BID PACKAGE 2: CONCRETE

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 02500	Paving and Surfacing	Complete
Section 03300	Cast-In-Place Concrete	Complete
Section 06100	Rough Carpentry	As applicable to concrete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the CONCRETE BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish and install all concrete complete.
2. Furnish and install all rebar, dowels, and accessories associated with concrete. Furnish and maintain all rebar caps on dowels until next trade begins tie in. **(Rebar associated with Masonry will be provided and installed in Masonry Bid package.)**
3. Furnish and install all required formwork.
4. Excavate and fill as required for all concrete work.
5. Furnish all sand & gravel base required for concrete work.
6. Include all necessary layout and surveying from a provided benchmark for concrete work.
7. Include all termite treatments.
8. Testing to be paid for by others but coordinated by contractor.
9. Include all concrete related weather and temperature protection.
10. Include all dewatering required to perform this scope of work.
11. Include concrete repairs including but not limited to patching, rubbing, grinding, fill, sandblast, and caulk as indicated on the drawings and specifications.
12. Furnish and install board insulation under slab and at foundation perimeter per plans and specifications.

13. All miscellaneous equipment and material required for the proper completion of this scope of work.
14. Subcontractor is to ensure that all elevated pours are made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
15. Furnish and install sidewalks/paving as detailed.
16. Clean work area daily.

BID PACKAGE 3: MASONRY

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 04810	Unit Masonry Assemblies	Complete
Section 05500	Metal Fabrications	As Applicable to Masonry

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the MASONRY BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the follow items:

1. Furnish and install all necessary materials to complete masonry work, inclusive of rebar related to masonry scope of work.
2. Provide all necessary equipment and materials required for completion of this scope of work.
3. Subcontractor to ensure that all elevated work areas are made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Install all loose steel lintels over openings.
5. Clean work area daily.

BID PACKAGE 4: METALS (MATERIAL ONLY)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 05120	Structural Steel	Material Complete
Section 05310	Steel Decking	Material Complete
Section 05500	Metal Fabrications	As per plans and applicable

This bid package shall include all material, equipment, services, insurances, and incidentals for the METAL (MATERIAL ONLY) BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Supply all structural steel framing, joist, and steel decking.
2. Supply all anchors for embedding into concrete.
3. Supply all anchors for embedding into masonry.
4. Supply all bridging and seats.
5. Supply all bearings and angles.
6. Supply all lintels.
7. Supply all required fasteners to include but not limited to bolts, nuts, lag bolts, machine screws, plain washers, drilled-in expansion bolts, toggle bolts, epoxy, anchors, screens, and concrete inserts as indicated in the documents.
8. Include delivery of all material associated with this bid package. Delivery must be coordinated with the Construction Manager and steel erector.
9. Supply all seismic bracing steel.

BID PACKAGE 5: WOOD & PLASTIC (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 06200	Finish Carpentry	As applicable to custom casework/millwork
Section 06300	Wood Treatment	As applicable to custom casework/millwork

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the WOODS & PLASTICS BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish and install all necessary materials to complete carpentry work.
2. Provide all necessary equipment and materials required for the proper completion of this scope of work.
3. Subcontractor to ensure that all elevated work areas are made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Clean your work area daily.

BID PACKAGE 6: THERMAL & MOISTURE PROTECTION (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 07150	Damp proofing	Complete
Section 07600	Flashing & Sheet Metal	Complete except as to concrete, roofing and interior finish
Section 07900	Sealants	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the THERMAL & MOISTURE PROTECTION BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish and install all necessary materials to complete the waterproofing/insulation/firestopping work.
2. Provide all necessary equipment and materials required for completion of this scope of work.
3. Subcontractor to ensure that all elevated work areas are made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Clean your work area daily.

BID PACKAGE 7: DOORS/HARDWARE (MATERIAL ONLY) (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 06100	Rough Carpentry	As applicable to this bid package
Section 06200	Finish Carpentry	As applicable to this bid package
Section 06300	Wood Treatment	As applicable to this bid package
Section 08100	Metal Doors and Frames	As applicable to this bid package
Section 08700	Finish Hardware	As applicable to this bid package

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the DOORS/HARDWARE BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish all wood and metal doors, frames and hardware per plans and specifications installation by others.

BID PACKAGE 8: FINISHES (CEILING SYSTEM) (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 05400	Cold Formed Metal Framing	Complete
Section 06100	Rough Carpentry	As applicable to this bid package
Section 06200	Finish Carpentry	As applicable to this bid package
Section 06300	Wood Treatment	As applicable to this bid package
Section 07200	Insulation	As applicable to this bid package
Section 09120	Ceiling Suspension Systems	Complete
Section 09250	Gypsum Wallboard	Complete
Section 09500	Acoustical Treatment	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the FINISHES (CEILING SYSTEM) BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials, and equipment necessary to complete the ceiling system/finish framing/sheetrock.
2. All miscellaneous equipment and material required for the proper completion of this scope of work.
3. Subcontractor is to ensure that all elevated work is made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Clean your work area daily.

BID PACKAGE 9: SPECIALTIES (ACCESSORIES) (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 10100	Chalkboards and Tackboards	Complete
Section 10520	Fire Protection Specialties	Complete
Section 10800	Toilet and Bath Accessories	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the SPECIALTIES (ACCESSORIES) BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish all materials necessary for installation of accessories per the plans and specifications, installation to be provided by others.

BID PACKAGE 10: FLOORING (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 09300	Tile	Complete
Section 09650	Resilient Tile Flooring	Complete
Section 09681	Carpet Tile	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the FLOORING BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials, and equipment necessary to complete flooring.
2. All miscellaneous equipment and material required for the proper completion of this scope of work.
3. Clean your work area daily.

BID PACKAGE 11: PAINTING

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 09900	Painting	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the PAINTING BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials, and equipment necessary to complete painting.
2. Provide all miscellaneous equipment and material required for the proper completion of this scope of work.
3. Subcontractor is to ensure that all elevated work is made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Clean your work area daily.

BID PACKAGE 12: FIRE SUPPRESSION (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 210500	Common Work Results for Fire Suppression	Complete
Section 210553	Identification for Fire Suppression Piping and Equipment	Complete
Section 211300	Fire Suppression Sprinklers	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the FIRE SUPPRESSION BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials and equipment necessary to complete fire suppression.
2. All miscellaneous equipment and material required for the proper completion of this scope of work.
3. Subcontractor is to ensure that all elevated work is made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
4. Clean your work area daily.

BID PACKAGE 13: MECHANICAL (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification		
Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 230500	Common Work Results for HVAC	Complete
Section 230513	Common Motor Requirements for HVAC Equipment	Complete
Section 230548	Vibration and Seismic Controls for HVAC Piping and Equipment	Complete
Section 230593	Testing, Adjusting, & Balancing for HVAC	Complete
Section 230700	HVAC Insulation	Complete
Section 233100	HVAC Ducts and Casings	Complete
Section 233300	Air Duct Accessories	Complete
Section 233713	Diffusers, Registers, and Grilles	Complete
Section 235400	Gas Fired Furnaces	Complete
Section 236213	Packaged Air-Cooled Refrigerant Compressor and Condensing Units	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the MECHANICAL BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Furnish labor, materials and equipment necessary to complete mechanical.
2. Testing to be coordinated by mechanical contractor.
3. All miscellaneous equipment and material required for the proper completion of this scope of work.
4. Coring, patching and caulking of penetrations required for this scope of work.
5. Subcontractor is to ensure that all elevated work is made ready to protect all areas below and have OSHA approved fall protection for work to proceed.
6. Clean your work area daily

BID PACKAGE 14: PLUMBING (Not Used)

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 220500	Common Work Results for Plumbing	Complete
Section 220516	Exp. Fittings & Loops for Plumbing Piping	Complete
Section 220519	Meters and Gages for Plumbing Piping	Complete
Section 220548	Vib. Controls for Plumbing Piping and Equipment	Complete
Section 220553	Identification for Plumbing Piping & Equipment	Complete
Section 220719	Plumbing Piping Insulation	Complete
Section 221005	Plumbing Piping	Complete
Section 221006	Plumbing Piping Specialties	Complete
Section 223000	Plumbing Equipment	Complete
Section 224000	Plumbing Fixtures	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the PLUMBING BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the follow items:

1. Provide all material labor, and equipment required for proper installation of complete plumbing system.
2. All piping, fittings, valves, cleanouts, fixtures, and accessories as required for complete and proper installation of plumbing.
3. Any sleeves and penetrations required in walls, floors, roof, etc. for this work including fire/smoke sealing inside and outside of sleeves and patching/fire caulking of the penetrations.
4. All supports, hangers and in-wall blocking required for this work.
5. All identification as called for and/or required per code.
6. Coring, patching and caulking of penetrations required for this scope of work.
7. Caulking of all fixtures.
8. Furnishing and installing all plumbing equipment.
9. Provide all necessary sleeving and or block-outs at CMU required for the proper installation of all plumbing systems included in this contract agreement. Contractor will provide adequate layout and coordination with the Masonry Contractor to ensure proper installation of the work.
10. All permits, fees and inspections as required.

11. All cutting and patching as required for the work of this proposal.
12. Subcontractor is responsible for backfilling and compactions per section 00202.
13. All testing to be paid for by others and coordinated by subcontractor associated with backfilling and compaction.
14. Subcontractor is responsible for removal of excess spoils from site.
15. Subcontractor to coordinate with utilities subcontractor to tie into utilities.
16. Subcontractor shall furnish and install steel, lockable, and primed access panels in any location required to allow for proper access to the plumbing system. Access panels shall be large enough to accommodate easy access for repairs, maintenance, and inspection.
17. All penetrations through CMU walls must have block-outs. Core drilling will not be allowed.
18. Clean your work area daily.

BID PACKAGE 15: ELECTRICAL/CABLING/IT

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification

Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Plan Sheet T000-T501	Technology	Complete
Plan Sheet E000-E101	Electrical	Complete

This bid package shall include all labor, material, equipment, services, insurances, and incidentals for the ELECTRICAL/CABLING/IT BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the Bid Manual and shall also include, but not be limited to the following items:

1. Furnish and install the complete building and site electrical systems as specified.
2. Furnish, install, and coordinate all permanent fire alarm and communication systems.
3. Provide, coordinate, and maintain all temporary building/jobsite trailer and site electrical power and lighting services, including temporary construction facilities.
4. Subcontractor is responsible for coordinating all systems with the Fire Sprinkler, Mechanical, and Plumbing Contractors.
5. All associated inspections, permits, and required fees.
6. Subcontractor is responsible for all layout associated with this bid package.
7. Furnish and install all sleeves for associated electrical work.
8. Subcontractor is responsible for any and all wiring to others equipment.
9. Subcontractor is responsible for all fire-stopping where this scope of work creates penetrations.
10. Furnish and install all conduit and boxes for specification divisions 26000 through 28000.
11. Furnish and install all conduit and boxes for all mechanical controls systems.
12. Subcontractor shall furnish and install steel, lockable, and primed access panels in any location required to allow for proper access to the electrical system. Access panels shall be large enough to accommodate easy access for repairs, maintenance, and inspection.
13. All penetrations through CMU walls must have block-outs. Core drilling will not be allowed.

14. Subcontractor is responsible for coordinating all systems with the Fire Sprinkler, Mechanical, and Plumbing Contractors.
15. All associated inspections, permits, and required fees.
16. Subcontractor is responsible for all layout associated with this bid package.
17. Furnish and install all sleeves for associated electrical work.
18. Subcontractor is responsible for any and all wiring to others equipment.
19. Subcontractor is responsible for all fire-stopping where this scope of work creates penetrations.
20. Furnish and install all conduit and boxes for specification divisions 26000 through 28000.
21. Furnish and install all conduit and boxes for all mechanical controls systems.
22. Subcontractor shall furnish and install steel, lockable, and primed access panels in any location required to allow for proper access to the electrical system. Access panels shall be large enough to accommodate easy access for repairs, maintenance, and inspection.
23. All penetrations through CMU walls must have block-outs. Core drilling will not be allowed.
24. Clean your work area daily.

BID PACKAGE 16: FENCES AND GATES

Project: Santa Fe Elementary Security Upgrades
Location: 12801 S. Santa Fe, Oklahoma City, OK 73170

Specification

Section	Description	
Division 0	Bidding & Contract Documents	Complete
Division 1	General Requirements	Complete
Section 323119	Fences and Gates	Complete

This bid package shall include all labor, materials, equipment, services, insurances, and incidentals for the SPECIALTIES (ACCESSORIES) BID PACKAGE, including work from referenced specifications and other work normally associated with this trade.

The scope of work shall include all General Bid Package Items as listed in section 400 of Division 0 of the bid manual and shall also include, but not be limited to the following items:

1. Provide all material, labor, and equipment required for proper installation of complete fence system.
2. Clean your work area daily.

**MOORE PUBLIC SCHOOLS
SANTA FE ELEMENTARY SCHOOL
SECURITY UPGRADES**

**INDEPENDENT DISTRICT NO. 2
CLEVELAND COUNTY, MOORE, OKLAHOMA**

**12801 SOUTH SANTA FE
OKLAHOMA CITY, OKLAHOMA 73160**

PROJECT MANUAL
FEBRUARY 2024 / REVISED MARCH 5, 2024

AGP | the Abla Griffin
Partnership



PROJECT MANUAL
FEBRUARY 2024 / REVISED MARCH 5, 2024

**MOORE PUBLIC SCHOOLS
SANTA FE ELEMENTARY SCHOOL
SECURITY UPGRADES**

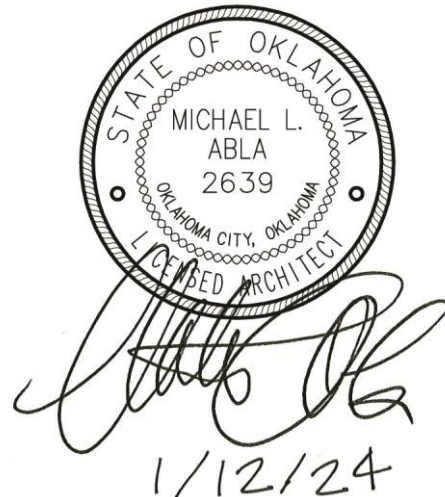
**INDEPENDENT DISTRICT NO. 2
CLEVELAND COUNTY, MOORE, OKLAHOMA**

**12081 SOUTH SANTA FE
OKLAHOMA CITY, OKLAHOMA 73160**

ARCHITECT:

AGP | the Abla Griffin
Partnership

the Abla Griffin Partnership LLC
201 North Broadway, Suite 210
Moore, Oklahoma 73160
t: 405.735.3477
AGP@theAGP.net



1/12/24

TABLE OF CONTENTS

Title Page	1 page
Table of Contents	2 pages
BIDDING REQUIREMENTS	
Special Conditions	7 pages
DIVISION 1 - GENERAL REQUIREMENTS	
01010 Summary of the Work	01010-1 - 4
Job Sign Drawing	1 page
DIVISION 2 - SITE WORK	
02050 Demolition	02050-1 - 3
02100 Site Preparation	02100-1 - 2
02200 Earthwork	02200-1 - 5
02500 Paving and Surfacing	02500-1 - 3
02900 Turf Establishment	02900-1 - 4
02910 Temporary Erosion Control	02910-1 - 6
02920 Landscape Grading	02920-1 - 1
DIVISION 3 - CONCRETE	
03300 Cast-In-Place Concrete	03300-1 - 22
DIVISION 4 - MASONRY	
04810 Unit Masonry Assemblies	04810-1 - 11
DIVISION 5 - METALS	
05120 Structural Steel	05120-1 - 14
05310 Steel Decking	05310-1 - 3
05400 Cold Formed Metal Framing	05400-1 - 10
05500 Metal Fabrications	05500-1 - 9
DIVISION 6 - WOOD & PLASTIC	
06100 Rough Carpentry	06100-1 - 4
06300 Wood Treatment	06300-1
DIVISION 7 - THERMAL & MOISTURE PROTECTION	
07150 Dampproofing	07150-1 - 2
07600 Flashing and Sheet Metal	07600-1 - 3
07900 Sealants	07900-1 - 6
DIVISION 8 - DOORS & WINDOWS	
08100 Metal Doors and Frames	08100-1 - 9
08700 Finish Hardware	08700-1 - 5
08950 Insulated Translucent Panel System	08950-1 - 7

TABLE OF CONTENTS

DIVISION 9 - FINISHES

09900 Painting

09900-1 - 4

DIVISION 10 - SPECIALTIES

NOT USED

DIVISION 11 - EQUIPMENT

NOT USED

DIVISION 12 - FURNISHINGS

NOT USED

DIVISION 13 - SPECIAL CONSTRUCTION

NOT USED

DIVISION 14 - CONVEYING SYSTEMS

NOT USED

DIVISION 21 THRU 28 - MECHANICAL AND ELECTRICAL

REFER TO MECHANICAL AND ELECTRICAL INDEXES

DIVISION 32 - EXTERIOR IMPROVEMENTS

323119 Fences and Gates

323119-1 - 6

SPECIAL CONDITIONS

TIME FOR COMPLETION AND LIQUIDATED DAMAGES:

- A. Upon execution of the contract agreement between the Owner and the Contractor, it shall become an obligation of the contractor to complete all work to be performed under this agreement for the Construction of the Santa Fe Elementary School Campus Security Upgrades to be located at 12801 S. Santa Fe, Moore, OK - **within 240 Calendar Days.**
- B. Penalty for noncompliance by the above date shall be cessation of all further periodical payments until the work is completed, and can be fully used for the purpose intended.

PAYMENTS:

- A. The Owner's payment schedule indicating the payment dates established by Moore Public Schools shall be provided to the contractor to establish a monthly payment schedule.
- B. **Certificates of payment shall be submitted to the Architect on or before 7 days prior to Owner's cut-off date.**
- C. Until the Work is 50 percent complete, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments. At the time the Work is 50 percent complete and thereafter, if the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in absence of other good and sufficient reasons, he shall on presentation by the Contractor of Consent of Surety for each application, authorize any **remaining** partial payments to be paid at 100% of amount due. The retainage held to that point shall be retained until the project is completed.

The full contract retainage may be reinstated if the manner of the completion of the Work and its progress do not remain satisfactory to the Architect, (or if the Surety withholds his consent), or for other good and sufficient reasons.

INSURANCE AND BONDS:

- A. Insurance provided shall be with a company or companies licensed to do business in the state of Oklahoma.
- B. Policies shall be provided in the following types and amounts:
 - 1. a. Workmen's Compensation-Statutory

- b. Employer's Liability-\$500,000 each accident.
- 2. Comprehensive General Liability:
 - a. Bodily Injury - \$1,000,000 each occurrence.
 - b. Personal Injury - \$1,000,000
 - c. Property Damage - \$1,000,000 each occurrence
- 3. Automobile Liability:
 - a. Bodily Injury - \$500,000 each person/\$1,000.000 each occurrence
 - b. Such Comprehensive Automobile Liability Insurance shall include all owned and non-owned hired motor vehicles.
- 4. Owners Protective Liability - Same limits as above.
- 5. Products and Completed Operations - Same limits as above.
- 6. Contractual Liability - Same limits as above.
- C. Furnish one copy of Certificates herein required for each copy of the Agreement; specifically set forth evidence of all coverage required by Subparagraphs 11.1 and 11.2. Furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits.
- D. **The Contractor shall provide property insurance in the amount of the initial contract sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. This insurance coverage shall be the "all-risk" form for completed value.**

TEMPORARY SERVICES:

- A. Sanitary Facilities: The Contractor shall provide and maintain necessary sanitary conveniences for the use of those employed on/or about the work. The sanitary facilities shall be properly secluded from public observation and shall be such locations as shall be approved by the Owner, and their use shall be strictly enforced.

SHOP DRAWINGS and SUBMITTALS:

- A. Unless otherwise specified, the shop drawings and product data shall be submitted **electronically**. Physical samples of materials shall

be submitted to the Architect as required.

- B. Contractor is responsible for obtaining and distributing required prints of shop drawings to his subcontractors and material suppliers after as well as before final approval.
- C. Shop drawings and samples shall be dated and marked to show the names of the Project, Architect, Contractor, originating Sub-Contractor, manufacturer or supplier, and separate detailer if pertinent. Shop drawings shall completely identify Specifications section and locations at which materials or equipment are to be installed. Reproduction of Contract Drawings are acceptable as Shop Drawings only when specifically authorized in writing by the Architect.
- D. If materials or specified items other than those specified in these Contract Documents are supplied - and approved by the Architect - it shall be the Contractor's responsibility to provide ALL additional materials, accessories, substrates, utility connection, etc. for a complete and operational installation at NO additional cost to the Owner.

CHANGES IN THE WORK:

- A. Cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits under collective bargaining agreements; workmen's compensation insurance; bond premiums; and rental value of power tools and equipment. Overhead shall include the following; supervision, superintendence, wages of time keepers, watchmen and clerks, hand tools, incidentals, general office expense, and all other expenses not included in "cost".
- B. Change Order markups shall be limited to 10% overhead and 10% profit. No other markups shall be allowed.

AS BUILT DRAWINGS:

- A. Provide and maintain in proper order and in good, clean condition in the field office at the project site, one complete full-size set of all working drawings. On this set of drawing prints, in red ink, neatly and accurately inscribe any and all changes in the work.
- B. Upon completion of work, the Contractor shall furnish one set of "as built" drawings. These drawings shall be contract drawings

corrected in **red ink** to show any differences between contract drawings and actual construction. All changes made during construction shall be noted. Each drawing showing changes in dimensions, details, or containing supplemental information shall be plainly marked "**As Built**" and shall contain the signature of both the Architect and the Contractor.

CLOSEOUT SUBMITTALS:

Prepare project data in the form of an instructional manual supplied electronically on media as requested by Owner (CD, DVD, flash drive, memory stick, etc.). The following information shall be included and arranged under a Table of Contents:

1. Directory listing names, addresses, and telephone numbers of the Architect/Engineer(s), General Contractor, Subcontractors, and major material/equipment suppliers.
2. Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers. Include equipment, parts list for each, operating instructions, maintenance instructions for equipment, special finishes, etc.
3. Project documents and certificates, including shop drawings and product data, air and water balance reports, photocopies of warranties.
4. Record As-Built Drawings as described above.
5. Completed Non-Asbestos Affidavit.

DEBRIS DISPOSAL:

Waste disposal shall be the responsibility of the Contractor. The Contractor shall make arrangements with the local authorities having jurisdiction for accommodation of all waste disposal. If local facilities are not available the contractor shall be responsible for all other arrangements for waste disposal.

SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS:

In the following sections where the term "General Conditions" is used, it shall include the "Supplementary Conditions" and/or "Special Conditions" bound in this project manual.

MISCELLANEOUS PROVISIONS:

A. TESTS AND INSPECTIONS

Add the following clarification: **Regardless of how it is described elsewhere in the drawings and specifications, the contractor shall engage all testing laboratories / subcontractors as approved by the Architect; and, pay for ALL testing as required by the drawings and**

specifications. The Contractor shall pay for any additional testing due to defective work. The Owner shall pay for any additional testing requested and found to be non-defective.

B. EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated fairly during employment without regard to their race, religion, color, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment advertising; layoff or termination; rates of pay or any other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

C. COOPERATION WITH BUILDING OFFICIALS

Cooperate with applicable Federal, State, City or other governmental officials and inspectors at all times. If such officials or inspectors deems special inspection necessary, provide assistance and facilities that will expedite his inspection.

D. MEASUREMENTS

Before doing any work or ordering any materials, the Contractor shall verify all measurements of existing and new work, and shall be responsible for their correctness.

Any differences which may be found shall be submitted to the Architect for consideration before proceeding with the work. No extra compensation will be allowed because of differences between actual dimensions and measurements indicated on the working drawings.

E. MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS

Install all manufactured items of materials or equipment in strict accordance with manufacturer's recommended specifications, except that the specifications herein, where more stringent, shall be complied with.

At the completion of the project and prior to final acceptance by the Owner, provide the Owner with three complete sets of operating and maintenance instructions, and demonstrate to him the procedures for proper operation and maintenance of all equipment.

F. JOB MAINTENANCE

During the course of their work, all crafts and trades shall protect all work which preceded theirs from damage, and they shall make repairs or replacements to any damage caused either directly or indirectly by them.

G. COMPLIANCE WITH STATE AND FEDERAL LAWS

Contractor assumes full responsibility for the payment of all contributions and payroll taxes (state and federal) as to all subcontractors and employees engaged in the performance of work pursuant hereto and further agrees to check and meet all requirements that might be specified under regulations of the administrative officials or board charged with the enforcement of any state or federal act on the subject referred to. Contractor agrees to furnish Owner, upon request, a certificate or other evidence of compliance therewith.

H. OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA)

The Contractor shall comply with the latest edition and revision of The Federal Occupational Safety and Health Act of 1970 for construction.

I. GUARANTY BONDS

1. Prior to the Owner signing the contract agreement, he will require the Contractor to furnish performance and payment bonds covering the faithful performance of the entire construction contract agreement. The performance bond and the payment bond shall each be made out in one hundred percent (100%) of the contract sum and shall be in a company or companies against which the Owner has no reasonable objection.
2. Bonds shall be signed by an official of the bonding company, and shall be accompanied by the bonding agent's written power-of-attorney in order that one copy may be attached to each copy of the contract agreement.
3. The Contractor shall include in his proposal amount the total premiums for all required bonds.
4. The Contractor does hereby warrant and/or guarantee against defects in all workmanship and materials performed or furnished by him directly or by his subcontractors for a period of one (1) year from the date of completion, as evidenced by the date of the Final Certificate or final acceptance of the project. Said warranty and/or

guarantee shall be in the form of a good and sufficient bond in a sum equal to one hundred percent (100%) of the contract price.

End of Special Conditions

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010-SUMMARY OF THE WORK

Part 1 - General

1.01 Work Included:

- A. The General Conditions, Bidding Requirements, and Division I are hereby made a part of each of the technical sections that follow, and shall be understood to apply and shall apply in full to all individuals or corporations who contract or subcontract to perform any part or all of the project work.
- B. Indications on the working drawings or in any section of the specifications of an article or material, operation, or method, requires that the Contractor shall provide each item or service or quality or is subject to qualifications noted; and, the Contractor shall perform each operation prescribed according to the conditions stated providing, therefore, all necessary labor, equipment and incidentals to complete the project work.
- C. The project:
 - 1. Name: Santa Fe Elementary School Security Upgrades
- Moore Public Schools.
 - 2. Location: 12081 South Santa Fe - Oklahoma City, Oklahoma.

1.02 Summary of Work:

- A. **Base Bid:** Provide and pay for all materials, labor, services, equipment, licenses, taxes, permits, and other items necessary for the complete construction of the new security upgrades including walls, fencing, and associated doors/gate; plus, new sidewalks, and site utilities where applicable. Contractor shall maintain all barriers, guards and other environmental items required at the site during construction.
- B. Owner: Moore Public Schools
 - 1. Owner's Representative:
Jeff Horn, Assistant Superintendent, Operations
Moore Public Schools
1500 SE 4th Street
Moore, OK 73160
405-735-4221
- C. Design Team:
 - 1. Architect:
Mike Abla, Principal Architect
AGP
201 N. Broadway, Suite 210
Moore, OK 73160
405-735-3477
 - 2. Structural Engineer:
Brandon Birch, Structural Engineer
KFC Engineering, Inc.
525 Central Park Drive, Suite 202
Oklahoma City, OK 73105
405-528-4596

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010-SUMMARY OF THE WORK

3. Mechanical, Electrical and Plumbing Engineers:
Dwayne Gordon, Mechanical Engineer
Salas O'Brien LLC
2600 Van Buren St., Suite 2604
Norman, OK 73072
405-364-9926
- D. Construction Management Team:
 1. Construction Manager's Representative:
Joe Sherga, Project Manager
Omni Construction LLC
1909 South Eastern
Moore, OK 73160
405-735-3992
- 1.04 Work to be Provided and Installed By Others: not applicable.
- 1.05 Use of the Site:
 - A. Confine operations at the site to the areas permitted under the contract. Portions of the site beyond areas on which work is indicated are not to be disturbed.
 - B. Keep facility free from accumulation of waste material, rubbish or construction debris.
- 1.06 Safety of Persons and property:
 - A. Contractor shall at all times protect the building from damage from rainwater.
 - B. Contractor shall provide barricades and clearly mark work zone areas.
 - C. Refer to Special Conditions "Temporary Services" for additional information.
 - D. During the period of construction, the OSHA Standards shall be followed as applicable by law.
 - E. The Contractor shall post emergency telephone numbers.
- 1.07 Preconstruction Conference:
 - A. A preconstruction meeting will be held at a time and place designated by the Architect or Owner's Representative, for the purpose of identifying responsibilities of the Owner's and the Architect's personnel and explanation of administrative procedures.
 - B. The Contractor shall use this meeting for the following minimum agenda:
 1. Construction Schedule/Project Phasing.
 2. Use of areas of the site.
 3. Delivery and storage.
 4. Safety.
 5. Security.
 6. Cleaning up.
 7. Subcontractor procedures relating to:
 - a. Submittals.
 - b. Change orders.
 - c. Applications for payment.
 - d. Record documents.
 - C. The attendees shall include:
 1. The Owner's Representatives.
 2. The Architect.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010-SUMMARY OF THE WORK

3. The Contractor and its superintendent.
- 1.08 Project Scheduling:
 - A. The Contractor is responsible for the scheduling of construction and must prepare a schedule and charting system described below. This schedule is to ensure adequate planning and execution of the work by the contractor and to assist the Architect in appraising the schedule and evaluating the progress of the work.
 - B. The project schedule shall be presented within ten (10) days after receipt of the Notice to Proceed. Three (3) copies of the schedule shall be submitted to the Architect for review and approval.
 - C. The schedule logic must be in the form of a "fenced" bar chart or Critical Path Method network indicating the planned start and completion dates of the activity, logical constraints between activities, and total float of each activity.
 - D. An updated project schedule shall be provided when requested by the Architect.
 - 1.09 Environmental Controls:
 - A. Water Resources:
 1. Oily substances: prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water.
 2. Mosquito abatement: prevent ponding of stagnant water conducive to mosquito breeding habitat.
 - B. Land Resources:
 1. Erodible soils: plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas in reasonably sized increments only as needed to use the areas developed. Immediately protect side slopes and back slopes upon completion of rough grading.
 - C. Air resources:
 1. Prevent creation of dust, air pollution, and odors.
 2. Use water sprinkling, temporary enclosures, and other appropriate methods to limit dust and dirt rising and scattering in air to locate practical level.
 3. Store volatile liquids, including fuels and solvents, in closed containers.
 4. Properly maintain equipment to reduce gaseous pollutant emissions.
 - D. Comply with all applicable environmental control guidelines as required by the City of Oklahoma City.
 - 1.10 Temporary Utilities:
 - A. The Contractor shall provide and pay for all temporary utilities required for the complete construction of the project including, but not limited to, electricity, lighting, heating, cooling, ventilating, telephone, water, sanitary facilities, exterior and interior enclosures, access roads and parking areas, cleaning and waste removal, project identification and signs, etc.
 - 1.11 Cleaning:
 - A. Use cleaning materials and agents recommended by manufacturer

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010-SUMMARY OF THE WORK

or fabricator of surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.

- B. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer=s published instructions.
- C. Complete cleaning operations prior to requesting a Final / Substantial Completion Inspection.

1.12 Project Sign:

- A. Provide and install painted plywood project sign on wooden posts securely erected at the project site in a location approved by the Owner.
- B. No other project signs or advertisement shall be allowed at the project site unless approved by the Owner.
- C. Graphics and form of letter of the project sign shall be as indicated in the attached detail.

End of Section

8'-0"

YOUR BOND FUNDS AT WORK



SANTA FE ELEMENTARY SCHOOL SECURITY UPGRADES

ARCHITECT:

AGP - ABLA GRIFFIN PARTNERSHIP L.L.C.
MOORE, OKLAHOMA

CONTRACTOR:

OMNI CONSTRUCTION, L.L.C.
MOORE, OKLAHOMA

4'-0"

NOTES:

1. WHITE LETTERS ON DARK BLUE BACKGROUND
2. 3/4" EXTERIOR PLYWOOD - PAINTED ALL SIDES
3. MOUNT ON 4" X 4" WOOD POST
4. CONTRACTOR TO HAVE LAYOUT APPROVED PRIOR TO INSTALLATION

DIVISION 2 - SITE WORK

SECTION 02050 - DEMOLITION

Part 1 - General

1.01 Work Included:

- A. The General Conditions and applicable sections of Division 1 shall apply to this entire section.
- B. All materials, labor, services and incidentals necessary for the completion of this section of the work.
- C. Complete demolition of the existing paving and curbs; complete demolition of the existing curbs as necessary to construct new entry driveways; removal of existing trees; and all site materials as shown on the Drawings.
- D. Removal of all materials, debris and rubbish from site. Refer to Part 3 for ownership of materials.

1.02 Submittals:

- A. Scheduling of Alteration and Demolition Work:
 1. Before commencing any alteration removal or demolition work the contractor shall prepare and submit for approval by the Architect, a schedule showing the commencement, the order, and the completion dates of the various parts of this work.
 2. Before starting any work relating to existing utilities (electrical, heat, gas, etc.) that will temporarily discontinue or disrupt services to any existing building, the Contractor shall be required to give notice to the Architect and obtain his approval in writing before proceeding with this phase of work.

Part 2 - Materials (not applicable)

Part 3 - Execution

3.01 General Requirements:

- A. Permits, Licenses, Ordinances and Regulations:

All work shall comply with local and other governing ordinance, codes and regulations, but this requirement does not relieve the Contractor of responsibility of complying with these specifications. Complying with requirements of state, county or local laws, ordinances and regulations regarding demolition work is the responsibility of the Contractor, who shall pay any and all fees, and give any notices necessary in connection therewith.

3.02 Demolition of Work To Be Modified:

- A. Alterations and demolition shall be as indicated on the Drawings and in accordance with applicable technical sections of the specifications. The Contractor shall do all necessary demolition or removal of existing work as required in connection with this project, including shoring, bracing, etc. and removal of unwanted material and debris from the site. Demolish existing items only as necessary to tie on new construction as detailed. This work shall be done in a most careful manner, as the Contractor will be held responsible for any damage which

DIVISION 2 - SITE WORK

SECTION 02050 - DEMOLITION

- may be caused thereby to any part or parts of existing streets, neighboring buildings, and grounds.
- B. When alterations occur, or new and old work join, the immediate adjacent surfaces or so much thereof as required by the involved conditions, shall be cut, removed, patched, repaired or refinished and left in as good a condition as existed prior to the commencing of the work, and matching the remainder of the existing paving, etc.
 - C. Conduit and piping found underground on the site, or other areas involved in demolition or alteration shall be removed, re-rerouted or protected as required by the Drawings. Where these items are found; but not covered in the drawings, the Contractor shall notify the Architect for disposition instructions.
 - D. Maintain existing utility services to remain and protect from damage during demolition operations.
 - E. The Contractor shall furnish and install adequate guards, barricades and other temporary protection to prevent injury to persons.
 - F. The Contractor shall make every effort to control the amount of dust and the noise level generated by demolition operations.
- 3.03 Ownership and Disposition of Materials:
- A. Classification of removed materials (re: Drawings for applicable items):
 - 1. **Reinstalled:** Items are those items which, after removal, are to be used, reinserted, remounted or otherwise built back into the work under this contract.
 - 2. **Salvaged:** Items are those items which, after removal, are to be retained by the Owner and delivered for storage on the Owner=s premises.
 - 3. **Scrapped:** Items are all other removed materials or equipment. This includes all items which are not noted or specified for reinstallation or salvage.
 - B. Disposition by Classification:
 - 1. **Reinstalled:** Items of material or equipment shown on the work shall be jointly inspected by the Contractor and the Architect prior to dismantling or removal. An agreement shall be reached briefly setting forth the apparent condition of the material or equipment and approved by the Architect. Simple operating test of operative equipment will be included with this joint inspection if feasible. Such items shall be reinstalled as specified in the applicable sections of the specifications covering new items of similar categories.
 - 2. **Salvaged:** Materials and equipment noted on the Drawings or listed to be salvaged shall be carefully handled and protected and shall be delivered to storage areas, as designated by the Architect, on the Owner=s premises.
 - 3. **Scrapped:** All removed materials and equipment not noted on the drawings specified to be reinstalled, shall be considered as scrap and shall be disposed of by the

DIVISION 2 - SITE WORK

SECTION 02050 - DEMOLITION

Contractor off the Owner's premises and credit for the value thereof, if any, shall have been reflected in the Contractor's bid price.

3.04 Clean-Up:

- A. Disposition of all material, debris and rubbish shall be the responsibility of the Contractor. Leave site clean. Completely remove all materials, debris, and rubbish from site. Absolutely no burning of debris on the site will be allowed.
- B. **The Contractor shall submit proposed refuse dumping sites to the Architect and shall receive written approval from the Architect concerning acceptable dumping sites prior to the disposition of any material, debris or rubbish generated by this project.**

End of Section

DIVISION 2 - SITE WORK

SECTION 02100 - SITE PREPARATION

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services, and incidentals necessary for the completion of this section of the work.
- B. Erection and maintenance of a temporary construction fence, as noted on the Drawings, shall be provided by the Contractor.

1.02 Protection of Trees and Shrubs:

- A. All existing trees and shrubs in or near the construction area that are not indicated to be removed shall be protected. Should damage occur, the Contractor shall replace the tree or shrub with a similar size and species.
- B. Periodically water as required to limit dust and dirt during construction.
- C. Protect any adjacent property and improvements from damage, and replace any portions damaged through this operation.

Part 2 - Products

2.01 Materials:

- A. Temporary Fencing: **Refer to Section 02110.**

Part 3 - Execution

3.01 Clearing and Grubbing:

- A. Limits of clearing shall be all areas within contract limit lines.
- B. Remove all organic or undesirable materials from areas where concrete is to be placed.
- C. Within building lines and exterior concrete slabs remove roots, debris, rubbish, etc., and cut roots of adjacent trees and shrubs to remain, not less than 12" from concrete work.
- D. From building lines and exterior concrete walks and slabs out to the limits of earth cut and fill, remove all exposed stumps and roots, brush, rubbish, etc.
- E. Remove completely all existing trees designated on Drawings.
- F. Remove top soil to depth of organic matter and stockpile on site for use in grading.

3.02 Removal of Improvements:

- A. Remove all above-grade and below-grade improvements indicated on the Drawings or as necessary for the installation of new work.

DIVISION 2 - SITE WORK

SECTION 02100 - SITE PREPARATION

3.03 Disposal of Debris:

- A. Burning of combustible materials on the site will not be permitted. Completely remove from site and legally dispose of all materials and debris.

End of Section

DIVISION 2 - SITE WORK

SECTION 02200 - EARTHWORK

Part 1 - General

- 1.01 Work Included:
- A. All materials, labor, services and incidentals necessary for the completion of this section of the work.
- 1.02 Related Work Specified Elsewhere:
- A. Site Preparation - Section 02100
 - B. Paving and Surfacing - Section 02500
 - C. Cast-In-Place Concrete - Section 03300
- 1.03 Quality Assurance:
- A. Standards:
 - 1. American Society for Testing and Materials
 - a. ASTM D-1556, Density of soil in place
 - B. **Testing: All required tests, and their fees, shall be the responsibility of the Contractor. The Contractor shall engage and pay for the services of an independent testing laboratory approved by the Architect.**
 - 1. Qualified according to ASTM E-329 and ASTM D-3740 for testing.
 - C. Comply with 29 CFR 1926, Subpart P - Excavations (OSHA Regulations).
- 1.04 Submittals:
- A. Product data for each type of manufactured products required.
 - B. Qualification data for testing agency.
 - C. Material Test Reports for each borrow soil material proposed for engineered fill and backfill as follows:
 - 1. Classification according to ASTM D-2487.
 - 2. Laboratory compaction curve according to ASTM D-698.
- 1.05 Project Conditions:
- A. Traffic: minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and Authority Having Jurisdiction. Provide alternate routes around obstructions as required by authorities.

Part 2 - Products

- 2.01 Materials:
- A. Backfill Material: Approved low volume change material. If additional material required, it shall be low plasticity cohesive material (plasticity index between 5 and 15 and a maximum liquid limit of 40 percent). The moisture content of the low volume change soil should be adjusted to its optimum value, or above, before compaction. The suitability of materials, including off-site soils, shall be approved by the Geotechnical Engineer hired by the Contractor. Frozen material shall not be acceptable for backfilling.
 - B. Top Soil: Material shall be native, fertile, neutral top soil of loamy character, free from heavy clay, coarse sand, stones,

DIVISION 2 - SITE WORK

SECTION 02200 - EARTHWORK

- lumps, plants, roots, or other foreign matter.
- C. Gravel: Course gravel - 100% passing a 2" screen, 90% retained on a 1/4" screen.
- D. Aggregate Base Course: Aggregate base - meet ASTM D448 size 57, 100 percent passing the 12" sieve, less than 5 percent passing the #8 sieve, plasticity index less than or equal to 6.
- E. Hydrated Lime: meet requirements of ASTM C977.

Part 3 - Execution

3.01 Excavations:

- A. General:
 - 1. Excavations shall be made to the elevations and dimensions shown on Drawings.
 - 2. If excavations are made deeper than called for on plans, no backfilling is permitted. Any additional depth or size shall be made up by additional concrete at no increase in contract price.
 - 3. Foundations shall be plumb, bottoms level and of type indicated on Drawings with allowance for erection of any required forms or shoring, and inspection of footings, etc.
 - 4. Shore and brace excavations where necessary to prevent cave-ins, and in accordance with all safety laws and codes, including all OSHA requirements.
 - 5. If an excavation must remain empty through a shutdown period, cover hole with suitable protection materials and clean out immediately prior to placing concrete.
 - 6. Keep excavations free of water by use of pumps.
 - 7. Keep area around excavations and concrete work clean for a distance of 3 feet all directions until concrete is placed and has set.
- B. Footings:
 - 1. Footing bottoms shall be level, clean, clear of loose and objectionable material, and true to size.
 - 2. Concrete for footings shall be poured as soon as possible after excavation has been completed. Excavations shall be protected until concrete has been poured.
- C. Exterior and Pavement Sections:
 - 1. Excavate to underside of walks, curb, gutter, and miscellaneous items.
 - 2. Excavation shall be away from sides of grade beams and retaining walls below grade to a sufficient distance for erecting and removing forms with assured safety for workmen.
 - 3. Bottoms of excavated areas shall be level and kept clean of loose and objectionable materials at all times.
- D. All excavations for concrete footings, foundations or slabs shall be kept dry at all times and shall be completely dry at the time of any concrete pour. The Geotechnical Engineer,

DIVISION 2 - SITE WORK

SECTION 02200 - EARTHWORK

hired by the Contractor, shall make final approval of all excavations prior to the start of any concrete placement.

3.02 Classification of Excavation:

- A. All excavation shall be unclassified and the term "unclassified excavation" shall be understood to mean all and any materials encountered during excavation - including old floors, pavement, foundations, rock, earth, piping and debris. No adjustment in the contract price will be made on account of the presence or absence of rock, hard or soft sandstone, shale, masonry, or other materials.

3.03 Unknown Utilities:

A. Unknown Utilities:

1. If any unknown and uncharted utilities are encountered during excavation, promptly notify the Architect and wait for his instructions before proceeding.
2. If it is ascertained by the Architect that such utility line has been abandoned, the Contractor shall properly cap the line at depth of 12" or more below finish grade.
3. If such unknown utilities are encountered and work is continued without contacting the Architect for instruction, and damage is caused to said utilities, the Contractor shall repair, at his own expense, such damage to the satisfaction of the utility company concerned.

B. Unknown Obstacles:

1. If any unknown obstacles such as house or small building foundations or such as residential size basements, cisterns, etc., are encountered, the Contractor at his own expense shall remove the foundations, fill basements or cisterns or perform any work necessary to complete the work of this contract.
2. Should the Contractor encounter any unforeseen major obstacle in excavation, such as an abandoned water-well, subsurface streams, or "cave-ins" etc., which prove to be unduly expensive to overcome, it is the intention to cause a survey to be made to determine a course of action that will relieve the Contractor of undue expense.

3.04 Fill and Backfill:

A. Preparation for Concrete slab item on Fill:

1. Site preparation shall include removing existing vegetation, and any other unsuitable materials encountered. Refer to Soils Report concerning additional preparation procedures. After removal of vegetation and topsoil, etc., undercut the entire building area a minimum of two feet (2.0 feet) below the design finish subgrade elevation to allow placement of at least 24 inches of low volume change fill. The undercut area shall extend beyond the building footprint a minimum of 1 foot laterally for each foot of fill required (2'-0"). After performing the required undercut, proofroll existing site with a loaded, tandem-axle dump truck weighing at least 25 tons. Proofrolling shall involve overlapping passes in mutually

DIVISION 2 - SITE WORK

SECTION 02200 - EARTHWORK

perpendicular directions. After proofrolling, unstable soil should be overexcavated and replaced with a low volume change soil. Scarify existing soil at base of fill to a minimum depth of 8"; moisture content of scarified soil shall be adjusted to a minimum of 2% above the material's optimum content, as determined by the standard Proctor method ASTM D-698, and be compacted to at least 95 percent of its maximum dry density.

2. Provide fill material to bring site to required grade. Refer to 2.01A.
 3. **Compaction:** Compact fill in lifts not exceeding 9" in loose thickness. Compact soil according to table below. Tests shall be required and paid for by the Contractor. Any additional moisture required to achieve compaction in a layer should be added and the entire lift mixed to obtain the uniform moisture content.
 4. Compaction shall not be attempted using water settling.
 5. **Care shall be taken to maintain the minimum recommended moisture content in the subgrade until floor slabs are constructed. Positive drainage shall also be developed away from building to prevent water from ponding along the perimeter and affecting future floor slab performance.**
- B. Preparation for Paving items on fill:
1. Before compaction, the top 8" of the stabilized soil zone shall be modified with a minimum of 7% hydrated lime. The lime shall be thoroughly blended into the subgrade and allowed to cure for 48 to 72 hours before being remixed and compacted. Before compaction, the treated soil zone shall be adjusted to within 2 percentage points of optimum moisture as determined by the standard Proctor method (ASTM D-698); then compacted to at least 98 percent of the material's maximum standard Proctor dry density.
- C. Backfill at Walls (including footing and foundation walls):
1. Fill material shall be approved backfill material except as noted on Drawings.
 2. Backfill around footing and foundation walls must be compacted.
- 3.05 Exterior Fill and Grading:
- A. Fill:
1. Subgrade fill as shown on plot plan, placed in 4" to 8" layers, to within 6" of finish. Compact according to table below.
 2. Top 6" of graded surface shall be approved top soil.
- B. Lines and Grades:
1. Work shall conform to lines and grades shown on the Drawings. Ruts holes and depressions shall be filled with approved material.
 2. The slopes between contours or between spot elevations shall be smooth, uniform slopes and the surface shall be finished to a tolerance of 2" in 10' under a straight edge.

DIVISION 2 - SITE WORK

SECTION 02200 - EARTHWORK

3.06 Compaction (fills less than 8'-0" thick):

Soil Compaction Criteria

Minimum Compaction (%) per ASTM D698

Use	Exposed in-situ subgrade soil	Fill	Base Course
Beneath foundation components	95	95	95
Beneath pavements, curbs and sidewalks (Stabilized on-site soil)	98	98	95
Aggregate base (at slab) Aggregate base (at pavements)			98
Beneath exterior slabs and utility trench backfill (stabilized on-site soil)	95	95	95
Miscellaneous backfill		95	

3.08 Testing:

- A. Make at least one density test of subgrade for every 2500 square feet of paved area or building slab, but in no case less than 4 tests.
- B. In each compacted fill layer, make one density test for every 2500 square feet of overlaying building slab or paved area, but in no case less than 4 tests.

3.09 Trenching and Backfilling of Utilities:

- A. The Contractor shall do all excavation and backfilling necessary for the installation of all utilities, including shoring, bailing, and pumping required to maintain the excavations in a safe and dry condition.
- B. All excavations shall be backfilled in 4" to 8" layers and thoroughly compacted one layer at a time with a mechanical tamper. Backfill material under areas where walks, drives, slab, parking areas, etc., are to be constructed shall be fill sand (free of all dirt). Backfill material in other areas shall be excavated material. Where excavation is not to be built over, replace the top 12" with existing top soil. Remove superfluous materials from job site.

End of Section

DIVISION 2 - SITE WORK

SECTION 02500 - PAVING AND SURFACING

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services, and incidentals necessary to complete all Paving Work as shown on the Drawings, and specified herein.

1.02 Related Work Specified Elsewhere:

- A. Site Preparation - Section 02100
- B. Earthwork for Buildings - Section 02200
- C. Cast-In-Place Concrete - Section 03300

1.03 Quality Assurance:

- A. Standards:
 - 1. American Society for Testing and Materials (ASTM).
 - 2. American Association of State Highway and Transportation Officials (AASHTO).
 - 3. Oklahoma Department of Transportation (ODOT) Standard Specifications for Highway Construction.
- B. **Testing: All required tests, and their fees, shall be the responsibility of the Contractor. The Contractor shall engage and pay for the services of an independent testing laboratory approved by the Architect.**

1.04 Paving Quality Requirements:

- A. General: In addition to other specified conditions, comply with the following minimum requirements:
 - 1. Test concrete as required under Section 03300 - Cast-In-Place Concrete.
 - 2. Test subgrade preparation as required under Section 02200 - Earthwork for Buildings.
- B. Provide final surfaces of uniform texture, conforming to required grades and cross-sections. Finished surface tolerance - 1/2" in 10'-0" under a straightedge.
- C. Thickness: In-place compacted thickness shall not be acceptable if not meeting the minimum thickness indicated on the Drawings.

1.05 Coordination:

- A. Coordinate work and cooperate with any other trades whose work relates to paving in any way.

1.06 Personnel:

- A. All work shall be directed by trained and experienced applicators, thoroughly adept at the procedures and equipment required by this section.

1.07 Weather Limitations:

- A. Do not install paving when the subgrade is frozen or show any evidence of excessive moisture.
- B. Do not install paving when the air temperature is less than 40 degrees Fahrenheit nor when temperature of the surface on

DIVISION 2 - SITE WORK

SECTION 02500 - PAVING AND SURFACING

which mixture is to be placed is below 40 degrees Farenheit unless directed otherwise by Architect.

Part 2 - Products

2.01 Material Applications:

A. Subgrade Preparation:

1. Description: Refer to Section 02200 - Earthwork, Part 3, 3.01 and 3.04.

B. Concrete Walks:

1. Description: A 4,000 p.s.i. reinforced concrete slab on a sand base. Provide expansion and saw cuts as shown on the Drawings.

2.02 Expansion Control:

A. Construction Joint Form: Tongue and groove keyway, premolded asphaltic or wood form, designed to provide 1 1/2" keyway.

B. Joint Filler: Resilient, non-extruding bituminous-impregnated fiberboard expansion joint material by thickness shown on the Drawings, ASTM D-1751.

C. Joint Sealers: Hot applied, non-tracking asphalt-rubber compound, ASTM D-1190.

D. Anchorage Inserts: Malleable cast iron adjustable wedge, or threaded, type with 3/4" bolt size unless indicated otherwise on the Drawings.

E. Embedded Items: Provide materials as sized and/or indicated on the Drawings, or as required.

Part 3 - Execution

3.01 General:

- ###### A. Make careful inspection of excavated surface on which paving is to be placed and check on bottom and top grades of paving throughout the area to be paved, prior to starting work under this section. Notify the Contractor of any unsatisfactory conditions. Do not begin paving work until such conditions have been corrected and area is ready to receive paving.

3.02 Workmanship:

A. Backfill shall be placed behind the sidewalks in a manner that will not cause displacement of the section nor damage to the exposed edges. All damaged sidewalks shall be replaced at the direction of the Architect at the Contractor=s expense.

B. Adjoining Paving: where new work adjoins existing, warp carefully to flush surface, with seal over joint.

C. Construction Joints: As noted on the Drawings or as directed by the Architect:

1. At joints, thoroughly clean surfaces and remove all

DIVISION 2 - SITE WORK

SECTION 02500 - PAVING AND SURFACING

- laitance.
- 2. In addition, vertical surfaces shall be thoroughly wetted and coated with cement grout before placing new concrete.
- D. Expansion Joints: As noted on the Drawings, or as directed by the Architect:
 - 1. Provide 1/2" expansion joints where sidewalks join structural concrete.
 - 2. Hold filler material down 1/2", fill top with sealant.
- E. Control Joints: Provide scored lines and weak plane joints on exterior and interior concrete slabs as indicated on the Drawings, and as approved by the Architect. Fill with sealant.
- F. Finishes:
 - 1. Concrete Walks:
 - a. Provide trowel and medium broom finish. Refer to drawings.
 - b. Broom after concrete is hard enough to retain scoring, using a stiff fiber, or wire, broom. Broom perpendicular to direction of traffic.
- G. Repair any damage to finished pavement surfaces that may result from subsequent construction to a smooth, true, and uniform surface.
- H. Clean-up: After completion of paving operations, remove all excess materials, equipment and debris (dispose of away from the site). Leave all work in clean condition.
- I. Protection:
 - 1. Provide barricades and warning devices as required to protect pavement and the general public.
 - 2. Cover any openings of structures in area of paving until permanent coverings are installed.
 - 3. Prohibit all traffic on paving until it has reached atmospheric temperature.

End of Section

DIVISION 2 - SITE WORK

SECTION 02900 - TURF ESTABLISHMENT

Part 1 - GENERAL

1.01 Summary:

- A. This section generally describes the work, equipment, and materials required to furnish and landscape the site. The Contractor shall provide all necessary labor, equipment and materials to construct and complete site work landscaping. All work shall be completed in conformance with the recommendations of plant material suppliers.
- B. As a minimum, the Contractor must be able to provide the following materials and services:
 - 1. Supply and grade of fill material
 - 2. Environmentally approved control/elimination of weeds/grasses.

1.02 References:

- A. Drawings and general provisions of the Project Manual and Contract, including General and Supplementary Conditions and Division I Specification sections, apply to Work of this Section.

1.03 Submittals:

- A. Architect approval is required. The following shall be provided:
 - 1. Pesticide and Herbicide Treatment Plan, giving proposed sequence of pesticide and herbicide treatment work, before work is started. The pesticide and herbicide trade name, chemical composition, formulation, concentration, application rate of active ingredients and methods of application for all materials furnished, and the name and state license number of the state certified applicator shall be included.
 - 2. Certificates of compliance certifying that materials meet the requirements specified, prior to the delivery of materials. Reports for the following materials shall be included:
 - a. Fertilizer: For chemical analysis and composition percent.
 - b. Pesticide and Herbicide Material: For EPA registration number and registered uses.

1.04 Quality Assurance:

- A. All plant materials shall be guaranteed for one (1) year, following Architect's acceptance of the project.
- B. The Contractor shall maintain the project by weeding, watering, and other tasks as required, through final acceptance of the project by the Owner. Weeds, trimmings, etc. shall be removed from the site on the day work is performed and the area cleaned. Contractor shall immediately replace any and all defective

DIVISION 2 - SITE WORK

SECTION 02900 - TURF ESTABLISHMENT

components or dead or dying plant materials.

- C. The Architect shall inspect all planting materials upon delivery to the site and reserves the right to reject any or all materials which do not conform to the intent of this specification.

1.05 Delivery, Storage and Handling:

- A. Pesticide and herbicide materials shall be delivered to the site in the original unopened containers bearing legible labels indicating the Environmental Protection Agency (EPA) registration numbers and the registered uses.
- B. Sod not installed on the day of arrival at the site shall be stored and protected in areas designated by the Architect. Sod shall be protected from exposure to wind and shall be shaded from the sun. Covering that will allow air to circulate and prevent internal heat from building up shall be provided. All sod shall be kept in a moist condition by watering with a fine mist spray until planted.
- C. Soil amendments shall be stored in dry locations away from contaminants. Pesticide and herbicide materials shall not be stored with other landscape materials. Storage of materials shall be in areas designated or as approved by the Architect.
- D. Care shall be taken to avoid injury to sod. Materials shall not be dropped from vehicles.

Part 2 - Products

2.01 Materials:

- A. Plants:
 - 1. Turf grass shall be Bermuda sod. Sod shall be freshly cut (no more than 5 days). Water all areas to receive sod 1/4" less than 24 hours prior to installation of new sod. Sod all disturbed and exposed soil within the project limits as indicated on the Drawings.
 - 2. Substitutions will not be permitted without written request from the Contractor for approval by the Architect.
 - 3. Sod shall be grown under climatic conditions similar to those in the locality of the project.

2.02 Topsoil:

- A. Acceptable topsoil includes selectively excavated material that is representative of soils in the vicinity that produces growth of grass typical of the project area. Topsoil should be reasonably free from underlying subsoil, clay lumps, objectionable weeds, litter, brush, matted roots, toxic substances or any material that might be harmful to plant growth or be a hindrance to grading, planting, or maintenance operations. Topsoil shall not contain more than five percent

DIVISION 2 - SITE WORK

SECTION 02900 - TURF ESTABLISHMENT

by volume of stones, stumps or other objects larger than 3/4 inch in any dimension.

2.03 Fertilizer:

- A. The commercial grade of fertilizer shall be suitable for the locations and season approved by the Architect. The P-N-K content shall be determined on the basis of soil conditions and the plants involved.
- B. Prepackaged fertilizer delivered to the site shall be packaged in new, sealed, clean containers which bear a label fully describing the contents, the chemical analysis of each nutrient, the fertilizer grade, the net bulk, and the brand name and address of the manufacturer. Bulk fertilizer delivered to the site shall be accompanied with certification describing the contents, the chemical analysis of each nutrient, the fertilizer grade, the net bulk, and the brand name and address of the manufacturer. No fertilizer which becomes caked or otherwise damaged will be accepted.

2.04 Water:

- A. Water shall not contain elements toxic to plant life.
- B. The Contractor is responsible for ensuring that new lawns are adequately watered at all times.
- C. During prolonged periods of drought, watering guidelines established by local water district shall apply.

Part 3 - Execution

3.01 Examination:

- A. The Architect shall verify the finished grades are as indicated on drawings, and the placing of topsoil and smooth grading has been completed.
- B. The location of underground utilities and facilities shall be verified. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

3.02 Site Preparation:

- A. Prior to placing topsoil, the ground surface shall be cleared of all brush, snags, and rubbish.
- B. Previously constructed grades shall be repaired if necessary so that areas to be topsoiled conform to the final grades upon completion of topsoil placement.
- C. The topsoil shall be uniformly distributed on the designated areas and evenly spread to a minimum thickness of 6 inches. The spreading shall be performed in such a manner that planting can proceed with little additional soil preparation or tillage. The surface resulting from topsoiling shall meet the finish surface requirements as specified. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry,

DIVISION 2 - SITE WORK

SECTION 02900 - TURF ESTABLISHMENT

or in a condition otherwise detrimental to proper grading or the proposed planting.

- D. All topsoiled areas covered by the project shall be uniformly smooth graded. The finished surface shall be reasonably smooth and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations. The finished surface shall be free of depressed areas where water would pond.

3.03 Application of Pesticide Material:

- A. When pesticide becomes necessary to remove a disease or pest, a state-certified applicator shall apply required pesticide in accordance with State EPA label restrictions and recommendations. Hydraulic equipment shall be provided for the liquid application of pesticides with a leak-proof tank, positive agitation methods, controlled application pressure and metering gauges. A pesticide treatment plan shall be provided to the Architect as specified in paragraph SUBMITTALS.

3.04 Restoration and Clean Up:

- A. Planting areas, pavements and facilities that have been damaged from the planting operation shall be restored to original condition at the Contractor's expense.
- B. Excess and waste material from the planting operation shall be removed and disposed of off the site. Adjacent paved areas shall be cleared.

End of Section

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

Part 1 - General

- 1.01 Work Included: The work under this section of the Specifications shall include all temporary erosion control measures including, but not necessarily limited to, rapid stabilization, rock entrance, silt fence, bale checks, bio rolls, and interim mulch as may be necessary to control soil erosion and sedimentation. The work shall include furnishing all materials, labor and equipment required for the construction and maintenance of erosion and sediment control devices as shown on the Drawings or as directed by the Architect. The work shall also include all inspections and reports as required by the storm water discharge permit for construction activities.
- 1.02 Reference Specifications:
- A. The erosion prevention requirements of the City of Moore shall be considered as a part of this Specification.
 - B. All testing required by the Jurisdiction Having Authority shall be performed by the independent testing laboratory retained by the Contractor. The costs of said testing shall be borne by the Contractor.
- 1.03 Stormwater Pollution Prevention - General Permit: if a Permit is required by the local Jurisdiction Having Authority, it shall be obtained from said authority and all fees and/or costs shall be paid by the Contractor.
- A. The Contractor will furnish a copy of the completed application package and General Permit to the Architect.
 - B. The back and side lot ditches shall be sodded immediately after they have been graded and top soil spread.

Part 2 - Products

- 2.01 Erosion Control Blankets: Erosion control blankets shall conform to applicable requirements.
- 2.02 Silt Fence: refer to the Drawings.
- A. The geotextile fabric shall be free of flaws such as tears or other defects. Any geotextile fabric which becomes damaged shall be replaced. The geotextile fabric shall meet or exceed the following requirements:

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

- | | |
|--|---------------------|
| 1. Grab Strength (ASTM D 4632) | 100 lbs. |
| 2. Apparent Opening Size (ASTM D 4751) | 20 - 70 sieve range |
| 3. Width | 36 inches |

Part 3 - Execution

3.01 General:

- A. Temporary erosion control measures such as erosion control blankets, bio rolls, rock entrance, and silt fences shall be coordinated with the site work and turf establishment. No site work will be permitted until ALL necessary temporary erosion control measures are completed and in place in order to prevent excessive soil erosion and subsequent siltation from entering wetlands, streams or storm sewers. The construction of erosion control measures shall not relieve the Contractor of the responsibility for preventing or minimizing the potential for erosion or siltation. The Contractor shall be responsible for all damages and clean up and the costs therefore, resulting from erosion of the soils and any siltation which may occur, regardless of the temporary erosion control measures taken.
- B. The alignment and location of erosion control measures shall be as show on the Drawings or as directed by the Architect. Minimum measures are shown on the Drawings. The Contractor shall incorporate further measures into the work as the Contractor's progress may dictate. Inspections of the temporary erosion control measures and reports thereof, shall be made by the Contractor in accordance with the storm water discharge permit for construction activities.
- C. Structural practices:
 - 1. Perimeter Ditches - Perimeter ditches will be installed to collect runoff from the disturbed area and direct runoff to the sedimentation basin.
- D. Rapid stabilization shall be used in the following areas as well as the areas shown on the Plans.
 - 1. Disturbed areas around culvert inlets and streams.
 - 2. Ditches draining from the construction sites.
 - 3. Disturbed slopes near storm drain inlets.

3.02 Timing of Controls/Measures: Any ditches and stabilized construction entrances shall be constructed prior to grading of any other portions of the site. Areas where construction

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent sod turf.

3.03 Removal of Temporary Erosion Control: Temporary erosion control devices shall remain in place until the permanent measures (turf establishment) have become established as determined by the Architect. All areas disturbed by the removal of temporary erosion control measures shall receive the same turf establishment as the areas adjacent thereto.

3.04 Installation Requirements:

- A. Bio Rolls shall be installed as required to reduce erosion.
- B. Silt Fence shall be constructed on 2 x 2 wood posts that are spaced no more than 6 feet and embedded no less than 2.0 feet. The geotextile fabric shall be secured to the upstream face of the posts. The geotextile fabric shall be embedded in an anchor trench along the upstream side of the silt fence. The anchor trench shall be 12 inches deep by 12 inches wide and shall extend the full length of the silt fence. The geotextile fabric shall line both sides and the bottom of the anchor trench. The anchor trench shall be backfilled with the excavated material, which shall be firmly compacted into place.
- C. Rate of slurry application shall be variable depending on surface roughness, slope configuration and degree of undulation but it is expected that 6 M gallons per acre. This rate is equivalent to applying Type 6 Hydraulic Soil Stabilizer at 2100 pounds per acre. Amount of material applied shall be such to obtain 100% soil surface coverage. In inaccessible areas, the mix may be pumped through a hose. To obtain coverage, two (2) passes may be necessary. In inaccessible areas, the mix may be pumped through a hose.

3.05 Maintenance:

- A. It shall be the Contractor's responsibility to maintain all erosion control measures and to inspect same after each rainfall event. All displaced bio rolls shall be replaced and silt fences shall be repaired where sagging or otherwise damaged. The Contractor shall review the temporary erosion control measures and make revisions as necessary in order to minimize damage due to future rainfalls. All costs of temporary erosion control shall be considered incidental and the responsibility of the Contractor.
- B. The rock entrances may need occasional maintenance to prevent the tracking of mud onto paved roads. This may

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

require periodic top-dressing with additional rock or removal and reinstallation of the entrances. The cost of maintenance of rock entrances shall be the responsibility of the Contractor.

3.06 Waste Disposal:

A. Waste Materials: All waste materials will be disposed of as described in the "Construction Storm Water Pollution Prevention Plan".

3.07 Offset Vehicle Tracking: One (1) stabilized construction entrances shall be constructed to help reduce vehicle tracking of sediments. The paved parking lot adjacent to the site entrance shall be swept as needed to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site shall be covered with a tarp.

3.08 Maintenance/Inspection Procedures:

A. Erosion and Sediment Control Inspection and Maintenance Practices:

1. All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
2. All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.
3. Build up sediment will be removed from silt fence when it has reached one-third the height of the fence.
4. Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
5. Ditches will be inspected and any erosion promptly repaired.

B. Non-Storm Water Discharges: All non-storm water discharges will be directed to a location selected by the Contractor and approved by the Architect. It is expected that the following non-storm water discharges will occur from the site during the construction period:

1. Water from water line flushing.
2. Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
3. Uncontaminated groundwater (from dewatering excavation).

3.09 Spill Prevention:

A. Material Management Practices.

The following good housekeeping practices shall be followed onsite during the construction project.

1. Good Housekeeping:

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

The following good housekeeping practices shall be followed onsite during the construction project:

- a. An effort shall be made to store only enough product required to do the job.
 - b. All materials stored onsite shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
 - c. Products shall be kept in their original containers with the original manufacture's label.
 - d. Substances shall not be mixed with one another unless recommended by the manufacturer.
 - e. Whenever possible, all of a product shall be used up before disposing of the container.
 - f. Manufacturers' recommendations for proper use and disposal shall be followed.
 - g. The site superintendent shall inspect daily to ensure proper use and disposal of materials onsite.
2. Hazardous Products: These practices are used to reduce the risks associated with hazardous materials.
- a. Products shall be kept in original containers unless they are not re-sealable.
 - b. Original labels and material safety data shall be retained; they contain important product information.
 - c. If surplus product must be disposed of, manufacturer's, or Local and State recommended methods for proper disposal shall be followed.
- B. Product Specific Practices: The following project specific practices shall be followed onsite:
1. Petroleum Products:
All onsite vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the change of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite shall be applied according to the manufacturer's recommendations.
 2. Fertilizers:
Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to storm water. Storage shall be in a covered shed. The contents of any partially used

DIVISION 2 - SITE WORK

SECTION 02910 - TEMPORARY EROSION CONTROL

bags of fertilizer shall be transferred to a sealable plastic bin to avoid spills.

3. Paints:

All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the storm sewer system but shall be properly disposed of according to manufactures' instructions or State and Local regulations.

4. Concrete Trucks:

Concrete trucks shall not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

C. Spill Control Practices:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices shall be followed for spill prevention and cleanup:

1. Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
2. Materials and equipment necessary for spill cleanup shall be kept in the material storage area onsite. Equipment and materials shall include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
3. All spills shall be cleaned up immediately after discovery.
4. The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
5. Spills of toxic or hazardous material shall be reported to the appropriate State or Local government agency, regardless of the size.
6. The spill prevention plan shall be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures shall also be included.

End of Section

DIVISION 2 - SITE WORK

SECTION 02920 - LANDSCAPE GRADING

Part 1 -General

1.01 Summary:

- A. This section describes the labor, materials and installation requirements necessary to complete the fine grading, incidental grading, and related items as indicated or specified.

1.02 Site Conditions:

- A. Protect landscaping and other features remaining as final work.
- B. Protect any existing structures, roads, sidewalks, paving and curbs, or other features pertinent to the site in this project.

Part 2 - Products NOT USED

Part 3 - Execution

3.01 Examination:

- A. The areas to be graded will be free of waste or debris developed by other trades.
- B. Contractor shall field verify all dimensions and/or layout prior to starting work.

3.02 Preparation:

- A. Prepare site by applying Round Up, or approved equal, as per label directions to weed growth on site.
 - 1. Scarify planting areas to a minimum depth of six (6) inches and thoroughly water to settle all soil.

3.03 Grading:

- A. Contractor shall grade all planting areas, swales or other areas as noted on drawings.
 - 1. Contractor shall provide incidental grading of all areas adjacent to curbs and sidewalks. Provide a finish grade one (1") inch below curbs or sidewalks.
 - 2. Contractor shall fine grade turf areas, eliminating rough or low areas to ensure positive drainage.
 - 3. Any other areas not covered specifically above shall be graded to leave a generally smooth appearance conforming to standard landscape practices defined as: The final surface shall be raked; all objectionable materials, trash, brush, weeds, and stones larger than one inch shall be removed from the site and disposed of properly off base.
 - 4. When sod is being installed, the appropriate sub-grade shall be graded prior to the installation of such materials. See applicable specifications, in any, for additional requirements.

End of Section

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

Part 1 - General

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Grade beams.
 - 2. Slabs-on-grade.
- B. Related Sections include the following:
 - 1. Division 2 Section "Portland Cement Concrete Paving" for concrete pavement and walks.
 - 2. Division 2 Section "Drilled Piers" for drilled pier installation.
 - 3. Division 7 Section "Vapor Barriers" for under slab construction.

1.03 Definitions

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

1.04 Submittals

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Samples: For waterstops, vapor retarder
- E. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- F. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - G. Field quality-control test and inspection reports.
- 1.05 Quality Assurance
- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
 - B. 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."
 - C. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
 - D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
 - E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."
 - F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5 and Section 7, "Lightweight Concrete."
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- 1.06 Delivery, Storage, And Handling
- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
 - B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

Part 2 - PRODUCTS

2.01 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. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, with options as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- E. 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.
- F. 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.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

2.02 Prefabricated Void Forms

- A. Function: Used to create void space directly under all grade beams and pier caps.
- B. Composition: Corrugated paper material with a moisture resistant exterior, and having an interior fabrication of a uniform, cellular configuration, composed of moderate moisture response components.
- C. Depth: 4 inches
- D. Profile: Rectangular shape in cross section.
- E. Position: Between form panels.
- F. Strength: Capable of sustaining an average working load for grade beam and pier cap height of 2.5 feet based on manufacturer's recommendations.
- G. Accessories:
 - 1. Drilled Pier Forms: Install to form and contain the upper portion of concrete piers.
 - 2. End Void Form: Install to create void space around the upper portion of drilled piers at the intersection with grade beams.
 - 3. Seam Pads: Install over all void form joints to prevent moisture and concrete from flowing in between and into the void form interior.
 - 4. End Caps: Install to cover exposed ends of void forms to prevent moisture and concrete from flowing into void form interior.
 - 5. Backfill Retainer (impact-resistant, polyethylene (CPPP) plastic): Provide ½" thick x 16" high x 96" long sections designed to be vertically positioned and to prevent the migration of backfill material into the voided area. Retainer shall extend at least 6" above the top and 4" below the base of the void form.
- H. Acceptable Products / Manufacturer (or approved equal): WallVoid®, FormVoid™, Column Wrap™, ArcVoid®, Seam Pads, End Caps, Backfill Retainer™, and SureCover Board™ as manufactured by SureVoid Products, Inc., Englewood, CO (800) 458-5444 or Fort Worth, TX (888) 803-VOID

2.03 Steel Reinforcement

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Wire: ASTM A 82, as drawn.
- C. Deformed-Steel Wire: ASTM A 496.
- D. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.
- E. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

2.04 Reinforcement Accessories

- A. 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.

2.05 Concrete Materials

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I.
 - 2. Fly Ash: ASTM C 618, Class C or F.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size:
 - a. Foundations and walls: 1-1/2 inches (38 mm) nominal.
 - b. Slab-on-grade and slab-on-deck: 1 inches (25 mm) nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Lightweight Aggregate: ASTM C 330, 1-inch (25-mm) nominal maximum aggregate size.
- D. Water: ASTM C 94/C 94M and potable.

2.06 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.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

6. Plasticizing and Retarding Admixture:
ASTM C 1017/C 1017M, Type II.

2.07 Waterstops

- A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch (19 by 25 mm).

1. Available Products:

- a. Colloid Environmental Technologies Company; Volclay Waterstop-RX.
- b. Concrete Sealants Inc.; Conseal CS-231.
- c. Greenstreak; Swellstop.
- d. Henry Company, Sealants Division; Hydro-Flex.
- e. JP Specialties, Inc.; Earth Shield Type 20.
- f. Progress Unlimited, Inc.; Superstop.
- g. TCMiraDRI, Mirastop.

2.08 Liquid Floor Treatments

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

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. ChemMasters; Chemisil Plus.
- b. ChemTec Int'l; ChemTec One.
- c. Conspec by Dayton Superior; Intraseal.
- d. Curecrete Distribution Inc.; Ashford Formula.
- e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
- f. Edoco by Dayton Superior; Titan Hard.
- g. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
- h. Kaufman Products, Inc.; SureHard.
- i. L&M Construction Chemicals, Inc.; Seal Hard.
- j. Meadows, W. R., Inc.; LIQUI-HARD.
- k. Metalcrete Industries; Floorsaver.
- l. Nox-Crete Products Group; Duro-Nox.
- m. Symons by Dayton Superior; Buff Hard.
- n. US SPEC, Division of US Mix Products Company; US SPEC Industraseal.
- o. Vexcon Chemicals, Inc.; Vexcon StarSeal PS Clear.

2.09 Curing Materials

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete. Note that this product is not a curing agent.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

1. Available Products:
 - a. ChemMasters; Spray-Film.
 - b. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
 - c. Dayton Superior Corporation; Sure Film.
 - d. Euclid Chemical Company (The); Eucobar.
 - e. L&M Construction Chemicals, Inc.; E-Con.
 - f. Meadows, W. R., Inc.; Sealtight Evapre.
 - g. Sika Corporation, Inc.; SikaFilm.
 - B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
 - C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
 - D. Water: Potable.
- 2.10 Related Materials
- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
 - B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
 - C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
 - D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- 2.11 Repair Materials
- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
 - 4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C 109/C 109M.

2.12 Concrete Mixtures, General

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 25 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.
- D. 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 and concrete with a water-cementitious materials ratio below 0.50.

2.13 Concrete Mixtures For Building Elements

- A. Grade Beams: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 4 inches (100 mm) or 8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25 mm).

4. Air Content: 5-1/2 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.
- B. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 3. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
 4. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

2.14 Fabricating Reinforcement

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

2.15 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 (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

Part 3 - EXECUTION

3.01 Formwork

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
 2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
 - F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
 - G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
 - H. Chamfer exterior corners and edges of permanently exposed concrete.
 - I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
 - J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
 - K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
 - L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- 3.02 Embedded Items
- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install steel reinforcing bar dowels to match vertical reinforcing bars in Concrete Masonry Units.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

3.03 Removing And Reusing Forms

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
- 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.

3.04 Vapor Barriers

- A. Sheet Vapor Barriers: Place, protect, and repair sheet vapor barrier according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

3.05 Steel Reinforcement

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- 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.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.06 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.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 3. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 4. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Sawed Joints: Form contraction joints with early-entry dry-cut power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install 30# felt at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend 30# felt full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
- 3.07 Waterstops
- A. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.
- 3.08 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.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. 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.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) 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.

3.09 Finishing Formed Surfaces

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces exposed to public view or to receive a rubbed finish.
- C. 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.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

3.10 Finishing Floors And Slabs

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.
 - 1. Apply scratch finish to surfaces indicated.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces to receive trowel finish.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated.
 - 2. Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated and where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 - 1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 Miscellaneous Concrete Items

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.12 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 (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.

3.13 Liquid Floor Treatments

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
 1. Remove sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 2. Do not apply to concrete that is less than 28 days old.
 - a. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.14 Joint Filling

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least two month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

3.15 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. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

3.16 Field Quality Control

- A. Testing and Inspecting: Owner will engage a special inspector to perform field tests and inspections and prepare test reports.
- B. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 - 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

DIVISION 3 - CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

END OF SECTION

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.01 Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. Section Includes:
 - 1. Concrete block.
 - 2. Clay facing brick.
 - 3. Mortar and grout.
 - 4. Reinforcement and anchorage.
 - 5. Lintels.
 - 6. Accessories.

1.03 Related Sections:

- A. Section 05500 - Metal Fabrications: Loose steel lintels and fabricated steel items.
- B. Section 07620 - Sheet Metal Flashing and Trim: Through-wall masonry flashings.
- C. Section 07900 - Joint Sealers: Backing rod and sealant at control and expansion joints.

1.04 References:

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2008.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.
- C. ASTM A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2005a.
- D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- E. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2006.
- F. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
- G. ASTM C 150 - Standard Specification for Portland Cement; 2005.
- H. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
- I. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2007.
- J. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2006.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

- K. ASTM C 476 - Standard Specification for Grout for Masonry; 2002.
- 1.05 Submittals:
 - A. Product Data: Provide data for masonry units, mortar, and masonry accessories.
 - B. Samples: Submit 10 samples of facing brick units to illustrate color, texture, and extremes of color range.
- 1.06 Quality Assurance:
 - A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents
- 1.07 Pre-Installation Meeting:
 - A. Convene one week before starting work of this section.
- 1.08 Delivery, Storage, and Handling:
 - A. Deliver, handle, and store masonry materials by means that will prevent mechanical damage and contamination by other materials.
- 1.09 Project Conditions:
 - A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
 - C. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

- 2.01 Concrete Masonry Units:
 - A. Type: Lightweight (Standard Modular Sizes).
 - B. Quality: ASTM C-90, Type 1, Grade N, steam cured for a minimum of 8 hours at 350 degrees Fahrenheit under 150 psi. CMU shall be made by the Johnson CO 2 or Autoclave method. Other methods shall have approval by the Architect.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

- C. Face Dimension: As indicated on the drawings.
 - D. Thickness: As indicated on the drawings.
 - E. Shapes: Provide all shapes as shown on the drawings or others as required.
 - F. Units shall be uniform in all dimensions and texture, straight and free from cracks, spalls and other defects.
- 2.02 Face Brick (Veneer):
- A. Type and Finish: Velour Modular Brick.
 - B. Quality: ASTM C-216, Type FBS.
 - C. Size: Nominal 4" x 4" x 8" or match existing.
 - D. Units shall be uniform in all dimensions and texture, straight and free from cracks, spalls and other defects.
 - E. Color: refer to Color Schedule - as selected by Architect.
- 2.03 Mortar and Grout Materials:
- A. Portland Cement: ASTM C 150, Type I.
 - 1. Hydrated Lime: ASTM C 207, Type S.
 - 2. Mortar Aggregate: ASTM C 144.
 - 3. Grout Aggregate: ASTM C 404.
 - B. Water: Clean and potable.
- 2.04 Reinforcement and Anchorage:
- A. Manufacturers of Joint Reinforcement and Anchors:
 - 1. Dur-O-Wal: www.dur-o-wal.com.
 - 2. Hohmann & Barnard, Inc: www.h-b.com.
 - 3. Masonry Reinforcing Corporation of America: www.wirebond.com.
 - 4. Substitutions: as approved by Architect / Engineer.
 - B. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (280) deformed billet bars; galvanized.
 - C. Single Wythe Joint Reinforcement: Truss type; ASTM A 82/A 82M steel wire, mill galvanized to ASTM A 641/A 641M, Class 3; 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.
 - D. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not more than 1 inch and not less than 1/2 inch of mortar coverage from masonry face.
 - E. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A 153/A 153M, Class B.
 - 1. Anchor plates: Not less than 0.075 inch thick, designed for fastening to structural backup through sheathing by two fasteners; provide design with legs that penetrate sheathing and insulation to provide

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

positive anchorage.

2. Wire ties: Triangular shape, 0.1875 inch thick.
3. Vertical adjustment: Not less than 3-1/2 inches.

2.05 Flashings:

- A. Metal Flashing Materials: Galvanized Steel as specified in Section 07600.

2.06 Accessories:

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
- B. Compressible Filler: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35%; formulated from neoprene, urethane or PVC.
- C. Bond Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type 1 (No. 15 asphalt felt).
- D. Weeps: Free-draining mesh made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe.
 1. Manufacturers:
 - a. Mortar Net USA, Ltd; Product - Mortar Net Weep Vents: www.martarnet.com
 - b. Substitutions: as approved by Architect / Engineer.

Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.07 Mortar and Grout Mixes:

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds or other admixtures, unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
 2. Limit cementitious materials in mortar to portland cement and lime.
- B. Mortar for Unit Masonry: ASTM C 270, using the Proportion Specification.
 1. All masonry: Type S.
 - a. Portland Cement Mixture: One part Grey Portland Cement; 1/4 to 1/2 part lime; sand, not less than 2-1/4 and not more than three times the sum of the volumes of cement and lime used, measured in damp, loose conditions.
 - b. **Color at exterior face brick to be selected by Architect.**
- C. Grout for Unit Masonry: Comply with ASTM C 476.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

1. Use grout of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 2. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measure according to ASTM C 143/C 143M.
- D. Mortar Mixing
1. All mortars shall be machine mixed in equipment that is free of dirt, oil or grease and which is thoroughly cleaned and rinsed after each day's use. Mix no more mortar than can be used before setting takes place.
 2. Mortars shall be mixed placing all dry ingredients in the mixer first and mixing until uniform in color. Then mixed for 3 to 5 minutes with the maximum amount of water to provide workable consistency.
 3. No add-mixtures shall be used at any time in the mortar on this project, unless approved in writing by the Engineer.
 4. A waterproofing additive will be used in the mortar for brick.
 5. Construct one or two wooden boxes 12"x12"x6" deep and use them to measure the sand required in a batch. Add the cement or lime by the bag. Then add water, measuring by pail. When the desired consistency of mix is determined, mark the level of the mortar in the mixing drum. Use that as the mark for later batches when sand will be added by the shovel full. Repeat the measuring process halfway through the day or whenever the inspector requests it.
 6. Testing: General Contractor will observe a minimum of three (3) observed mixing sessions to verify that the quantities are being mixed as described in the proportions paragraph for Type "S" mortar.

PART 3 - EXECUTION

3.01 Examination:

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 Erection:

- A. Construction Requirements (Masonry Being Worked On)

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

1. Air Temperature 40 F to 32 F: Heat sand or mixing water to minimum of 70 F and maximum of 160 F.
 2. Air Temperature 32 F to 25 F: Heat sand and mixing water to minimum of 70 F and maximum of 160 F.
 3. Air Temperature 25 F to 20 F: Heat sand and mixing water to minimum of 70 F and maximum of 160 F. Use salamanders or other sources of heat on both sides of walls under construction. Employ windbreaks when wind is in excess of 15 mph.
 4. Air Temperature 20 F and Below: Heat sand and mixing water to minimum of 70 F and maximum of 160 F. Provide enclosure and auxiliary heat to maintain air temperature above 32 F. Temperature of units when laid shall be not less than 20 F.
- B. Protection Requirements (Completed Masonry or Sections Not Being Worked On)
1. Mean Daily Air Temperature 40 F to 32 F: Protect masonry from rain or snow for 24 hrs.
 2. Mean Daily Air Temperature 32 F to 25 F: Completely cover masonry for 24 hrs.
 3. Mean Daily Air Temperature 25 F to 20 F: Completely cover masonry with insulating blankets for 24 hrs.
 4. Mean Daily Air Temperature 20 F and Below: Maintain masonry temperature above 32 F for 24 hrs. by enclosure and supplementary heat, by electric heating blankets, infrared heat lamps or other approved method.
- C. No masonry shall be laid when the ambient temperature is below 40 degrees F. All masonry shall be laid plumb, true to line and level, with accurately spaced courses, with each course breaking joints with the course below, unless noted otherwise on the drawings. A story pole and template shall be used and work checked with a surveying instrument to maintain level coursing.
- D. Work required to be built into masonry, including anchors, frames, bolts, sleeves, inserts, compressible fillers, expansion joints and flashing shall be built in as erection progresses. Concrete block into which anchor bolts will be installed shall be filled solid with mortar.
- E. Laying Out Block Work: All concrete block work shall be laid out with uniform joints approximately 3/8" thick and shall be bonded at corners where possible and as consistent with good appearance. Where cutting is required, the cuts shall be made symmetrical above openings and as a general

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

- rule with no cuts less than 4" with power equipment designed for purpose.
- F. Corners shall be made using half blocks in order to maintain head joints centered over block in adjoining courses above and below. Where intersecting masonry partitions occur, galvanized Durowall Joint Reinforcing shall be used at every 2nd course.
1. Concrete blocks shall be laid dry in a full bed of mortar and ends buttered on both edges. Care shall be used to prevent smearing mortar on exposed faces of the blocks and such accumulations that occur shall be removed immediately. The exposed face of blocks shall be wiped clean with burlap as the work proceeds. Those surfaces exposed to sight in their final position shall be further cleaned to provide for the application of finishes as required.
 2. Joints in block work shall be tooled concave in such a manner as to squeeze the mortar back into the joints and to ensure complete contact is made along the edges of the units, compressing and sealing the surface of the joints.
 3. Control joints shall be provided in concrete block partitions at door heads where masonry extends above the door frames, where partitions abut exterior walls and elsewhere as noted on the drawings. Joints shall be raked out 3/8" deep and caulked as specified in Division 7. Bond beams shall be installed as indicated and shall be filled with concrete and reinforced with two (2) No. 4 bars unless noted otherwise.
- G. Lintels shall be provided where shown and for all openings in masonry work where other types of lintels have not been provided. Concrete block lintels shall bear not less than six inches (6") on each jamb. Lintel blocks shall be solid bottom trough block filled with concrete and reinforced as detailed on drawings.
- H. Masonry Reinforcement: Joint reinforcement shall be installed in all concrete block partitions in the joints of every second block course for the full height of the wall.
- I. Brick: Provide a 3/8" mortar bed with concave tooled horizontal and vertical joints. Refer to drawings for vertical coursing as related to openings and other features. Brickwork is to be brushed down daily to remove large pieces of mortar slag. At completion of brick

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

masonry work, all exposed masonry surfaces shall be thoroughly cleaned and washed down with clean water and a stiff bristled brush or as recommended by the brick manufacturer and as approved by the Design/Builder. The brick masonry work shall be left in a state exhibiting properly and fully pointed joints and completely clean surfaces. Subcontractor shall build-in all features of brickwork as shown or indicated on the drawings including weeps, special coursing and or patterned elements.

- J. The Subcontractor shall be responsible for furnishing all required labor, tools, and equipment as required to complete all areas of masonry work on the project. This shall be inclusive of all scaffolding, walk-boards and bracing as required to support the work until fully incorporated into the structure.
- K. Subcontractor shall also furnish all materials save for the brick units as called out above. These materials include concrete block, mortar, reinforcing, ties and other accessories necessary for the execution of the masonry work.

3.03 Preparation:

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.04 Coursing:

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches.
 - 3. Mortar Joints: Concave.
- D. Brick Units:
 - 1. Bond: Running.
 - 2. Coursing: Three units and three mortar joints to equal 8 inches.
 - 3. Mortar Joints: Concave.

3.05 Placing and Bonding:

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

- B. Masonry work shall be laid true to dimensions, plumb, square and in bond and properly anchored with vertical joints in line, plumb and true.
 - C. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - D. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
 - E. Remove excess mortar and mortar smears as work progresses.
 - F. Interlock intersections and external corners.
 - G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
 - H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
 - I. Provide a 3/8" joint around hollow metal door jambs and window frames to allow for sealant and expansion.
- 3.06 Weeps/Cavity Vents:
- A. Install weeps in veneer walls at 24 inches on center horizontally above through-wall flashing, above shelf angles and lintels, and at bottom of walls.
- 3.07 Reinforcement and Anchorage - General:
- A. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches (900 mm) horizontally and 24 inches (600 mm) vertically.
 - B. Install additional anchors within 12 inches (305 mm) of openings and at intervals, not exceeding 36 inches (900 mm) around perimeter.
 - C. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
- 3.08 Reinforcement And Anchorage - Concrete Masonry Units:
- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 8 inches (200 mm) on center.
 - B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches (400 mm) each side of opening.
 - C. Place continuous joint reinforcement in first and second joint below top of walls.
 - D. Lap joint reinforcement ends minimum 6 inches (150 mm).
 - E. Reinforce joint corners and intersections with strap anchors 16 inches on center.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

3.09 Reinforcement And Anchorage - Masonry Veneer:

- A. Stud Back-Up: Secure veneer anchors to stud framed back-up and embed into masonry veneer at maximum 16 inches on center vertically and 24 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

3.10 Masonry Flashings:

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
 - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
 - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install joint sealer below drip edge to prevent moisture migration under flashing.
- C. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

3.11 Lintels:

- A. Install loose steel lintels over openings.

3.12 Control Joints:

- A. Do not continue horizontal joint reinforcement through control joints.
- B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- C. Size control joint in accordance with Section 07900 for sealant performance.

3.13 Built-In Work:

- A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

DIVISION 4 - MASONRY

SECTION 04810 - UNIT MASONRY ASSEMBLIES

3.14 Tolerances:

- A. Maximum Variation from Alignment of Columns: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.15 Cutting And Fitting:

- A. Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.16 Cleaning:

- A. Remove excess mortar and mortar droppings.
- B. Clean soiled surfaces with cleaning solution.

3.17 Protection Of Finished Work:

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

End of Section

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section includes the following:
 - 1. Structural steel.
 - 2. Grout.
- B. Related Sections include the following:
 - 1. Division 5 Section "Steel Deck" for field installation of shear connectors.
 - 2. Division 5 Section "Metal Fabrications" for steel lintels or shelf angles not attached to structural-steel frame, miscellaneous steel fabrications and other metal items not defined as structural steel.
 - 3. Division 9 painting Sections for surface preparation and priming requirements.

1.03 Definitions

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC's "Code of Standard Practice for Steel Buildings and Bridges," that support design loads.

1.04 Performance Requirements

- A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand LRFD loads indicated and comply with other information and restrictions indicated.
 - 1. Select and complete connections using schematic details indicated and AISC's "Steel Construction Manual," Thirteenth Edition.
 - 2. Engineering Responsibility: Fabricator's responsibilities include using a qualified professional engineer to prepare structural analysis data for structural-steel connections.
- B. Construction: Type PR, partially restrained.

1.05 Quality Assurance

- A. Fabricator Qualifications: Firms regularly engaged in the fabrication of structural steel; for similar type and size projects.
- B. Erector Qualifications: Firms regularly engaged in the erection of structural steel; for similar type and size projects.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

- C. Connection Engineer Qualifications: The connection engineer retained by the fabricator shall be a registered professional engineer licensed in Oklahoma and shall have experience in designing steel connections for similar type and size projects.
- D. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."
- E. Comply with applicable provisions of the current edition (unless noted otherwise) of the following specifications and documents:
 - 1. AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. AISC's "Seismic Provisions for Structural Steel Buildings."
 - 3. AISC's 1 " Specification for Structural Steel Buildings" dated March 9, 2005.
 - 4. AISC's "Specification for the Design of Steel Hollow Structural Sections."
 - 5. AISC/RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 6. AISC's "Detailing for Steel Construction."
 - 7. ANSI/AWS "D1.1 - Structural Welding Code - Steel."
 - 8. ANSI/AWS "C5.4 - Recommended Practices for Stud Welding."
 - 9. ASTM's standards as referenced.
 - 10. SSPC's systems and specifications as referenced.

1.06 Submittals

- A. General: Submit in accordance with Section 01310, Schedules, Submittals, Tests and Approvals.
- B. Product Data: Submit copies of producer's or manufacturer's specifications and installation instructions for the following items. Include laboratory test reports and other data as required to show compliance with specified requirements, including standards.
 - 1. Structural steel (each type), including certified copies of mill reports covering the chemical and physical properties.
 - 2. High strength bolts and nuts.
 - 3. Unfinished bolts and nuts.
 - 4. Tension-control, high-strength bolt-nut-washer assemblies.
 - 5. Shear stud connectors.
 - 6. Shop primers.
 - 7. Nonshrink grout.
- C. Shop Drawings:

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

1. Submit shop drawings and erection drawings for structural steel work. Contract drawings shall not be copied for use as shop or erection drawings. Drawing size, once established, shall remain consistent throughout submittals. Manufacturing, fabricating or performing of any work prior to the Architect-Engineer's review and approval of shop drawings shall be entirely at the risk of the Contractor.
2. Shop drawings shall include information necessary for the fabrication and erection of the component parts of the structure. They shall indicate size and weight of members, cambers, holes and location of shop and field connections, the type, size and extent of welds, and the welding sequence when required. Welding symbols used on the shop drawings shall be as adopted by the American Welding Society. The proposed shop primer shall be indicated on the shop drawings. Detailing shall be in accordance with AISC "Steel Construction Manual" and AISC "Detailing for Steel Construction".
3. In general, the contract drawings are drawn to scale, but scale measurements shall not be used in locating or arranging members. The fabricator shall check the contract drawings and obtain field measurements of existing conditions before proceeding with detailing and report errors or inconsistencies discovered therein to the Architect-Engineer before starting shop drawings.
4. Corrections or comments made on the shop drawings during the Architect-Engineer's review do not relieve the Contractor from compliance with requirements of the contract drawings and specifications. The review is only for general conformance with the design concept of the project and with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating quantities and dimensions; coordinating his work with that of other trades; and performing his work in a safe and satisfactory manner.
5. Revisions shown on the shop drawings shall be considered as changes necessary to meet specified requirements as shown on Contract Documents and shall not be taken as the basis of claims for extra work.
6. Erection drawings shall describe necessary temporary supports and connections, including the sequence of installation and removal of temporary supports.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

7. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.
- D. Welding Certifications: Provide certification that welders employed have satisfactorily passed ANSI/AWS qualification tests. The welder's qualification as specified in the ANSI/AWS Code shall be considered as remaining in effect indefinitely unless (1) the welder is not engaged in a given process of welding for which the welder is qualified for a period exceeding six months or unless (2) there is some specific reason to question a welder's ability. In case one (1), the requalification test need be made only in the 3/8" (9.5 mm) thickness. Submit certification to Architect-Engineer a minimum of 15 days prior to performing any welding.
- E. Welding Procedure Qualification: Except for prequalified (per ANSI/AWS D1.1) and previously qualified procedures, each Contractor performing welding shall record in detail and shall qualify the welding procedure specification for any welding procedure followed in the fabrication of weldments. Qualification of welding procedures shall conform to ANSI/AWS D1.1 and to the specifications in this section. Copies of the welding procedure specification and the results of the procedure qualification test for each type of welding which requires procedure qualification shall be submitted for approval. Approval of any welding procedure, however, will not relieve the contractor of the sole responsibility for constructing a structure meeting all the requirements of these specifications. In case of conflict between this specification and ANSI/AWS D1.1, the more stringent shall govern.
- F. Erection Sequence: The steel erector shall be responsible for submitting an erection sequence plan with details for approval by the Architect-Engineer prior to erection of steel. The submittal shall include proposed method of lifting, securing and bracing structural steel necessary to accommodate erection and in place forces that may be imposed on partially completed structure and be within allowable stresses. Should additional framing or bracing or anchorage not shown on the plans be required to accommodate the imposed loads, the fabricator shall furnish the materials and labor required at no additional cost to the Owner.
- G. Certification of Steel and Bolts: The fabricator shall certify that the material furnished for structural steel and the type of bolts furnished for this project are in

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

accordance with the specified materials. Material application and identification shall be visible at least through the "fit up" operation of the main stress carrying elements of a shipping piece. The identification method shall be capable of verifying proper material application including the following:

1. Material specification designation
 2. Heat number
 3. Material test reports
- H. Fabricator Qualifications: Submit data verifying compliance with requirements of Paragraph 1.5.A above.
- I. Erector Qualifications: Submit data verifying compliance with requirements of Paragraph 1.5.B above.
- J. Connection Design Engineer Qualifications: Submit data verifying compliance with requirements of Paragraph 1.5.C above.
- K. Source quality-control test reports.

1.07 Design Criteria For Connections

- A. Details shown are typical. Similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at the site whenever possible without causing delay in the work.

1.08 Delivery, Storage, And Handling

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from erosion and deterioration.
1. Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.
 2. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

1.09 Coordination

- A. Furnish anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 PRODUCTS

2.01 Structural-Steel Materials

- A. W-Shapes: ASTM A 992.
- B. Channels, Angles: ASTM A 36.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

- C. Plate and Bar: ASTM A 36.
 - D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B structural tubing.
 - E. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
 - F. Welding Electrodes: Comply with AWS requirements.
- 2.02 Bolts, Connectors, And Anchors
- A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts; ASTM A 563 heavy hex carbon-steel nuts; and ASTM F 436 hardened carbon-steel washers.
 - 1. Finish: Plain.
 - B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy hex round head steel structural bolts with splined ends; ASTM A 563 heavy hex carbon-steel nuts; and ASTM F 436 hardened carbon-steel washers.
 - 1. Finish: Plain.
 - C. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1, Type B.
 - D. Unheaded Anchor Rods: ASTM A 1554, Grade 55, weldable.
 - 1. Configuration: Straight.
 - 2. Nuts: ASTM A 563 heavy hex carbon steel.
 - 3. Plate Washers: ASTM A 36/A 36M carbon steel.
 - 4. Washers: ASTM F 436 hardened carbon steel.
 - 5. Finish: Plain.
 - E. Deformed Bar Anchors ("DBAs"): Anchors shall be flux filled deformed bar anchors, type D2L, welded to plates as shown on drawings. Anchors shall be made from ASTM A 108 cold worked, deformed wire per ASTM A 496 and shall be welded per the manufacturers recommendations.
- 2.03 Primer
- A. Unexposed Interior Steel: The Society for Protective Coatings Specification 15-68T, Type 1 (red oxide) or a shop primer paint which meets the same minimum performance requirements.
 - B. Exposed or Exterior Steel: Series 90-97 "Tneme Zinc", by the Tnemec Co., Inc. Refer to Section 9900.
 - C. Galvanizing Repair Paint: ASTM A 780.
- 2.04 Grout
- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
- 2.05 Fabrication
- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

"Code of Standard Practice for Steel Buildings and Bridges" and AISC's " Specification for Structural Steel Buildings" dated June 22, 2010.

1. Camber structural-steel members where indicated.
 2. Identify high-strength structural steel according to ASTM A 6/ A 6M and maintain markings until structural steel has been erected.
 3. Mark and match-mark materials for field assembly.
 4. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."
- F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions. Installation shall be in accordance with ANSI/AWS C5.4. Manual welding of studs will not be allowed.
- G. Holes: Provide holes required for securing other work to structural steel and for passage of other work through steel framing members.
1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 2. Base-Plate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.
- 2.06 Shop Connections
- A. Bolted Connections: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
1. Provide high-strength threaded fasteners and hardened washers for principal bolted connections, except where unfinished bolts are shown. Assemble high strength

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

bolted connections in accordance with AISC/RCSC "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts." Unless otherwise noted on drawings, design high strength bolted connections as bearing type with threads included in shear planes.

2. Washers: Use a hardened washer under the element turned in tightening for high strength bolts, regardless of method of tightening. When an outer face of bolted parts has a slope greater than 1:20 with respect to a plane normal to the bolt axis, use a beveled washer to compensate for lack of parallelism.
 3. Methods of Tightening: Tighten bolts by "Turn-of-Nut Tightening", "Calibrated Wrench Tightening" or "Installation of Alternate Design Bolts" per AISC/RCSC "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 4. Provide not less than two bolts per connection. Remove burrs (greater than 1/16" in height), pits, heavy rust, dirt, loose mill scale, other foreign materials and defects from contact surfaces of steel where members are joined.
 5. Reuse of Bolts: Galvanized A 325 bolts shall not be reused. Other A 325 bolts may be reused if approved in writing by the Architect-Engineer.
- B. Welded Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
1. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 2. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.
 3. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent weld show-through on exposed steel surfaces.
 - a. Grind butt welds flush.
 - b. Grind or fill exposed fillet welds to smooth profile. Dress exposed welds.

2.07 Shop Priming

- A. Shop prime steel surfaces except the following:
1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

2. Surfaces to be field welded.
 3. Surfaces to be high-strength bolted with slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials.
 5. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
1. Unexposed Interior Steel: Final clean all steel with SSPC SP-3, "Power Tool Cleaning".
 2. Exposed or Exterior Steel: Final clean steel with SSPC SP-6, "Commercial Blast Cleaning".
- C. Prime Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with the manufacturer's instructions and at a rate to provide a uniform minimum dry film thickness of 2.5 to 3 mil. Use painting methods which will result in full coverage of joints, corners, edges and all exposed surfaces.
- 2.08 Galvanizing
- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/ A 123M.
1. Fill vent holes and grind smooth after galvanizing.
 2. Galvanize lintels and shelf angles attached to structural-steel frame and located in exterior walls.

PART 3 - EXECUTION

3.01 Examination

- A. Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 Preparation

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. The temporary supports shall be sufficient to secure the bare structural steel framing or any portion thereof against loads that are likely to be encountered during erection, including those due to wind and those that result from erection operations. Do not remove temporary supports until the installation of

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

all structural elements is complete and has been accepted as complete by the Structural Engineer. For the purposes of this paragraph, "all structural elements" include the following: foundations, concrete walls and their connections to foundations and slabs, load-bearing CMU walls, structural steel, steel connections, permanent bracing, steel joists, joist bridging, roof deck and floor deck.

1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.03 Erection

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings."
- B. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.
 1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
 2. Weld plate washers to top of base plate.
 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate before packing with grout.
 4. Promptly pack grout solidly between bearing surfaces and base or bearing plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel and architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 1. Level and plumb individual members of structure.
 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

- E. Splice members only where indicated.
- F. Remove erection bolts on welded, architecturally exposed structural steel; fill holes with plug welds; and grind smooth at exposed surfaces.
- G. Do not use thermal cutting during erection unless approved by Architect-Engineer. Finish thermally cut sections within smoothness limits in AWS D1.1.
- H. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- I. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions.

3.04 Field Connections

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened unless shown otherwise in construction documents or approved shop drawings.
- B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
 - 1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 - 3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.
 - 4. Verify that weld sizes, fabrication sequence, and equipment used for architecturally exposed structural steel will limit distortions to allowable tolerances. Prevent weld show-through on exposed steel surfaces.
 - a. Grind butt welds flush.
 - b. Grind or fill exposed fillet welds to smooth profile. Dress exposed welds.

3.05 Quality Assurance Program:

- A. The Owner will engage an independent testing and inspection agency to inspect welded connections and to prepare

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

inspection reports. Independent inspection will be required both at the fabrication plant and in the field.

1. The testing agency may inspect structural steel at fabrication plant before shipment; however, the Architect-Engineer reserves right, at any time before final acceptance, to reject material not complying with specified requirements.
 - B. Independent Testing Agency inspection responsibilities:
 1. Testing agency shall conduct weld inspections and state in each report whether welds comply with requirements, and specifically state any deviations therefrom.
 2. Weld inspections: To the extent possible, shop welds shall be inspected at the fabrication shop. However, the owner reserves the right to conduct inspection of shop welds in either the shop or the field. Field welds shall be inspected in the field.
 - a. Full or Partial Penetration Welds: All full or partial penetration welds shall be inspected along their entire length using the Ultrasonic Testing Method. Where access or discontinuities preclude the use of Ultrasonic Testing, the Radiographic Testing Method shall be used.
 - b. Fillet Welds: Approximately 50% of fillet welds shall be visually inspected. The welds shall be visually inspected prior to application of primer, paint or other coatings. Where visual inspections reveal possible weld discontinuities, magnetic particle testing shall be conducted to verify discontinuity.
 3. High-Strength Bolt Calibration and Inspection: The inspection agency shall adhere to the requirements outlined in Section 9 of the AISC "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" requiring that they be present at the jobsite to observe all calibration tests and all subsequent installation of bolts in connections specified to be slip critical or subject to axial tension.
 4. The Independent Testing Agency services listed above are preliminary and may be increased or decreased by the Architect-Engineer as test reports warrant.
- 3.06 Quality Control Program:
- A. Contractor testing and inspection responsibilities:
 1. Provide access for testing agency to places where structural steel work is being fabricated or produced

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

- so that required inspection and testing can be accomplished.
2. Before fabrication begins, the Mill Test Reports shall be provided to the inspection agency for all material to be welded.
 3. Structural steel shall be identified by heat or melt numbers.
 - a. In case of inability to provide the foregoing identification, commercial stock may be used without further testing, provided that the fabricator's stock purchases are demonstrated to conform to the material specifications set forth herein and are accompanied by mill analyses, test reports and certified affidavits.
 - b. If the steel cannot be identified, or its source is questionable, one set of physical tests shall be made on each unit quantity or weight of materials as required to establish the quality of the steel. Testing, inspecting and sampling required shall be done by an independent testing and inspection agency approved by the Architect-Engineer and shall be done at no additional cost to the Owner.
- B. Weld Inspection: The contractor shall be responsible for 100% visual inspection of all welds in accordance with ANSI/AWS D1.1.
- C. Shear Connectors: In addition to visual inspection, shop-welded shear connectors and composite beam headed stud anchors will be tested and inspected according to requirements in AWS D1.1 for welding and as follows:
1. Bend tests will be performed if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
 2. Tests will be conducted on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1.
- D. High-Strength Bolt Calibration and Inspection: The contractor shall adhere to the requirements outlined in Section 8 of the AISC/RCSC "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" requiring that a "tension measuring device" be maintained on the jobsite and jobsite calibration/confirmation testing of the high-strength bolt assemblies be performed.
- E. Additional 1% of bolts used in main diagonal connections shall be made available for additional laboratory testing,

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

if requested. If bolts are traceable, this requirement may be waived.

3.07 Repairs And Protection

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.
 - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
 - 2. Apply a compatible primer of same type and dry film thickness as shop primer used on adjacent surfaces.

END OF SECTION

DIVISION 5 - STRUCTURAL STEEL

SECTION 05310 - STEEL DECKING

PART 1 - GENERAL

1.01 Section Includes

- A. Roof deck.
- B. Supplementary framing for openings up to and including 8 inches.
- C. Bearing plates and angles.

1.02 Related Requirements

- A. Section 05 1200 - Structural Steel Framing: Support framing for openings larger than 8 inches and shear stud connectors.
- B. Section 05 2100 - Steel Joist Framing: Support framing for openings larger than 8 inches.
- C. Section 05 5000 - Metal Fabrications: Steel angle concrete stops at deck edges.

1.03 Reference Standards

- A. For all reference standards listed below, comply with the version year in the governing building code adopted by the Authority Having Jurisdiction. For those reference standards that are not directly referenced by the building code, use the latest edition unless noted otherwise.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- E. AWS D1.1/D1.1M - Structural Welding Code - Steel.
- F. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.
- G. ICC (IBC)-2015 - International Building Code.
- H. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks.
- I. SDI (QA/QC) - Standard for Quality Control and Quality Assurance for Installation of Steel Deck.
- J. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic").

1.04 Submittals

- A. See Section 01 3000 - Administrative Requirements, for submittals procedures.
- B. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.
- C. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, pertinent details, and accessories.
- D. Submit manufacturer's installation instructions.

DIVISION 5 - STRUCTURAL STEEL

SECTION 05310 - STEEL DECKING

- E. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- 1.05 Quality Assurance
- A. Special inspections and qualification of welding special inspectors for cold-formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements of SDI (QA/QC).
 - B. Installer Qualifications: Company specializing in performing the work of this Section with minimum 5 years of experience.
- 1.06 Delivery, Storage, And Handling
- A. Cut plastic wrap to encourage ventilation.
 - B. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

PART 2 - PRODUCTS

- 2.01 Steel Deck
- A. Roof Deck: Non-composite type, fluted steel sheet:
 - 1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G60/Z180 galvanized coating.
 - 2. Structural Properties: As indicated in General Notes.
- 2.02 Accessory Materials
- A. Bearing Plates and Angles: ASTM A36/A36M steel, galvanized per ASTM A123/A123M.
 - B. Welding Materials: AWS D1.1/D1.1M.
 - C. Mechanical Fasteners: Steel; hex washer head, self-drilling, self-tapping.
 - D. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, complying with VOC limitations of authorities having jurisdiction.
 - E. Flute Closures: Closed cell foam rubber, 1 inch thick; profiled to fit tight to the deck.
- 2.03 Fabricated Deck Accessories
- A. Sheet Metal Deck Accessories: Metal closure strips, wet concrete stops, and cover plates, 20 gauge, 0.0359 inch thick sheet steel; of profile and size as indicated; finished same as deck.
 - B. Roof Sump Pans: Formed sheet steel, 14 gauge, 0.0747 inch minimum thickness, flat bottom, sloped sides, recessed 1-1/2 inches below roof deck surface, bearing flange 3 inches wide, sealed watertight.

DIVISION 5 - STRUCTURAL STEEL

SECTION 05310 - STEEL DECKING

PART 3 - EXECUTION

3.01 Examination

- A. Verify existing conditions prior to beginning work.

3.02 Installation

- A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.
- B. On concrete and masonry surfaces provide minimum 4 inch bearing.
- C. On steel supports provide minimum 2 inch bearing at discontinuous ends of deck and minimum 3 inch bearing length of continuous roof deck over interior supports.
- D. Fasten deck to steel support members as indicated at spacings indicated on the drawings using methods specified.
- E. Drive mechanical sidelap connectors completely through adjacent lapped sheets; positively engage adjacent sheets with minimum three-thread penetration.
- F. Where roof deck changes direction, install 6 inch minimum wide sheet steel cover plates, of same thickness as deck. Attach both sides of cover plate to roof deck below with the same fasteners and spacings as required for deck to supports.
- G. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.
- H. Position roof drain pans with flange bearing on top surface of deck. Fusion weld at each deck flute.

3.03 Field Quality Control

- A. An independent testing agency will perform Special Inspections and field quality control tests as required by Chapter 17 of ICC (IBC)-2015 and SDI (QA/QC). Refer to the following parts of the structural drawings for additional Special Inspection requirements:
 - 1. Statement of Special Inspection Notes
 - 2. Table titled "Required Inspection of Cold-Formed Steel Deck"
- B. Concurrent with the submittal of special inspection reports to the Owner's Representative, the special inspector shall submit to the Owner's Representative and the Installer a list of nonconforming items.

END OF SECTION

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section includes the following:
 - 1. Exterior and interior non-load-bearing wall framing.
 - 2. Soffit joist framing.
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for masonry shelf angles and connections.
 - 2. Division 9 Section "Gypsum Board Assemblies" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

1.03 Performance Requirements

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
 - 1. Design Loads: Design loads shall be calculated components and cladding load per ASCE/SEI 7 edition indicated on the drawings.
 - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/600 of wall height at areas backing up brick veneer, and 1/240 of wall height at areas backing up other materials.
 - b. Soffit Joist Framing: Vertical deflection of 1/240 of the span.
 - 3. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
 - a. Upward and downward movement of 1 inch.
- B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."
 - 1. Headers: Design according to AISI's "Standard for Cold-Formed Steel Framing - Header Design."
 - 2. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

1.04 Submittals

- A. Product Data: For each type of cold-formed metal framing product and accessory indicated.
- B. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal framing; fabrication; and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
 - 1. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Welding certificates.
- D. Research/Evaluation Reports: For cold-formed metal framing.

1.05 Quality Assurance

- A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.
- C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- D. AISI Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."
 - 1. Comply with AISI's "Standard for Cold-Formed Steel Framing - Truss Design."
 - 2. Comply with AISI's "Standard for Cold-Formed Steel Framing - Header Design."

1.06 Delivery, Storage, And Handling

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

PART 2 - PRODUCTS

2.01 Manufacturers

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering cold-formed metal framing that may be incorporated into the Work include, but are not limited to, the following:
1. Allied Studco.
 2. AllSteel Products, Inc.
 3. California Expanded Metal Products Company.
 4. Clark Steel Framing.
 5. Consolidated Fabricators Corp.; Building Products Division.
 6. Craco Metals Manufacturing, LLC.
 7. Custom Stud, Inc.
 8. Dale/Incor.
 9. Design Shapes in Steel.
 10. Dietrich Metal Framing; a Worthington Industries Company.
 11. Formetal Co. Inc. (The).
 12. Innovative Steel Systems.
 13. MarinoWare; a division of Ware Industries.
 14. Quail Run Building Materials, Inc.
 15. SCAFCO Corporation.
 16. Southeastern Stud & Components, Inc.
 17. Steel Construction Systems.
 18. Steeler, Inc.
 19. Super Stud Building Products, Inc.
 20. United Metal Products, Inc.

2.02 Materials

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
1. Grade: ST33H (ST230H).
 2. Coating: G60 (Z180).
- B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
1. Grade: 50 (340), Class 1 or 2.
 2. Coating: G90 (Z275).

2.03 Exterior Non-Load-Bearing Wall Framing

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inches (1.09 mm).
 2. Flange Width: 1-5/8 inches (41 mm).

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
 - 1. Minimum Base-Metal Thickness: 0.0538 inches (1.37 mm)
 - 2. Flange Width: 1-1/2 inches.
- C. Vertical Deflection Clip Option: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
 - 1. 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:
 - a. Dietrich Metal Framing; a Worthington Industries Company.
 - b. MarinoWare, a division of Ware Industries.
 - c. SCAFCO Corporation
 - d. The Steel Network, Inc.
- D. Single Deflection Track Option: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
 - 1. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
 - 2. Flange Width: 1 inch (25 mm) plus the design gap for 1-story structures and 1 inch (25 mm) plus twice the design gap for other applications.
- E. Double Deflection Track Option: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.
 - 1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure, and as follows:
 - a. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
 - b. Flange Width: 1 inch (25 mm) plus the design gap for 1-story structures and 1 inch (25 mm) plus twice the design gap for other applications.
 - 2. Inner Track: Of web depth indicated, and as follows:
 - a. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
 - b. Flange Width: Equal to sum of outer deflection track flange width plus 1 inch.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

2.04 Soffit Joist Framing

- A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depth indicated, unpunched, with stiffened flanges, and as follows:
 - 1. Minimum Base-Metal Thickness: As indicated on drawings.
 - 2. Flange Width: 1-5/8 inches (41 mm) minimum.

2.05 Framing Accessories

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
 - 1. Supplementary framing.
 - 2. Bracing, bridging, and solid blocking.
 - 3. Web stiffeners.
 - 4. Anchor clips.
 - 5. End clips.
 - 6. Foundation clips.
 - 7. Gusset plates.
 - 8. Stud kickers, knee braces, and girts.
 - 9. Joist hangers and end closures.
 - 10. Hole reinforcing plates.
 - 11. Backer plates.

2.06 Anchors, Clips, And Fasteners

- A. Anchor Bolts: ASTM F 1554, Grade 55, threaded carbon-steel headless bolts, with encased end threaded, and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C or mechanically deposition according to ASTM B 695, Class 50.
- B. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- C. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
 - 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- E. Welding Electrodes: Comply with AWS standards.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

2.07 Miscellaneous Materials

- A. Galvanizing Repair Paint: ASTM A 780.
- B. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107, with fluid consistency and 30-minute working time.
- C. Shims: Load bearing, high-density multimonomer plastic, nonleaching.
- D. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.08 Fabrication

- A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 - 1. Fabricate framing assemblies using jigs or templates.
 - 2. Cut framing members by sawing or shearing; do not torch cut.
 - 3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
 - 4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

requirements of sheathing or other finishing materials.

2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.01 Examination

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 Installation, General

- A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
 1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).
- D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
 1. Cut framing members by sawing or shearing; do not torch cut.
 2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

- G. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
 - H. Install insulation, specified in Division 7 Section "Building Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
 - I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
 - J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
- 3.03 Exterior Non-Load-Bearing Wall Installation
- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
 - B. Fasten both flanges of studs to bottom track, unless otherwise indicated. Fast both flanges to top track if required by deflection option selected. Space studs as follows:
 - 1. Stud Spacing: 16 inches (406 mm).
 - C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
 - D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
 - 1. Single Deflection Track Option: Install single-leg deflection tracks and anchor to building structure.
 - 2. Double Deflection Track Option: Install double deep-leg deflection tracks and anchor outer track to building structure.
 - 3. Deflection Clip Option: Connect vertical deflection clips to infill studs and anchor to building structure.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

- E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.
 - 1. Top Bridging for Single Deflection Track Option:
Install row of horizontal bridging within 12 inches (305 mm) of single deflection track. Install a combination of flat, taut, steel sheet straps of width and thickness indicated and stud or stud-track solid blocking of width and thickness matching studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
 - a. Install solid blocking at maximum 96-inch (2440-mm) centers and as shown on approved Shop Drawings.
 - 2. Bridging Options:
 - a. Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
 - b. Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
 - c. Proprietary bridging bars installed according to manufacturer's written instructions.
 - F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.
- #### 3.04 Joist Installation
- A. Install perimeter joist track sized to match joists. Align and securely anchor or fasten track to supporting structure at corners, ends, and spacings indicated on Shop Drawings.
 - B. Install joists bearing on supporting frame, level, straight, and plumb; adjust to final position, brace, and reinforce. Fasten joists to both flanges of joist track.
 - 1. Unless shown otherwise in drawings, install joists over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm).
 - 2. Reinforce ends and bearing points of joists with web stiffeners, end clips, joist hangers, steel clip angles, or steel-stud sections as indicated on drawings.
 - C. Space joists not more than 2 inches (51 mm) from abutting walls, and as follows:
 - 1. Joist Spacing: As indicated.

DIVISION 5 - METALS

SECTION 05400 - COLD-FORMED METAL FRAMING

- D. Frame openings with built-up joist headers consisting of joist and joist track, nesting joists, or another combination of connected joists if indicated.
 - E. Install bridging at intervals indicated. Fasten bridging at each joist intersection as follows:
 - 1. Bridging: Joist-track solid blocking of width and thickness indicated, secured to joist webs.
 - F. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable joist-framing assembly.
- 3.05 Field Quality Control
- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
 - B. Field and shop welds will be subject to testing and inspecting.
 - C. Testing agency will report test results promptly and in writing to Contractor and Architect.
 - D. Remove and replace work where test results indicate that it does not comply with specified requirements.
 - E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 3.06 Repairs And Protection
- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
 - B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer that ensures the cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section includes the following:
 - 1. Steel framing and supports for ceiling-hung toilet compartments.
 - 2. Steel framing and supports for mechanical and electrical equipment.
 - 3. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 4. Elevator machine and hoist beams.
 - 5. Steel shapes for supporting elevator door sills.
 - 6. Metal ladders.
 - 7. Metal bollards.
 - 8. Loose bearing and leveling plates for applications where they are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
- C. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
 - 2. Division 4 Section "Unit Masonry Assemblies" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
 - 3. Division 5 Section "Structural Steel."
 - 4. Division 5 Section "Metal Stairs."

1.03 Submittals

- A. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

- 2. Provide templates for anchors and bolts specified for installation under other Sections.
- B. Welding certificates.
- 1.04 Quality Assurance
 - A. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."
 - 2. AWS D1.3, "Structural Welding Code--Sheet Steel."
- 1.05 Project Conditions
 - A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
- 1.06 Coordination
 - A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

- 2.01 Metals, General
 - A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- 2.02 Ferrous Metals
 - A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - B. Steel Tubing: ASTM A 500, cold-formed steel tubing.
 - C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
- 2.03 Fasteners
 - A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
 - B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6);

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.

- C. Anchor Bolts: ASTM F 1554, Grade 55.
 - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- D. Eyebolts: ASTM A 489.
- E. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).
- F. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- G. Wood Screws: Flat head, ASME B18.6.1.
- H. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- I. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).
- J. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- K. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Anchors in Exterior Locations: Alloy Group 1 (A1) stainless-steel bolts complying with ASTM F 593 (ASTM F 738M) and nuts complying with ASTM F 594 (ASTM F 836M).

2.04 Miscellaneous Materials

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Primer:
 - 1. Unexposed Interior Steel: The Society for Protective Coatings Specification 15-68T, Type 1 (red oxide) or a shop primer paint which meets the same minimum performance requirements.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

2. Exposed or Exterior Steel: Series 90-97 "Tneme Zinc", by the Tnemec Co., Inc. Refer to Section 9900.
 3. Galvanizing Repair Paint: ASTM A 780.
 - C. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
 - D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
 - E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa), unless otherwise indicated.
- 2.05 Fabrication, General
- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
 - B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
 - C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
 - E. Weld corners and seams continuously to comply with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

otherwise indicated. Locate joints where least conspicuous.

- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.06 Miscellaneous Framing And Supports

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
- C. Galvanize miscellaneous framing and supports where indicated.
- D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.07 Loose Bearing And Leveling Plates

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

2.08 Loose Steel Lintels

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Weld adjoining members together to form a single unit where indicated.
- B. Galvanize loose steel lintels located in exterior walls.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

2.09 Metal Ladders

A. General:

1. Comply with ANSI A14.3, unless otherwise indicated.
2. For elevator pit ladders, comply with ASME A17.1.
3. Space siderails 20 inches apart, unless otherwise indicated.
4. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted brackets, made from same metal as ladder.

B. Steel Ladders:

1. Siderails: Continuous, 3/8-by-2-1/2-inch (9.5-by-64-mm) steel flat bars, with eased edges.
2. Rungs: 1-inch- (25-mm-) diameter steel bars spaced at 12 inches on center.
3. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
4. Provide nonslip surfaces on top of each rung by coating with abrasive material metallurgically bonded to rung by a proprietary process.
5. Galvanize exterior ladders, including brackets and fasteners.
6. Prime interior ladders, including brackets and fasteners, with zinc-rich primer.

2.10 Metal Bollards

- A. Fabricate metal bollards from Schedule 40 steel pipe.
- B. Fabricate bollards with 3/8-inch- (9.5-mm-) thick steel baseplates for bolting to concrete slab. Drill baseplates at all 4 corners for 3/4-inch (19-mm) anchor bolts.
 1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.
- C. Fabricate sleeves for bollard anchorage from steel pipe with 1/4-inch- (6.4-mm-) thick steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches (200 mm) deep and 3/4 inch (19 mm) larger than OD of bollard.

2.11 Finishes, General

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

2.12 Steel And Iron Finishes

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - 1. ASTM A 123/A 123M, for galvanizing steel and iron products.
 - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.01 Installation, General

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- 3.02 Installing Miscellaneous Framing And Supports
- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- 3.03 Installing Metal Bollards
- A. Anchor bollards to existing construction with expansion anchors. Provide four 3/4-inch (19-mm) bolts at each bollard, unless otherwise indicated.
- B. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete or in formed or core-drilled holes not less than 8 inches (200 mm) deep and 3/4 inch (19 mm) larger than OD of bollard. Fill annular space around bollard solidly with nonshrink, nonmetallic grout; mixed and placed to comply with grout manufacturer's written instructions. Slope grout up approximately 1/8 inch (3 mm) toward bollard.
- C. Fill bollards solidly with concrete, mounding top surface to shed water.
- 3.04 Adjusting And Cleaning
- A. Touchup Painting: After installation, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted joists and accessories, bearing plates, and abutting structural steel.
1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
 2. Apply a compatible primer of same type and dry film thickness as shop primer used on adjacent surfaces.

DIVISION 5 - METALS

SECTION 05500 - METAL FABRICATIONS

- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

DIVISION 6 - WOOD & PLASTIC

SECTION 06100 - ROUGH CARPENTRY

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:

- A. Wood Treatment - Section 06300

1.03 Quality Assurance:

- A. Grades specified shall conform to the most recent grading rules as established by the following bureaus and associations.
 - 1. PS 20 - American Softwood Lumber Standard.
 - 2. Western Wood Products Association
 - 3. Southern Pine Inspection Bureau
- B. Grade and trade mark each piece of lumber or bundle on bundled stock. Use only the recognized official marks of association under whose rules it is graded. Grade and trade marks will not be required if each shipment is accompanied by certificate of inspection issued by grading association.

1.04 Submittals:

- A. Product Data: for each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing and finishing treated material.
 - 2. As requested by authorities having jurisdiction include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials both before and after exposure to elevated temperatures when tested according to ASTM D5516 and ASTM D 5664.
 - 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

DIVISION 6 - WOOD & PLASTIC

SECTION 06100 - ROUGH CARPENTRY

4. Research / evaluation reports - for the following, showing compliance with building code in effect for Project:
 - a. Fire-retardant treated wood.
 - b. Power-driven fasteners.
 - c. Power-actuated fasteners.
 - d. Expansion anchors.
 - e. Metal framing anchors.

1.05 Delivery, Storage and Handling:

- A. Stack lumber, plywood, sheathing, and other materials: provide spacers between each bundle to provide air circulation around bundled material. Provide proper air circulation between stacks and under coverings.

Part 2 - Products

2.01 General:

- A. Provide best quality of respective grades and kinds. Lumber and plywood shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship". Factory mark each piece of lumber with grade stamp of grading agency.
- B. Maximum moisture content of lumber 19%.
- C. Provide dressed lumber (S4S) unless otherwise indicated.
- D. Where nominal sizes are indicated, provide actual sized required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

2.02 Grades and Applications of Lumber:

- A. Framing lumber for the following shall be "Standard" grade Douglas Fir (WCLIB or WWPA).
 1. Concealed blocking/nailers, cants, grounds, and miscellaneous wood items used in conjunction with the roofing work and as indicated on the Drawings.
 2. Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the Grading Agency indicated.

2.03 Fire-retardant Treated Materials:

- A. General - where fire-retardant treated materials are required by authorities having jurisdiction, provide materials that comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant treated wood with appropriate classification

DIVISION 6 - WOOD & PLASTIC

SECTION 06100 - ROUGH CARPENTRY

marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

2.04 Panel Products:

- A. Miscellaneous Concealed Plywood: shear wall sheathing, span rating to suit framing in each location, and thickness indicated. Refer to Structural Drawings.
- B. Telephone and Electrical Equipment Backing Panels: DOC PS 1, C-D Plugged, fire-retardant treated, in thickness indicated, or if not indicated, not less than ½ inch thick.

2.05 Fasteners:

- A. All nails, spikes, bolts, connectors and other fasteners used in connections with this work shall be galvanized.
 - 1. Nails, wire, brads and staples - FS-FF-N-105.
 - 2. Power-driven Fasteners - CABO NER-272.
 - 3. Wood screws - ASME B18.6.1.
 - 4. Screws for fastening to cold formed metal framing: ASTM C954 length as recommended by screw manufacturer for material to be fastened.
 - 5. Lag bolts - ASME B18.2.1.
 - 6. Bolts - steel bolts complying with ASTM A 307, Grade A with ASTM C563 hex nuts and, where indicated, flat washers.
 - 7. Expansion anchors - anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - a. Material for interior applications: carbon steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - b. Material for exterior applications: stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, alloy group 1 or 2.

2.06 Metal Framing Anchors:

- A. General: provide galvanized steel framing anchors of structural capacity, type, and size indicated and acceptable to authorities having jurisdiction.
- B. Galvanized Steel Sheet: hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

DIVISION 6 - WOOD & PLASTIC

SECTION 06100 - ROUGH CARPENTRY

Part 3 - Execution

3.01 Sizes and Applications (General Framing):

- A. Members shall be accurately cut and fitted, true to line and level, avoiding shims and wedges as much as possible. Discard material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Where applicable, apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- C. At wood ground, blocking and nailer installation: install where indicated and required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- D. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless noted otherwise.

3.02 Rough Hardware:

- A. Provide all sufficient nails, screws, etc. to insure rigidity and structural soundness. Provide hot-dipped galvanized fasteners at all weather exposed locations.
- B. Spiking and nailing shall be done using largest size spikes and nails practicable and as indicated on the drawings. Securely attach carpentry according to applicable codes and recognized standards.
- C. Bolt nailers and blocking to steel or concrete members with bolts of proportionate strength of members attached, length required, spaced 4'-0" o.c. maximum and 4" from each end, except as otherwise indicated. Countersink fastener heads on exposed carpentry work and fill holes with wood fiber.
- D. Predrill members when necessary to avoid splitting of wood.

3.03 Panel Product Installation:

- A. Wood structural panels: comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential and Commercial", for types of structural-use panels and applications indicated. Comply with "Code Plus" provisions in above referenced guide.

End of Section

DIVISION 6 - WOOD & PLASTIC

SECTION 06300 - WOOD TREATMENT

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services and incidentals necessary for the completion of this section of the work.

1.02 Quality Assurance:

- A. Standards:
 - 1. American Wood Preservers Association:
 - a. AWPA Standard P-5 (Preservative)
 - b. AWPA Standard Commodity Standards (Treating Process).
 - 2. Federal Specifications:
 - a. TT-W-550 (Preservative).
 - b. TT-W-571 (Treating Process).
- B. All lumber and plywood receiving wood treatment shall bear the trademark of the process used.
- C. Submit certificate and guarantee of the lumber treated.

Part 2 - Products

2.01 Materials:

- A. Description: Waterborne chemical salts intended for pressure impregnation as a wood preservative. Preservatives with a petroleum vehicle are not permitted.

Part 3 - Execution

3.01 Installation:

- A. Location of treated lumber:
 - 1. All blocking, plates, nailers and curbs used in conjunction with gravel guards, roof edges and all other wood components used in the roofing project.
- B. Materials shall be pressure treated in accordance with the standards of the American Wood Preservers Institute and the chemical manufacturer's specifications.
- C. Treated material shall conform to AWPB LD-2 and treated to a maximum retention of 0.23 pound of oxide per cubic foot.
- D. Moisture content of finish products shall not exceed 19%.

End of Section

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07150 - DAMPPROOFING

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:

- A. Sealants - Section 07900

1.03 Quality Assurance

- A. Standards:
 - 1. Federal Specifications:
 - a. SS-C-153B, Cement, Bituminous, Plastic.
 - b. SS-A-701B, Asphalt, Weatherproofing.
 - 2. American Society for Testing and Materials:
 - a: ASTM D-250, Asphalt Saturated Asbestos Felts.

Part 2 - Products

2.01 Materials:

- A. Solvent Based Asphalt Water Barrier: FS-SS-A-701B
- B. Flashing Membrane: 20 mil elastomeric modified sheet vinyl.
- C. Asphalt Plastic Cement: SS-C-153B, Type 1.
- D. Asphalt Saturated Felt: ASTM D-250, Un-perforated, #15.
- E. Accessories: As recommended by manufacturer.

Part 3 - Execution

3.01 Installation - Cavity Wall Dampproofing:

- A. General - Masonry and Concrete:
 - 1. Repoint all holes, cracks and mortar joints and allow to dry before waterproofing and dampproofing.
 - 2. Sweep wall base, including concrete slab, clean of dirt and mortar droppings immediately prior to application of waterproofing and dampproofing cavity walls.
 - 3. Do not apply until all surfaces are completely dry and clean.
 - 4. Do not apply until all surfaces are completely dry and clean.
 - 5. Sight exposed mastic and membrane not allowed.
- B. Wall Base Waterproofing:
 - 1. Location: Apply at base of outer face of concrete walls and outer face of inner wythe at all exterior masonry cavity walls.
 - 2. At intersection of outer face of inner wythe with concrete slab, provide a 2" radius cove built up with asphalt plastic cement.
 - 3. At wall base, embed a strip of plastic flashing in Plastic

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07150 - DAMPPROOFING

Cement. Lap all joints 8" minimum and seal with joint sealant. Seal completely around piping, conduit, etc. provide minimum joints using longest sheets of flashing practicable. Seal all punctures. Top edge of membrane shall be a minimum of 8" above concrete slab, worked into curve of plastic cement cover, down, and outward on concrete slab or steel shelf angle to outer wythe.

C. Cavity Wall Dampproofing:

1. Apply to outer face of inner wythe masonry cavity walls.
2. Apply two (2) coats to form a membrane water barrier, allowing the first coat to dry before applying the second coat. Apply in strict accordance with manufacturer's instructions. Do not apply until surfaces are completely dry.
3. Apply in a continuous unbroken film free from pin holes or other surface breaks. Take care to seal around all masonry ties, inserts, anchor slots, conduit, pipes, electrical boxes, etc.

End of Section

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07600 - FLASHING AND SHEET METAL

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:

- A. Modified Bitumen Membrane Roofing System - Section 07550
- B. Sealants - Section 07900

1.03 Quality Assurance:

- A. Standards:
 - 1. American Society of Testing and Materials
 - a. ASTM A-526, Steel Sheet, Zinc-Coated (Galvanized), Commercial Quality.
 - b. ASTM B-32, Solder Metal
 - 2. Federal Specifications:
 - a. SS-C-153B, Cement, Bituminous, Plastics
 - 3. Sheet Metal and Air Conditioning Contractors National Association:
 - a. Architectural Sheet Metal Manual

- 1.04 Products of certain manufacturers are specified herein to simplify descriptions of design, construction, and/or materials only. Proprietary names are not intended to imply that products of named manufacturer are required to the exclusion of equivalent products of other manufacturers.**

Part 2 - Products

2.01 Materials:

- A. Prefinished Sheet Metal overflow scuppers and Prefinished Metal Coping:
 - 1. Galvanized iron, prefinished one side.
 - 2. Gauge: 24 gauge, of design and width as detailed.
 - 3. Acceptable manufacturer: Color Klad - Vincent Brass and Aluminum Co.
 - 4. Finish: Kynar 500 - Refer Color Schedule
- B. Sheet Metal:
 - 1. Galvanized Sheet Steel: ASTM A-526, Commercial Quality.
 - 2. Gauge: 22 Gauge minimum or as required by Drawings or Specifications.
- C. Fasteners: Nails, screws, and other fasteners used in conjunction with this work shall be galvanized or cadmium plated.
- D. Solder: ASTM B-32, alloy grade 58, 50% tin, 50% lead.
- E. Flux: Muriatic acid with zinc.
- F. Sealants: Rubber based compound - refer to Section 07900.
- G. Bituminous Plastic Cement: FS SS-C-153B.

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07600 - FLASHING AND SHEET METAL

- H. Accessories: Provide accessories as recommended by manufacturer or as indicated on Drawings.

Part 3 - Execution

3.01 Fabrication:

- A. Shape and install sheet metal as indicated on Drawings. Comply with recommendations of SMACNA "Architectural Sheet Metal Manual."
- B. Form exposed faces flat and free of buckles, excessive wave and tool marks. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
- C. Hem all exposed edges.
- D. Make waterproof corner joints by soldering solidly. Joints shall be full-lapped.
- E. Soldering: Shall be done slowly with well heated coppers to thoroughly heat the sheet and completely sweat the solder through the full width of the seam. Ample solder shall be used and the seam shall show a least one full inch of evenly flowed solder. Soldering coppers: Shall be heavy and blunt design, properly tinned before using. Neutralize all excess flux.
- F. Provide for thermal expansion of running trim, flashing and other items exposed for more than 15'-0" continuous length. Locate expansion seams at 10'-0" intervals and 2'-0" each side of corners and intersections.
- G. Angle bottom edges of exposed vertical surfaces to form drips.

3.02 Installation and Application:

- A. General:
 - 1. Furnish those items to be installed by other trades to proper grade for installation.
 - 2. Cooperate with and coordinate installation of sheet metal with roofing work as specified under Modified Bitumen Membrane Roofing System - Section 07550.
 - 3. Install work watertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.
 - 4. Embed all flashing in plastic cement. Coat dissimilar metals from contact with bituminous coating.
- B. Metal Coping:
 - 1. Material: 24 gauge, prefinished sheet metal.
 - 2. Fabricate and install in accordance with drawings, and recognized sheet metal practices.
 - 3. Secure coping bedded in plastic cement to blocking.
 - 4. At joints, bed coping in plastic cement and secure on side to backing strip by soldering solid. Do not use screws

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07600 - FLASHING AND SHEET METAL

- or nails in exposed face to coping.
5. Lower edge of coping to be securely hooked to hook strip. Secure to wood blocking with No. 8 x 1" galvanized sheet metal screws at 8 o.c.

End of Section

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

Part 1 - General

1.01 Work Included:

- A. All materials, labor services, and incidentals necessary for the completion of this section of the work.

1.02 Quality Assurance:

- A. Standards:
 - 1. TT-S-00230C, Sealing Compound, One Component.
 - 2. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.03 Submittals:

- A. Submit manufacturer's specifications and color chart for each type of sealant.
- B. Samples: For each kind and color of joint sealant required.
- C. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.
- D. Product test reports.
- E. Preconstruction compatibility and adhesion test reports.
- F. Preconstruction field-adhesion test reports.
- G. Field-adhesion test reports.

1.04 Warranty:

- A. All work done under this section of the work shall be guaranteed for a period of two years from date of final acceptance of the building. Guarantee shall include materials and workmanship required to repair any leaks or the repairs thereof.
- B. Special 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 for a period of 10 years from date of final acceptance.

1.05 **Products of certain manufacturers are specified herein to simplify descriptions of design, construction, and/or materials only. Proprietary names are not intended to imply that products of named manufacturer are required to the exclusion of equivalent products of other manufacturers.**

Part 2 - Products

2.01 Materials:

- A. Building Sealant: One part high performance polyurethane waterproofing sealant, FS-TT-S-00230C.
 - 1. Acceptable Manufacturer: Sonneborn NP1 Building Sealant.
 - 2. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

- a. Architectural Sealants: 250 gIL.
 - b. Sealant Primers for Nonporous Substrates: 250 gIL.
 - c. Sealant Primers for Porous Substrates: 775 gIL.
3. 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.
 - a. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
 4. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
 5. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- B. Silicone Joint Sealants:
1. Mildew-Resistant Neutral-Curing Silicone Joint Sealant: ASTM C 920.
 - 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. BASF Building Systems.
 2. Dow Corning Corporation.
 3. GE Advanced Materials - Silicones.
 4. Pecora Corporation.
 5. Sika Corporation; Construction Products Division.
 6. Tremco Incorporated.
- C. Urethane Joint Sealants: Urethane Joint Sealant: ASTM C 920.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

- include, but are not limited to, the following:
- a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. Lymtal, International, Inc.
 - d. Pecora Corporation.
 - e. Sika Corporation; Construction Products Division.
 - f. Tremco Incorporated.
- D. Latex Joint Sealants: Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
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. BASF Building Systems.
 - b. Bostik, Inc.
 - c. Pecora Corporation.
 - d. Tremco Incorporated.
- E. Preformed Joint Sealants: Preformed Foam Joint Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant manufactured from urethane foam with minimum density of 10 lb/cu. ft. and impregnated with a nondrying, water-repellent agent. Factory produce in precompressed sizes in roll or stick form to fit joint widths indicated; coated on one side with a pressure-sensitive adhesive and covered with protective wrapping.
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. Dayton Superior Specialty Chemicals.
 - b. EM SEAL Joint Systems, Ltd.
 - c. Sandell Manufacturing Co.
 - d. Schul International, Inc.
 - e. Willseal USA, LLC.
- F. Acoustical Joint Sealants: Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
1. 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. Pecora Corporation.

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

- b. USG Corporation.
- G. Joint Sealant Backing: cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type 0 (open-cell material) or any of the preceding types, as approved in writing by joint sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.
- H. Miscellaneous Materials: as recommended by sealant manufacturer.
 - 1. 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.
 - 2. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.
 - 3. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
 - 4. Joint Cleaner
 - 5. Joint Primer/Sealer
 - 6. Bond Breaker Tape
 - 7. Joint Backer-Rod: Closed-cell compressible rod stock, size and shape as required by application.
- I. Caulking compound: Watertight, gun consistency, conforming to FS-TT-C-598, Type 1.
- J. Accessories: As recommended by sealant manufacturer.
- K. Color: to be selected from manufacturer's standard colors.

Part 3 - Execution

3.01 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

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

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.

3.02 Installation: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

- A. Do not leave gaps between ends of sealant backings.
- B. Do not stretch, twist, puncture, or tear sealant backings.
- C. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- G. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.
- H. Clean off excess sealant or sealant smears adjacent to

DIVISION 7 - THERMAL & MOISTURE PROTECTION

SECTION 07900 - SEALANTS

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.

3.03 Joint Sealant Schedule:

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non traffic surfaces.
- E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.
- F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal non traffic surfaces.

3.04 Additional Information:

- A. Application: All sight exposed caulking, and all exterior applications.
- B. Comply with sealant manufacturer's printed instructions.
- C. Any surfaces requiring priming, shall be prepared according to manufacturer's recommendations.
- D. Install sealants to depths as shown or as recommended by sealant manufacturer. Smooth uneven surfaces.
- F. Do not disturb compound by touching, washing, or otherwise until it has cured tack free.
- G. Excess compound shall be removed from surfaces after curing.
- H. Follow manufacturer's recommendations for painting over sealant.

End of Section

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

Part 1 - General

1.01 Work Included:

- A. All material labor, services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:

- A. Hardware and Specialties - Section 08700

1.03 Quality Assurance:

A. Standards:

1. American Society for Testing and Materials
 - a. ASTM A-366, Steel Sheets, Carbon, Cold-Rolled, Commercial Quality.
 - b. ASTM A-569, Steel, Carbon, Hot-rolled Sheet and strip, commercial quality.
2. Underwriters' Laboratories, Inc.
3. Steel Door Institute (SDI): Recommended specifications for Steel Doors and Frames.

- B. Installer Qualifications: An employer of workers trained and approved by manufacturer.

- C. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.

- D. Fire-Rated Door Frame Assemblies: Assemblies complying with IBC 2009 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire protection ratings indicated.

1. Test Pressure: Test according to NFPA 252. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.
2. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.
3. Smoke-Control Door Assemblies: Comply with NFPA 105.

1.04 Submittals:

- A. Shop Drawings: Product Data: Include construction details, material descriptions, core descriptions, label compliance, and finishes for each type of steel door and frame specified.

1. Submit shop Drawings showing details for each frame and door type, elevations and details of construction. Provide a schedule of doors and frames referenced to detail and openings as shown on the Drawings.
 - a. Elevations of each door design.
 - b. Details of doors, including vertical and horizontal edge details.
 - c. Frame details for each frame type, including dimensioned profiles.
 - d. Details and locations of reinforcement and

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

- preparations for hardware.
 - e. Details of each different wall opening condition.
 - f. Details of anchorages, accessories, joints, and connections.
 - g. Details of glazing frames and stops showing glazing.
 - h. Details of conduit and preparations for electrified door hardware and controls.
 - 2. It is the manufacturer's responsibility to obtain templates of finish hardware. The shop Drawings must indicate all hardware applications to the doors and frames.
 - 3. Begin fabrication only after receiving approved shop Drawings.
 - 4. Qualification Data: For Installer.
- 1.05 Product Delivery, Storage and Handling:
- A. All materials shall be protected for shipping so that they may arrive at the job site without undue damage or damage from storage at the job.
 - B. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 - C. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
 - D. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.
 - 1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 114-inch space between each stacked door to permit air circulation.
- 1.06 Project Conditions:
- A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating standard steel frames without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.
- 1.07 Coordination:
- A. Coordinate installation of anchorages for standard steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves,

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in masonry. Deliver such items to Project site in time for installation.

1.08 Warranty: Provide manufacturer's standard warranty.

Part 2 - Products

2.01 Acceptable Manufacturers:

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. CURRIES Company; an ASSA ABLOY Group Company.
2. Steelkraft; and Ingersoll-Rand Company.
3. Or Approved Equal.

2.02 Materials:

- A. Cold-Rolled Steel Sheet: ASTM A 100S/A 100SM, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A40 zinc-iron-alloy (galvannealed) coating designation.
- D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591A 59 1M, Commercial Steel (CS), Class B coating; mill phosphatized.
- E. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.
- F. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.
- G. 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.
- H. Glazing: Comply with requirements in Division 5 Section "Glazing."
- I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- J. Grout: In masonry construction use grout for masonry as specified in Division 4. In stud walls use cementitious sprayed fire-resistive material manufactured by the

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

following:

1. Monokote Type MK-6; W.R. Grace Construction Products.
 2. Cafco 300; Isolatek International Corp.
- 2.03 Requirements: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.
- A. Doors - Flush Panel: (SDI Door Type III, Style 2, Seamless):
1. Door, as indicated on the Drawings shall be constructed of 16 gauge cold-rolled, stretcher leveled sheet steel. Doors shall be insulated with foamed urethane, full length and width of doors. Construct doors with smooth, flush surfaces without visible joints or seams on exposed face or vertical edges. Doors shall be 1-3/4" thick unless noted otherwise.
 2. Close top and bottom edges with a recessed channel end closure or a flush end closure treatment.
 3. Vertical Edges for Single-Acting Doors: Square edge unless beveled edge is indicated.
 - a. Beveled Edge: 1/8 inch in 2 inches.
 4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.
 5. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
 6. Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- B. Frames:
1. Hollow metal frames shall be of 16 gauge cold-rolled, pickled steel, except that all frames for single doors over 3'-0" wide, frames for pairs of doors over 4'-0" wide and frames for doors over 9'-0" high shall be of 14 gauge steel. Frames shall be neatly mitered and continuously welded and ground smooth for invisible joints.
 2. Furnish anchors as shown on Drawings or as recommended by manufacturer, to secure frames to adjacent construction, formed of not less than 18 gauge galvanized steel. Install anchors at a maximum of 24' centers of jamb height.
 3. Frames against masonry or concrete are to be slush filled.
 4. Knock-down frames are not permitted.
 5. Frames against masonry or concrete are to be slush filled.
 6. Jamb Anchors:
 - a. Masonry Type: Adjustable strap-and-stirrup or T - shaped anchors to suit frame size, not less than

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

- 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
- b. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
 - c. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.
 - d. Ceiling Struts: Minimum 3/8-inch-thick by 2-inch-wide steel.
 - e. Plaster Guards: Formed from same material as frames, not less than 0.016-inch thick.
7. Sidelight Frames: Provide closed tubular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
- C. Hardware Reinforcement:
- 1. Reinforcements for locks shall be 3/16" for fronts, with 14 gauge for roses and escutcheons. Hinge reinforcements shall be at least 10 gauge x 1 2" x 9". Provide steel strike and hinge reinforcement cover for frames.
- D. Jamb Anchors: Provide number and spacing of anchors as follows:
- 1. Masonry 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:
 - a. Two anchors per jamb up to 60 inches in height.
 - b. Three anchors per jamb from 60 to 90 inches in height.
 - c. Four anchors per jamb from 90 to 120 inches in height.
 - d. Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 120 inches in height.

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

2. 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:
 - a. Three anchors per jamb up to 60 inches in height.
 - b. Four anchors per jamb from 60 to 90 inches in height.
 - c. Five anchors per jamb from 90 to 96 inches in height.
 - d. Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.
 - e. Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
- E. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
 1. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 2. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- F. Stops and Moldings:
 1. Moldings for Glazed Lites in Doors: Minimum 0.032 inch thick, fabricated from same material as door face sheet in which they are installed.
 2. Fixed Frame Moldings: Formed integral with standard steel frames, minimum 5/8 inch high, unless otherwise indicated.
 3. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch thick, fabricated from same material as frames in which they are installed.
- G. Labeled Doors and Frames:
 1. Where doors and frames are called for on Drawings as labeled, their construction shall conform to all requirements and bear the appropriate U.L. label.
- H. Steel Finishes
 1. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - a. Finish standard steel door and frames after assembly.
 2. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

780.

- a. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
3. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No.3, "Commercial Blast Cleaning."
4. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
 - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

Part 3 - Execution

3.01 Fabrication:

- A. All doors, and frames shall be cleaned of rust, grease and other impurities, and all welds ground and filled smooth, Metallic filler to conceal defects is not acceptable.
- B. Doors and frames shall be mortised, reinforced, drilled, and tapped for all mortise hardware in accordance with Hardware schedule and templates furnished by the hardware supplier, except that drilling and tapping for surface door closers, door closer brackets, surface panic devices and/or other surface applied hardware shall be done in the field. Frames shall be accurate and done in a neat, workmanlike manner.

3.02 Installation:

- A. Standard Steel Frames: Install standard steel frames for doors sidelights borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.
 1. Bituminous coating and grout: Any material lost, removed or damaged during transportation or installation shall be replaced.
 2. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set.

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

- a. At fire-protection-rated openings, install frames according to NFP A 80.
 - b. Install frames with removable glazing stops located on secure side of opening.
 - c. Install door silencers in frames before grouting.
 - d. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - e. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
3. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of post installed expansion anchors if so indicated and approved on Shop Drawings.
 4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar as specified in Division 4 Section "Unit Masonry Assemblies."
 6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.
 7. Installation Tolerances: Adjust standard steel 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

DIVISION 8 - DOORS & WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

jamb at floor.

- B. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Standard Steel Doors:
 - a. Jamb and Head: 1/8 inch plus or minus 1/16 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFP A 80.
 - 3. Smoke-Control Doors: Install doors according to NFPA 105.
 - C. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.
- 3.03 Adjusting and Cleaning:
- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.
 - B. Clean grout and other bonding material off standard steel doors and frames 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 primer.
 - D. Galvannealed Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions. Do not use abrasive, caustic or acid cleaning agents.
 - E. Protect doors and frames from damage until final acceptance by Contracting Officer. Replace/repair any damaged items as directed above.

End of Section

DIVISION 8 - DOORS & WINDOWS

SECTION 08700 - FINISH HARDWARE

Part 1 - General

1.01 Work Included:

- A. All materials, labor services and incidentals necessary for the completion of this section of the work.

1.02 Related Work Specified Elsewhere:

- A. Metal Doors and Frames - Section 08100
- B. Fences and Gates - Section 323119

1.03 Quality Assurance:

- A. This material shall be procured from a source of supply approved by the Architect as having a member of their firm registered by the American Society of Contracting Architectural Hardware Consultants, and with a proven record of several years of satisfactory experience in contract builder's hardware, both in furnishing material and properly servicing jobs. The supplier also must be an established contract builder's hardware firm who meets all the above requirements, and who maintains and operates an office, display room and stock.

1.04 Submittals:

- A. Prepare a complete schedule including all items processed for each opening and other miscellaneous items and submit four copies to the Architect for approval within 30 days submitted within that time, the supplier shall furnish the hardware specified by catalog number.
- B. Indicate on schedule name of manufacturer after each item.
- C. Upon receiving the approved schedule, the hardware supplier shall immediately forward a copy to the metal frame suppliers, when applicable; and as soon as they receive approved shop drawings, they will immediately forward a complete set to the hardware supplier who can then check the applications and make any necessary minor revisions. If revisions are necessary, notify Architect immediately.
- D. Mark each item of hardware for opening on which it is to be used and deliver a complete schedule to the contractor when hardware is delivered.

1.05 Schedule:

- A. This specification describes the quality, character and function that is required of items of hardware; however, it is not intended to mention each particular item.
- B. It is the responsibility of the supplier to thoroughly detail the entire project to assure that the items specified will properly function in the indicated locations and **meet the requirements of the Owner.**
- C. Quantities shall be determined by the bidder. Part 2, following, indicates the type and function of material applicable to the typical opening. Should an unlisted opening require different type of function of hardware than that specified, for similar opening, notify the Architect, and provide hardware for unlisted openings within the bid.

DIVISION 8 - DOORS & WINDOWS

SECTION 08700 - FINISH HARDWARE

Part 2 - Products

2.01 Finish Hardware:

- A. Standards of Quality:
 - 1. Codes, specifications and published recommendations, latest editions of the following are hereby made part of this section of the specifications in so far as they apply to the material or work called for.
 - a. National Builders Hardware Association (NBHA)
 - b. American Society for Testing Materials (ASTM)
 - c. Underwriters Laboratories (UL)
 - d. National Fire Protection Association (NFPA)
 - e. Code of Ethics of ASAH & NBHA
 - f. Federal Emergency Management Agency (FEMA)
 - 2. Federal Specification, (ANSI Specifications):
 - a. Hinges: FF-H-116C (ANSI A156.1)
 - b. Locks and Door Trim: FF-H-106A (ANSI A 156.2)
 - c. Auxiliary Locks: FF-H-106A (ANSI A 156.5)
 - d. Exit Devices: FF-H-106A, FF-H-111B, FF-L486 (ANSI A156.3).
 - e. Door Closers: FF-H-121C (ANSI A 156.4)
 - f. Shelf and Miscellaneous Hardware: FF-H-00116 (ANSI A156.6).
 - g. All Door hardware: Comply with ADAAG where applicable.
- B. General:
 - 1. All hardware relating to hollow metal doors and frames shall be to standard templates of each respective hardware manufacturer for items furnished.
 - a. The related suppliers such as hollow metal doors and frames and such others as may be required will furnish the hardware supplier one copy of each of their approved shop drawings for proper coordination of their work and the finish hardware.
- C. Manufacturers and Requirements:
 - 1. Hardware manufacturers and brand names are for a guide as to type and standard required and all such hardware furnished must meet these standards as far as quality, weight, finish and design.
- D. Keying:
 - 1. All locks and cylinders to be masterkeyed as directed by the Architect/Owner.
 - 2. Keys: Furnish the following keys:
 - a. 2 change keys each lock or cylinder
 - b. 6 masterkeys
 - c. **all EXTERIOR locks and cylinders shall be Primus Schlage Key System and keyed to Owner's Primus Master Key system.**

DIVISION 8 - DOORS & WINDOWS

SECTION 08700 - FINISH HARDWARE

2.02 Hardware Sets:

Hardware Group No. 001: Provide each PR door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	99L-F 996L-03 499F LENGTH AS REQUIRED	626	VON
1	EA	RIM CYLINDER	20-057 ICX	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX	626	SCH
2	EA	CLASSIC CORE	20-740	626	SCH
1	EA	SURFACE CLOSER	4041 OR P4041 MTG BRKTS, SPCRS & PLATES AS REQ	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV OR FS436 AS REQUIRED	628	IVE
1	SET	SEALS	5050B H & J	BLK	NGP

Hardware Group No. 002: Provide each PR door(s) with the following:

Quantity		Description	Model Number	Finish	Mfr
6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	MULLION	KR9954 HEIGHT AS REQUIRED	689	VON
2	EA	FIRE EXIT HARDWARE	99L-F 996L-03 499F LENGTH AS REQUIRED	626	VON
2	EA	RIM CYLINDER	20-057 ICX	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX	626	SCH
3	EA	PRIMUS CORE	20-740	626	SCH
1	SET	ASTRAGAL	9605A HEIGHT AS REQ	AL	NGP
2	EA	SURFACE CLOSER	4041 OR P4041 MTG BRKTS, SPCRS & PLATES AS REQ	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA	WALL STOP	WS407CCV OR FS436 AS REQUIRED	628	IVE
1	SET	SEALS	5050B H & J	BLK	NGP

REFER TO ELECTRICAL / TECHNOLOGY FOR ACCESS, CARD READER, ETC. INFORMATION, ETC.

Hardware Group No. 003:

Coordinate hardware to be provided and installed in conjunction with new gates with fencing manufacturer / supplier. Refer to electrical / technology for access, card reader, etc. information, etc. for gates.

The following list of products and manufactures are acceptable for this project.

<u>Product</u>	<u>Manufacture and Approved Equals</u>
1. Hinges	A. Ives B. Hager C. Bommer
2. Continuous Hinges	A. Pemko B. Roton C. Select

DIVISION 8 - DOORS & WINDOWS

SECTION 08700 - FINISH HARDWARE

- B. Within 30 days after the acceptance of the entire project, the Contractor shall be responsible for this supplier meeting with the maintenance custodian at the job site for the purpose of instructing him thoroughly in the proper repair and adjustment of all finish hardware items, and items, and shall present to the custodian a full complement of tools to be used.

End of Section

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the insulated translucent sandwich panel system and accessories, factory unitized, as shown and specified. Work includes providing and installing:
 - 1. Flat factory prefabricated structural insulated translucent sandwich panels
 - 2. Aluminum installation system
 - 3. Aluminum sill flashing

- B. Related Sections:
 - 1. Concrete/Rough Carpentry: Sections 03300 / 06100
 - 2. Masonry: Section 04810
 - 3. Flashing and Sheet Metal: Section 07600
 - 4. Sealants: Section 07900

1.2 SUBMITTALS

- A. Submit manufacturer's product data. Include construction details, material descriptions, profiles and finishes of components.
- B. Submit shop drawings. Include elevations and details.
- C. Submit manufacturer's color charts showing the full range of colors available for factory-finished aluminum.
 - 1. When requested, submit samples for each exposed finish required, in same thickness and material indicated for the work and in size indicated below. If finishes involve normal color variations, include sample sets consisting of two or more units showing the full range of variations expected.
 - a. Sandwich panels: 24" x 96" nominal units
 - b. Factory finished aluminum: 5" long sections
- D. Submit Installer Certificate, signed by installer, certifying compliance with project qualification requirements.
- E. Submit product reports from a qualified independent testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed reports will be acceptable if for current manufacturer and indicative of products used on this project.

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

1. Reports required are:
 - a. International Building Code Evaluation Report
 - b. Flame Spread and Smoke Developed (UL 723) - Submit UL Card
 - c. Burn Extent (ASTM D 635)
 - d. Color Difference (ASTM D 2244)
 - e. Impact Strength (UL 972)
 - f. Bond Tensile Strength (ASTM C 297 after aging by ASTM D 1037)
 - g. Bond Shear Strength (ASTM D 1002)
 - h. Beam Bending Strength (ASTM E 72)
 - i. Insulation U-Factor (NFRC 100)
 - j. NFRC System U-Factor Certification (NFRC 700)
 - k. Solar Heat Gain Coefficient (NFRC or Calculations)
 - l. Condensation Resistance Factor (AAMA 1503)
 - m. Air Leakage (ASTM E 283)
 - n. Structural Performance (ASTM E 330)
 - o. Water Penetration (ASTM E 331)
 - p. 1200°F Fire Resistance (SWRI)
 - q. Daylight Autonomy

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Material and products shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least ten consecutive years and which can show evidence of those materials being satisfactorily used on at least six projects of similar size, scope and location. At least three of the projects shall have been in successful use for ten years or longer.
2. Panel system must be listed by an ANSI accredited Evaluation Service, which requires quality control inspections and fire, structural and water infiltration testing of sandwich panel systems by an accredited agency.
3. Quality control inspections shall be conducted at least once each year and shall include manufacturing facilities, sandwich panel components and production sandwich panels for conformance with AC177 "Translucent Fiberglass Reinforced Plastic (FRP) Faced Panel Wall, Roof and Skylight Systems" as issued by the ICC-ES.

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

- B. Installer's Qualifications: Installation shall be by an experienced installer, which has been in the business of installing specified panel systems for at least two consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.

1.4 PERFORMANCE REQUIREMENTS

The manufacturer shall be responsible for the configuration and fabrication of the complete unitized panel system.

1. When requested, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Standard panel system shall have less than 0.01 cfm/ft² air leakage by ASTM E 283 at 6.24 PSF (50 mph) and no water penetration by ASTM E 331 at 15 PSF; and structural testing by ASTM E 330.

1.5 DELIVERY STORAGE AND HANDLING

- A. Deliver panel system, components and materials in manufacturer's standard protective packaging.
- B. Store panels on the long edge; several inches above the ground, blocked and under cover in accordance with manufacturer's storage and handling instructions.

1.6 WARRANTY

- A. Submit manufacturer's and installer's written warranty agreeing to repair or replace panel system work, which fails in materials or workmanship within one year of the date of delivery. Failure of materials or workmanship shall include leakage, excessive deflection, deterioration of finish on metal in excess of normal weathering, defects in accessories, insulated translucent sandwich panels and other components of the work.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. The basis for this specification is for products manufactured by Kalwall Corporation. Other manufacturers may bid this project provided they comply with all of the performance requirements of this specification and submit

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

evidence thereof. Listing other manufacturers' names in this specification does not constitute approval of their products or relieve them of compliance with all the performance requirements contained herein.

B. Kalwall Corporation, Tel: (800) 258-9777 - Fax: (603) 627-7905 - Email: info@kalwall.com

2.2 PANEL COMPONENTS

A. Face Sheets:

1. Translucent faces: Manufactured from glass fiber reinforced thermoset resins, formulated specifically for architectural use.
 - a. Thermoplastic (e.g. polycarbonate, acrylic) faces are not acceptable.
 - b. Face sheets shall not deform, deflect or drip when subjected to fire or flame.
2. Interior face sheets:
 - a. Flame spread: Underwriters Laboratories (UL) listed, which requires periodic unannounced retesting, with flame spread rating no greater than 25 and smoke developed no greater than 250 when tested in accordance with UL 723.
Burn extent by ASTM D 635 shall be no greater than 1".
3. Exterior face sheets:
 - a. Color stability: Full thickness of the exterior face sheet shall not change color more than 3 CIE Units DELTA E by ASTM D 2244 after 5 years outdoor South Florida weathering at 5° facing south, determined by the average of at least three white samples with and without a protective film or coating to ensure long-term color stability. Color stability shall be unaffected by abrasion or scratching.
 - b. Strength: Exterior face sheet shall be uniform in strength, impenetrable by hand held pencil and repel an impact minimum of 60 ft. lbs. without fracture or tear when impacted by a 3-1/4" diameter, 5 lb. free-falling ball per UL 972.
4. Appearance:
 - a. Exterior face sheets: Smooth and Crystal in color.
 - b. Interior face sheets: Smooth and White in color.
 - c. Face sheets shall not vary more than ± 10% in thickness and be uniform in color.

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

B. Grid Core

1. Thermally broken composite I-beam grid core shall be of 6005-T5 alloy and temper with provisions for mechanical interlocking of muntin-mullion and perimeter. Width of I-beam shall be no less than 7/16".
2. I-beam Thermal break: Minimum 2", thermoset fiberglass composite.

C. Laminate Adhesive

1. Heat and pressure resin type adhesive engineered for structural sandwich panel use, with minimum 25-years field use. Adhesive shall pass testing requirements specified by the International Code Council "Acceptance Criteria for Sandwich Panel Adhesives".
2. Minimum tensile strength of 750 PSI when the panel assembly is tested by ASTM C 297 after two exposures to six cycles each of the aging conditions prescribed by ASTM D 1037.
3. Minimum shear strength of the panel adhesive by ASTM D 1002 after exposure to four separate conditions:
 - a. 50% Relative Humidity at 68° F: 540 PSI
 - b. 182° F: 100 PSI
 - c. Accelerated Aging by ASTM D 1037 at room temperature: 800 PSI
 - d. Accelerated Aging by ASTM D 1037 at 182° F: 250 PSI

2.3 PANEL CONSTRUCTION

- A. Provide sandwich panels of flat fiberglass reinforced translucent face sheets laminated to a grid core of mechanically interlocking I-beams. The adhesive bonding line shall be straight, cover the entire width of the I-beam and have a neat, sharp edge.
 1. Thickness: 4"
 2. Panel Size: 60" x 96" nominal except for filler panels at building corners.
 3. Light transmission: 20%
 4. Solar heat gain coefficient 0.28.
 5. Panel U-factor by NFRC certified laboratory: 4" thermally broken grid.
 6. Complete insulated panel system shall have NFRC certified U-factor of 0.23.
 7. Grid pattern: Nominal size 12" x 96"; pattern Verti-Kal.
- B. Standard panels shall deflect no more than 1.0" at 30 PSF in 10' 0" span without a supporting frame by ASTM E 72.

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

- C. Standard panels shall withstand 1200° F fire for minimum one hour without collapse or exterior flaming.
- D. Thermally broken panels: Minimum Condensation Resistance Factor of 85 by AAMA 1503 measured on the bond line.

2.4 BATTENS AND PERIMETER CLOSURE SYSTEM

- A. Closure system: Thermally broken extruded aluminum 6063-T6 and 6063-T5 alloy and temper clamp-tite screw type closure system.
- B. Sealing tape: Manufacturer's standard, pre-applied to closure system at the factory under controlled conditions. Fasteners: 300 series stainless steel screws for aluminum closures, excluding final fasteners to the building.
- C. Finish:
 - 1. Manufacturer's factory applied finish, which meets the performance requirements of AAMA 2604. Color to be #79 Aluminum (selected from manufacturer's standards).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Installer shall examine substrates, supporting structure and installation conditions.
- B. Do not proceed with panel installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Metal Protection:
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete, masonry or pressure treated wood, protect against corrosion by painting contact surfaces with bituminous paint or method recommended by manufacturer.

3.3 INSTALLATION

- A. Install the panel system in accordance with the manufacturer's suggested installation recommendations and approved shop drawings.

DIVISION 8 - DOORS & WINDOWS

SECTION 08950 - INSULATED TRANSLUCENT PANEL SYSTEM

1. Anchor component parts securely in place by permanent mechanical attachment system.
 2. Accommodate thermal and mechanical movements.
 3. Set perimeter framing in a full bed of sealant compound, or with joint fillers or gaskets to provide weather-tight construction.
- B. Install joint sealants at perimeter joints and within the panel system in accordance with manufacturer's installation instructions.

3.4 CLEANING

- A. Clean the panel system interior and exterior, immediately after installation.
- B. Refer to manufacturer's written recommendations.

End of Section

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

Part 1 - General

1.01 Work Included:

- A. All materials, labor, services and incidentals necessary for the completion of this entire section of the work.
- B. Consult Drawings, finish schedules, details and specification section.

1.02 Quality Assurance:

- A. All painted surfaces shall be uniform in color, texture and finish to the satisfaction of the Architect.

1.03 Submittals:

- A. Submit manufacturer's specifications, including paint label analysis and application instructions for each material specified.
- B. Submit color samples for review of color and texture.
- C. Provide samples of all natural and stained wood finishes.
- D. Final samples: Prepare samples of finishes on the job to the satisfaction of the Architect. If required, a 4' x 8' portion of wall surface finished as final sample.

1.04 Product Deliver, Storage and Handling:

- A. Materials shall be delivered to the project site in strong, undamaged, waterproof containers with manufacturer's label intact. Materials in previously opened or unsealed containers, are not acceptable.
- B. Include on label of container: Manufacturer's name, type of paint, number and application instructions.
- C. Immediately upon delivery to the project site, all painter materials shall be stored and locked in a watertight shed with floor well off the ground. The shed shall remain locked at all times except for adding or removing materials.
- D. No materials of any manufacturer will be allowed on the project site any time during construction except those of the manufacturers specified or approved by the Architect.

1.05 Job Conditions:

- A. Comply with manufacturer's recommendations as to environmental conditions under which coating and coating systems can be applied.
- B. Do not apply finishes in areas where dust is being generated or where work in progress may affect finish quality.
- C. Protect finished work of other trades, and all surfaces not being painted concurrently, or not to be painted.

Part 2 - Products

2.01 General:

- A. The following specifications for Finishes is not intended to mention every particular item which will receive painter finish, but is intended to establish type and quality of finish which shall be required on various materials.
- B. **Products of Sherwin-Williams are specified herein to simplify descriptions of types and qualities of finishes required only.**

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

Proprietary names are not intended to imply that products of named manufacturer are required to the exclusion of equivalent products of other manufacturers.

- C. Wherever the abbreviation "SW" appears in the following detailed specification, it shall be understood to mean Sherwin-Williams.
 - D. Primers shall be as specified by manufacturers of finish paint used and as approved by the Architect.
- 2.02 Acceptable Manufacturers:
- A. Sherwin-Williams.
 - B. PPG Industries.
 - C. Cook Paint and Varnish Co.
 - D. Pratt and Lambert.
 - E. Kelly-Moore.
- 2.02 Exterior Finishes:
- A. Enamel on Ferrous Metals:
 - 1. One coat SW Kem Kromik Primer, (Alkyd primer).
 - 2. Two coats SW Industrial Enamel, (Alkyd gloss enamel).
 - B. Enamel on Exterior Door Frames and Doors:
 - 1. Shop coat by others-touch up as required.
 - 2. Two coats SW Industrial Enamel, (Alkyd gloss enamel).
 - C. Enamel on Galvanized Metal:
 - 1. One Coat SW Galvite primer.
 - 2. 2 Coats SW Industrial Enamel, (Alkyd gloss enamel).
 - D. Enamel on Exterior Concrete Block:
 - 1. One coat SW Promar Latex Block Filler B25W25.
 - 2. Two coats SW A-100 Semi-Gloss Latex Enamel.
- 2.03 Interior Finishes:
- A. Enamel on Metal: All miscellaneous and ornamental metal items which are left exposed, hollow metal doors and frames.
 - 1. Shop coat by others - touch up as required.
 - 2. Two coats SW Promar 200 Semi-Gloss. Enamel, (Alkyd semi-gloss enamel).
 - B. Enamel on Concrete Block:
 - 1. One coat SW Promar 200 Block Filler (vinyl acrylic latex).
 - 2. Two coats SW Promar 200 Semi-Gloss Enamel.
 - C. Enamel on Gypsum Board Ceilings/Facias/Walls
 - 1. One coat SW Promar 200 Wall Primer with Medium Texture. (Vinyl Acrylic Latex Wall Primer.)
 - 2. Two coats SW Promar 200 Semi-Gloss Latex Enamel.
 - D. Tape and Float: Joints on Gypsum Board.
 - 1. As per manufacturer's instructions.
 - 2. All joints shall be sanded ready for primer's finish.
 - E. Interior Millwork and Cabinetry:
 - 1. One coat SW Promar 200 Alkyd Enamel Primer/Undercoat.
 - 2. Two coats SW Promar 200 Semi-Gloss Latex Enamel.
 - F. Enamel on Wood Trim:
 - 1. One coat SW Promar 200 Alkyd Enamel Primer/Undercoat.
 - 2. Two coats SW Promar 200 Semi-Gloss Latex Enamel.
 - G. Back-Painting, Interior Work:
 - 1. Two coats SW Promar 200 Alkyd Enamel Primer/Undercoat.

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

- H. Enamel on Exposed Metal Piping:
 - 1. One coat SW Galvite primer.
 - 2. Two coats SW Promar 200 Semi-Gloss Latex Enamel.

Part 3 - Execution

3.01 Inspection:

- A. Notify Contractor of any surface not in proper condition to be finished before proceeding with the work. Starting work will constitute the painter's acceptance of preceding work, and conditions under which finish will be applied and his assumption of responsibility for results to be obtained.

3.02 Preparation of Surfaces:

- A. Wood:
 - 1. Sand to a smooth even surface, then dust off.
 - 2. Touch-up knots, resinous spots, etc., on all surfaces with shellac 18 hours before applying prime coat.
 - 3. Fill nail holes, cracks and blemishes flush after priming coat has dried.
- B. Concrete Block and Concrete:
 - 1. Repair cracks and irregularities to provide uniform surface texture.
- C. Ferrous Metal Surfaces:
 - 1. Remove rust and scale, clean grease or oil surfaces with turpentine or benzine before painting.

3.03 Application:

- A. Number of coats and quality of finish shall be in accordance with these specifications, which requires the use of material which will product first quality finish if properly applied.
- B. Apply coats of material in strict accordance with manufacturer's currently published specifications, except where requirements of these specifications are in excess or manufacturer's requirements.
- C. Except as otherwise approved by the Architect, the first two coats of painter's finish shall be applied by roller or brush application. Finish coats may be applied by spray application.
- D. Comply with recommendation of product manufacturer for drying time between succeeding coats allow additional as required until finish is dry.
- E. All work where a coat of material has been applied must be inspected and approved before application of succeeding coat, otherwise, no credit for the coat well be given. Notify Architect when a particular coat has been completed for inspection and approval.
- F. Shellacs, oils, turpentine, etc., shall be of the highest quality and subject to approval of Architect. Materials shall be mixed in and applied directly from containers which they are purchased except when use of other containers is approved.
- G. First Coat of all finishes, except of varnish and stains, shall be white.
- H. Sand lightly between coats where shellac, varnish or enamel

DIVISION 9 - FINISHES

SECTION 09900 - PAINTING

is used.

- I. Remove all hardware, accessories, machined surfaces, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations.

3.04 Clean-up:

- A. Clean and paint spots from work and touch-up or otherwise repair any defective or damaged work.
- B. Remove all surplus materials and equipment after work is completed.
- C. Leave entire job clean and acceptable to the Architect.

End of Section

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system.

1.02 RELATED WORK

Section 02200 - Earthwork

Section 03300 - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total fence system of Montage II® *Welded and Rackable* (ATF - All Terrain Flexibility) Ornamental Steel (Invincible™, Classic™, or Genesis™) design. The system shall include all components (i.e., panels, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss.
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets.

1.06 SUBMITTAL

The manufacturer's literature shall be submitted prior to installation.

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

1.08 PRODUCT WARRANTY

A. All structural fence components (i.e. rails, pickets, and posts) shall be warranted within specified limitations, by the manufacturer for a period of 20 years from date of original purchase. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering or corroding.

B. Reimbursement for labor necessary to restore or replace components that have been found to be defective under the terms of manufacturer's warranty shall be guaranteed for five (5) years from date of original purchase.

PART 2 - MATERIALS

2.01 MANUFACTURER

The fence system shall conform to Montage II® *Welded and Rackable* (ATF - All Terrain Flexibility) Ornamental Steel, (Invincible™, Classic™, or Genesis™) design, (specify extended picket) bottom rail treatment, (specify 4-Rail) style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

2.02 MATERIAL

A. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi and a minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft², Coating Designation G-90.

B. Material for pickets shall be 1" square x 14 Ga. tubing. The rails shall be steel channel, 1.75" x 1.75" x .105". Picket holes in the rail shall be spaced 4.715" o.c. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.03 FABRICATION

A. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

B. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

C. The manufactured panels and posts shall be subjected to an inline electrodeposition coating (E-Coat) process consisting of a multi-stage pretreatment/wash, followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils. The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2 (Note: The requirements in Table 2 meet or exceed the coating performance criteria of ASTM F2408).

D. The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Industrial weight fences under ASTM F2408.

E. Swing gates shall be fabricated using 1.75" x 14ga Forerunner double channel rail, 2" sq. x 12ga. gate ends, and 1" sq. x 14ga. pickets. Gates that exceed 6' in width will have a 1.75" sq. x 14ga. intermediate upright. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding. Gusset plates will be welded at each upright to rail intersection. Cable kits will be provided for additional trussing for all gates leaves over 6'.

F. Pedestrian swing gates shall be self-closing, having a gate leaf no larger than 48" width. Integrated hinge-closer set (2 qty) shall be ADA compliant that shall include a variable speed and final snap adjustment with compact design (no greater than 5" x 6" footprint). Hinge-closer set (2 qty) shall be tested to a minimum of 500,000 cycles and capable of self-closing gates up to a maximum gate weight of 260 lbs. and maximum weight load capacity of 1,500 lbs. Hinge-closer device shall be externally mounted with tamper-resistant security fasteners, with full range of adjustability, horizontal (.5" - 1.375") and vertical (0 - .5"). Maintenance free hinge-closer set shall be tested to operate in temperatures of negative 20 F to 200 F degrees, and swings to negative 2 degrees to ensure reliable final lock engagement.

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 FENCE INSTALLATION

Fence post shall be spaced according to Table 3, plus or minus ½". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 36" (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

3.03 FENCE INSTALLATION MAINTENANCE

When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacturer of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

Table 1 - Minimum Sizes for Montage II Posts			
<u>Fence Posts</u>		<u>Panel Height</u>	
3" x 12 Ga.		Over 6' Up to & Including 8' Height	
<u>Gate Leaf</u>		<u>Gate Height</u>	
		Over 6' Up to & Including 8'	
6'1" to 8'	3" x 12 Ga.	4" x 11 Ga.	6" x 3/16"
8'1" to 10'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"
10'1" to 12'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"
12'1" to 14'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"
14'1" to 16'	6" x 3/16"	6" x 3/16"	6" x 3/16"

Table 2 - Coating Performance Requirements		
<u>Quality Characteristics</u>	<u>ASTM Test Method</u>	<u>Performance Requirements</u>
Adhesion	D3359 - Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 - Montage II - Post Spacing By Bracket Type										
Span	For INVINCIBLE® 8' Nominal (91-1/2" Rail)				For CLASSIC, GENESIS, & MAJESTIC 8' Nominal (92-5/8" Rail)					
Post Size	2- 1/2"	3"	2- 1/2"	3"	2- 1/2"	3"	2- 1/2"	3"	2- 1/2"	3"
Bracket	Industrial Flat Mount		Industrial Line		Industrial Universal		Industrial Flat Mount		Industrial Swivel	

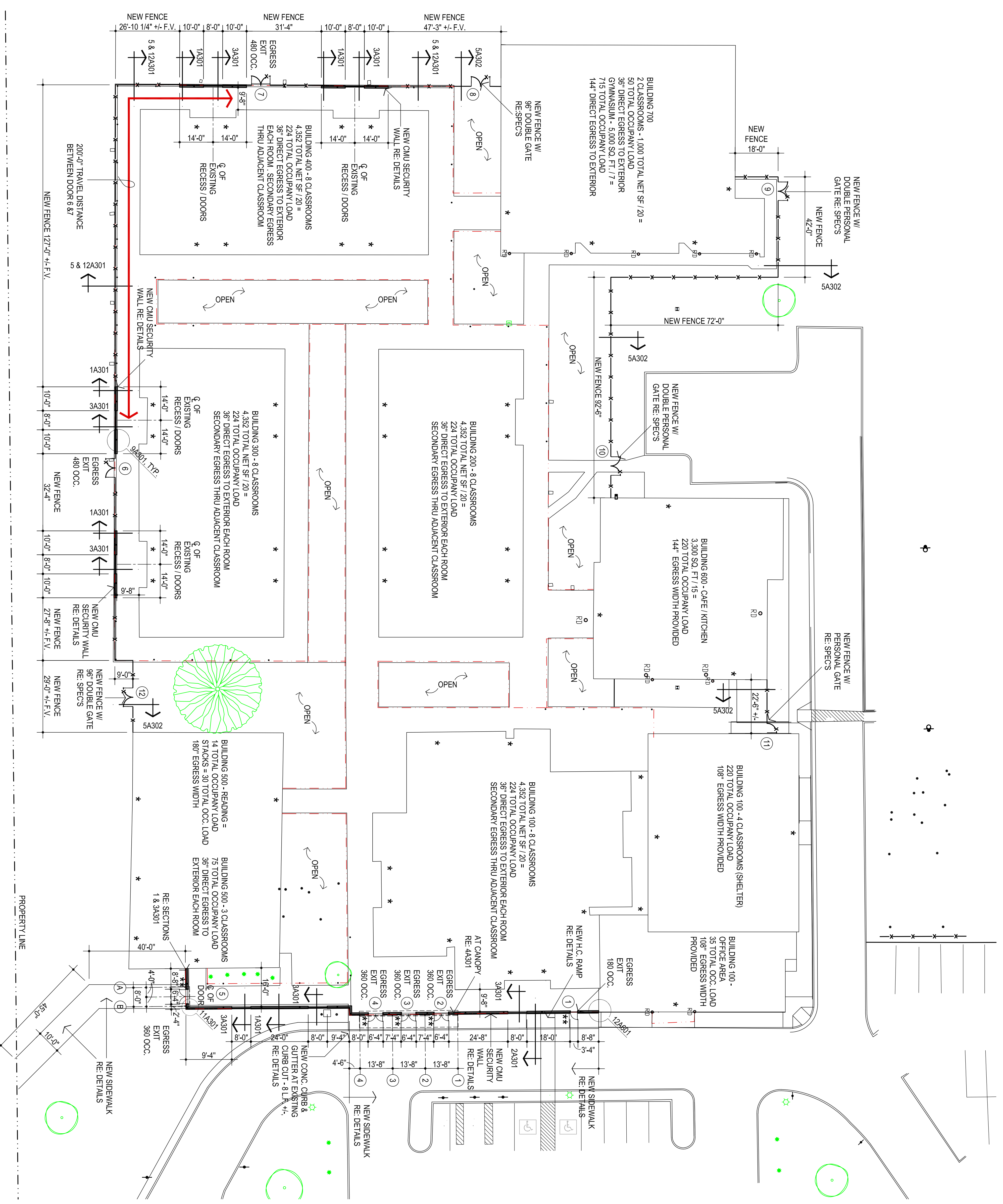
DIVISION 32 - EXTERIOR IMPROVEMENTS

SECTION 323119 - FENCES AND GATES

Type	(BB301) *		2-1/2" (BB319) 3" (BB320)		2.5" (BB302) 3" (BB303)		(BB301)		(BB304) *	
Post Setti ngs ± 1/2" O.C.	94- 1/2"	95"	94- 1/2"	95"	96"	96- 1/2"	96"	96- 1/2"	*96"	*96- 1/2"

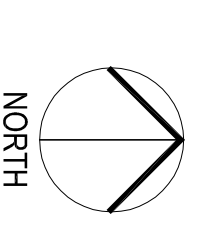
*Note: When using BB304 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel. When using the BB301 flat mount bracket for Invincible style, rail may need to be drilled to accommodate rail to bracket attachment.

STRUCTURAL FIRE PROTECTION (TABLE 601):	
EXTERIOR BEARING WALLS	0 HOUR
INTERIOR BEARING WALLS	NONCOMBUSTIBLE
EXTERIOR NONBEARING WALLS	NONCOMBUSTIBLE
COLUMNS	0 HOUR
BEAMS	NONCOMBUSTIBLE
PERMANENT PARTITIONS	0 HOUR
FLOOR ASSEMBLIES	0 HOUR
ROOF ASSEMBLIES	0 HOUR
EXTERIOR OPENINGS	N/A



SITE PLAN
1" = 20'-0"

LEGEND:
* INDICATES EXISTING EXITS FROM BUILDINGS
** INDICATES LOCATION OF NEW SIGNAGE PLAQUES RE: SHEET A801

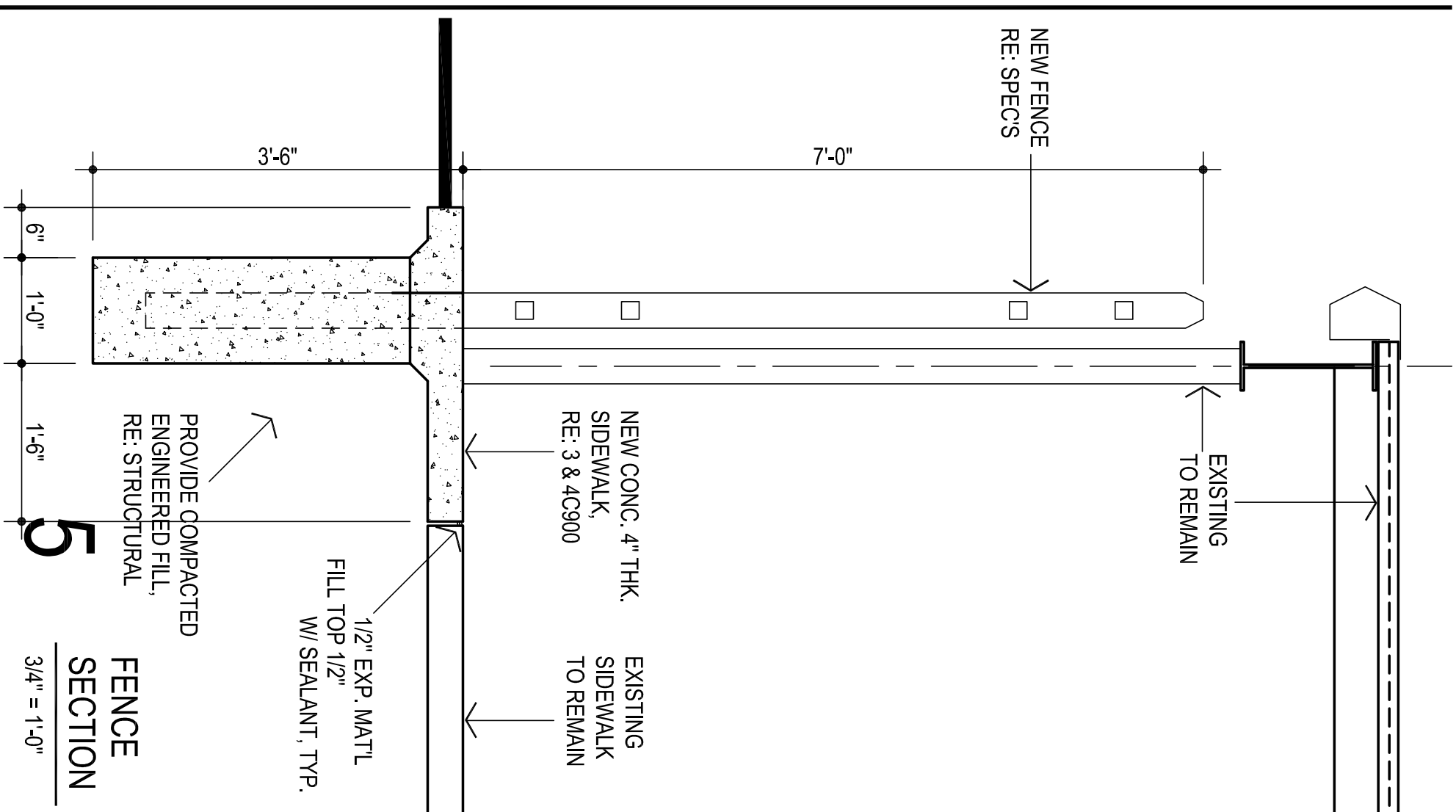
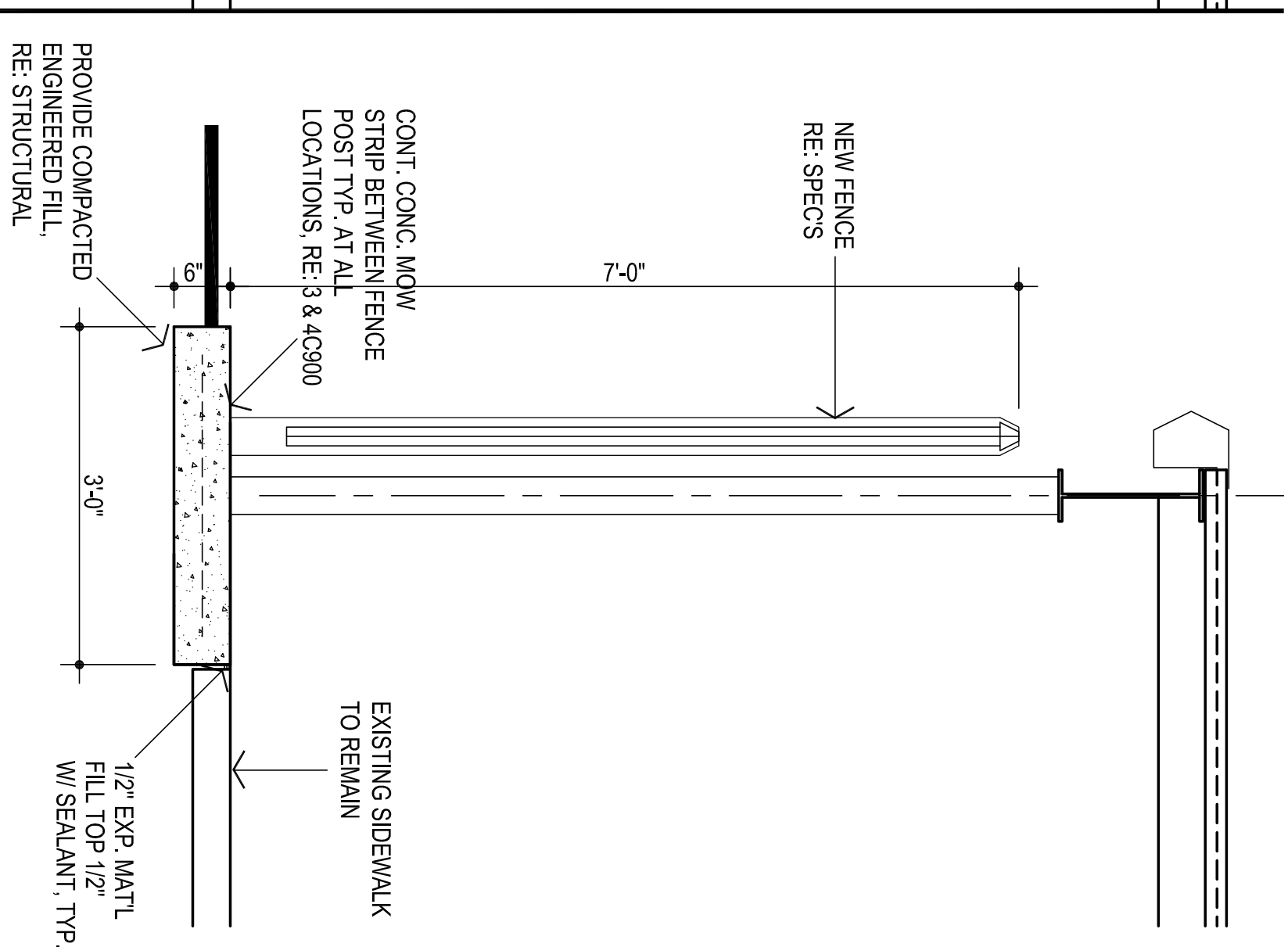




2/13/24

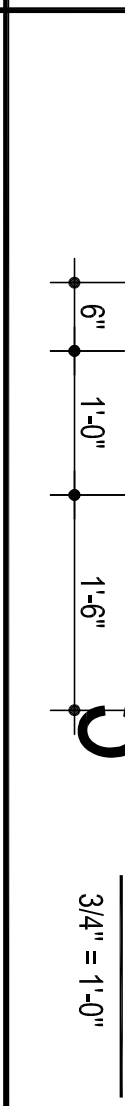
12 FENCE SECTION BETWEEN NEW FOOTINGS

3/4" = 1'-0"



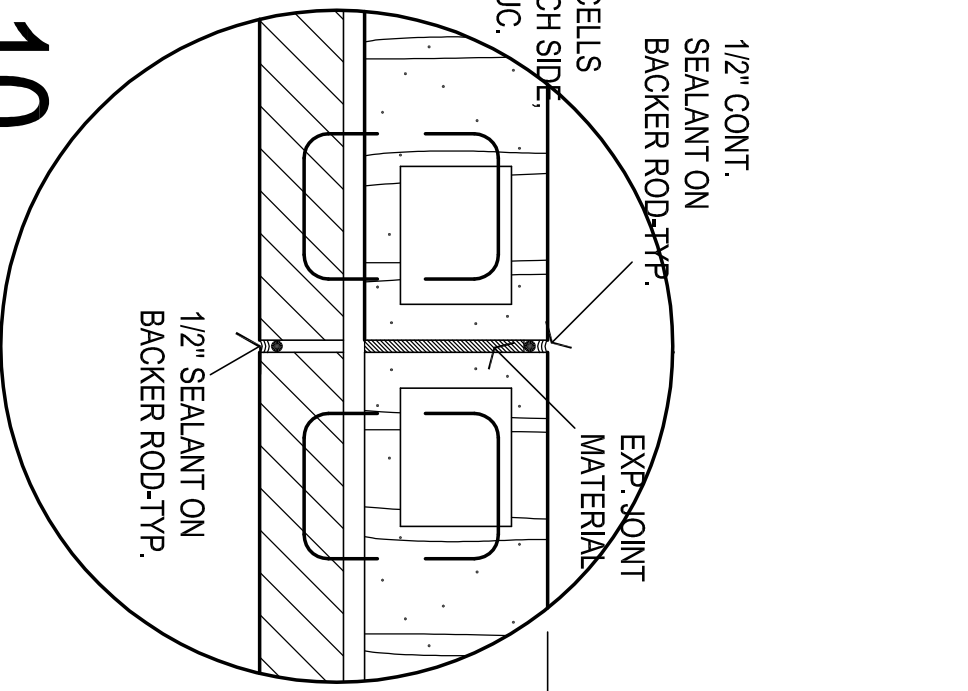
5 FENCE SECTION

3/4" = 1'-0"



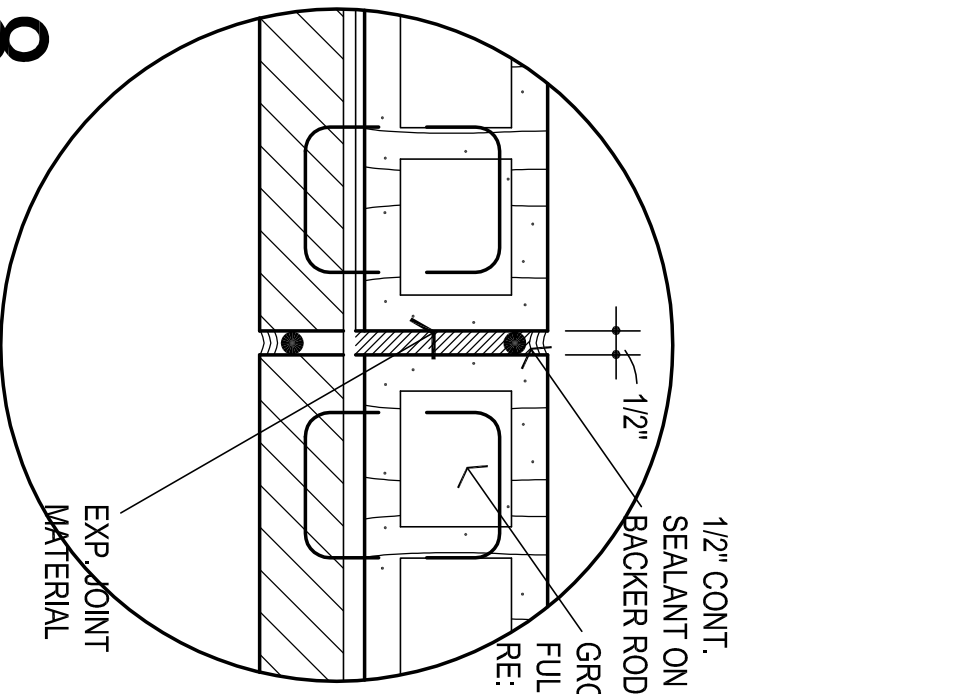
10 CONTROL JOINT

3/4" = 1'-0"



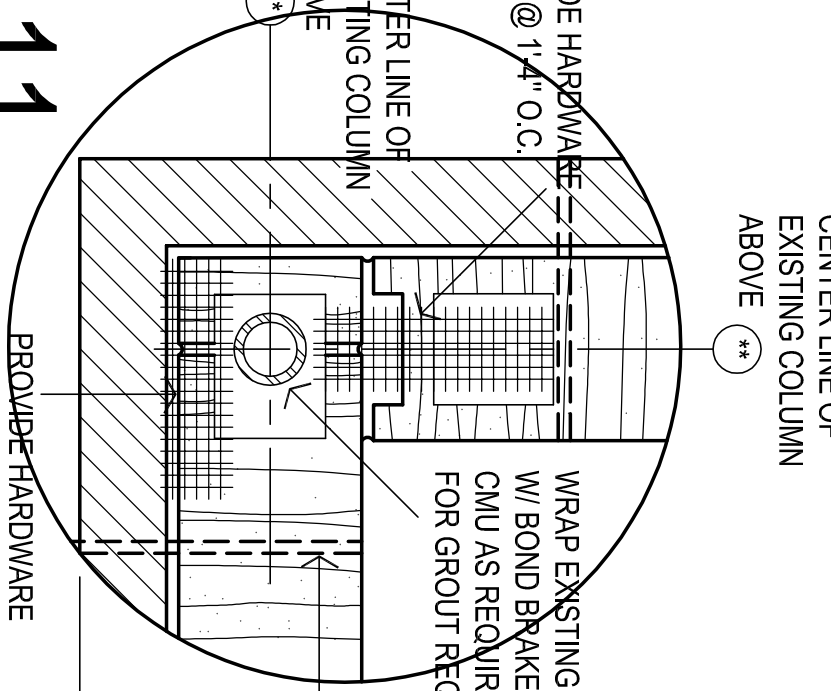
8 EXPANSION JT.

3/4" = 1'-0"



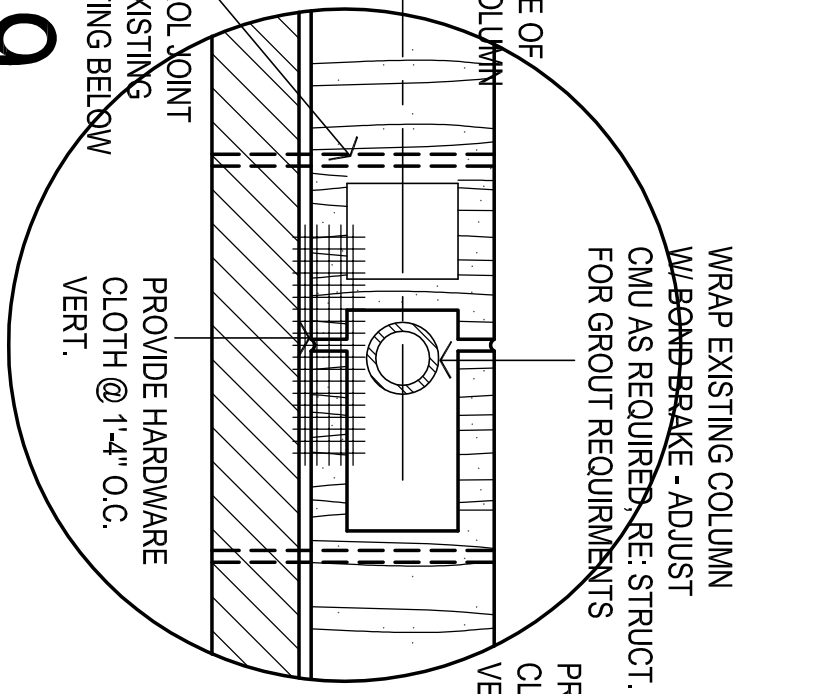
11 CONTROL JOINT

3/4" = 1'-0"



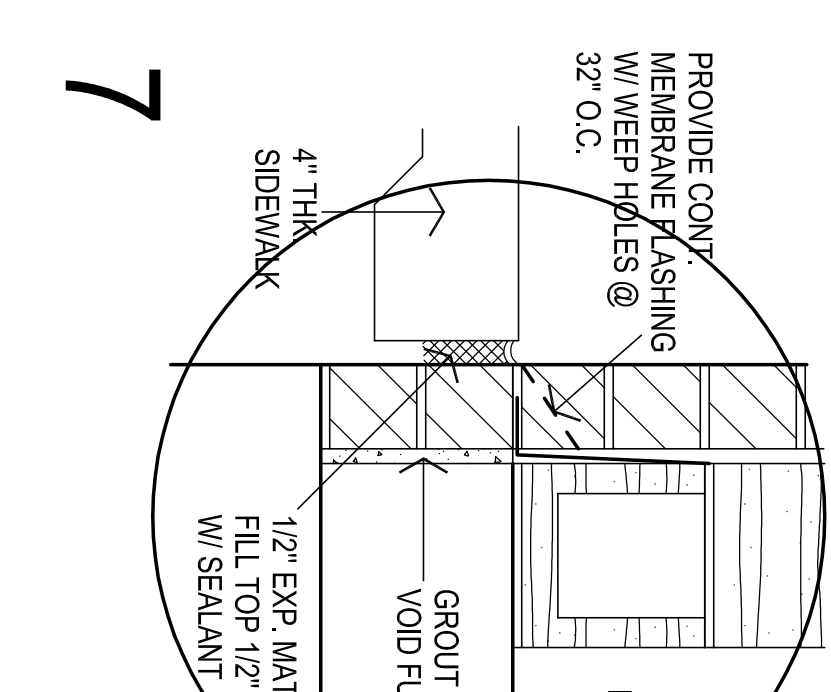
9 CONTROL JOINT

3/4" = 1'-0"



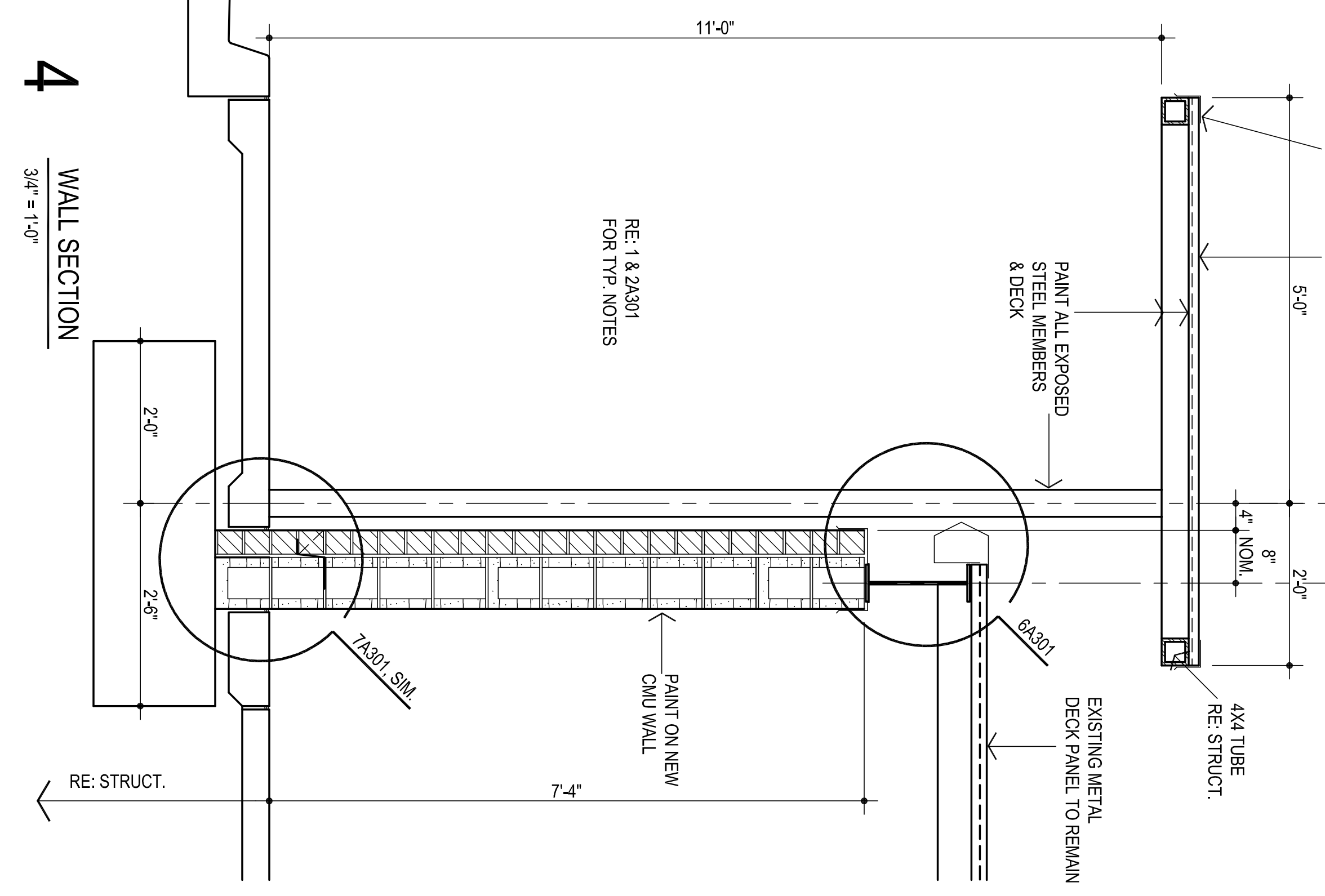
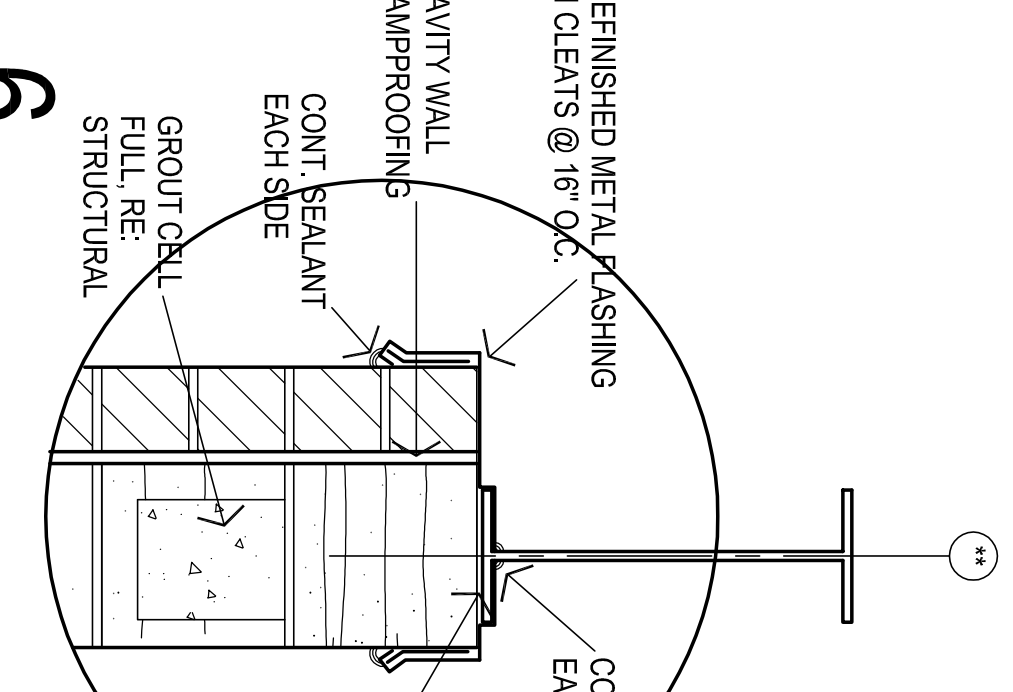
7 CONTROL JOINT

3/4" = 1'-0"



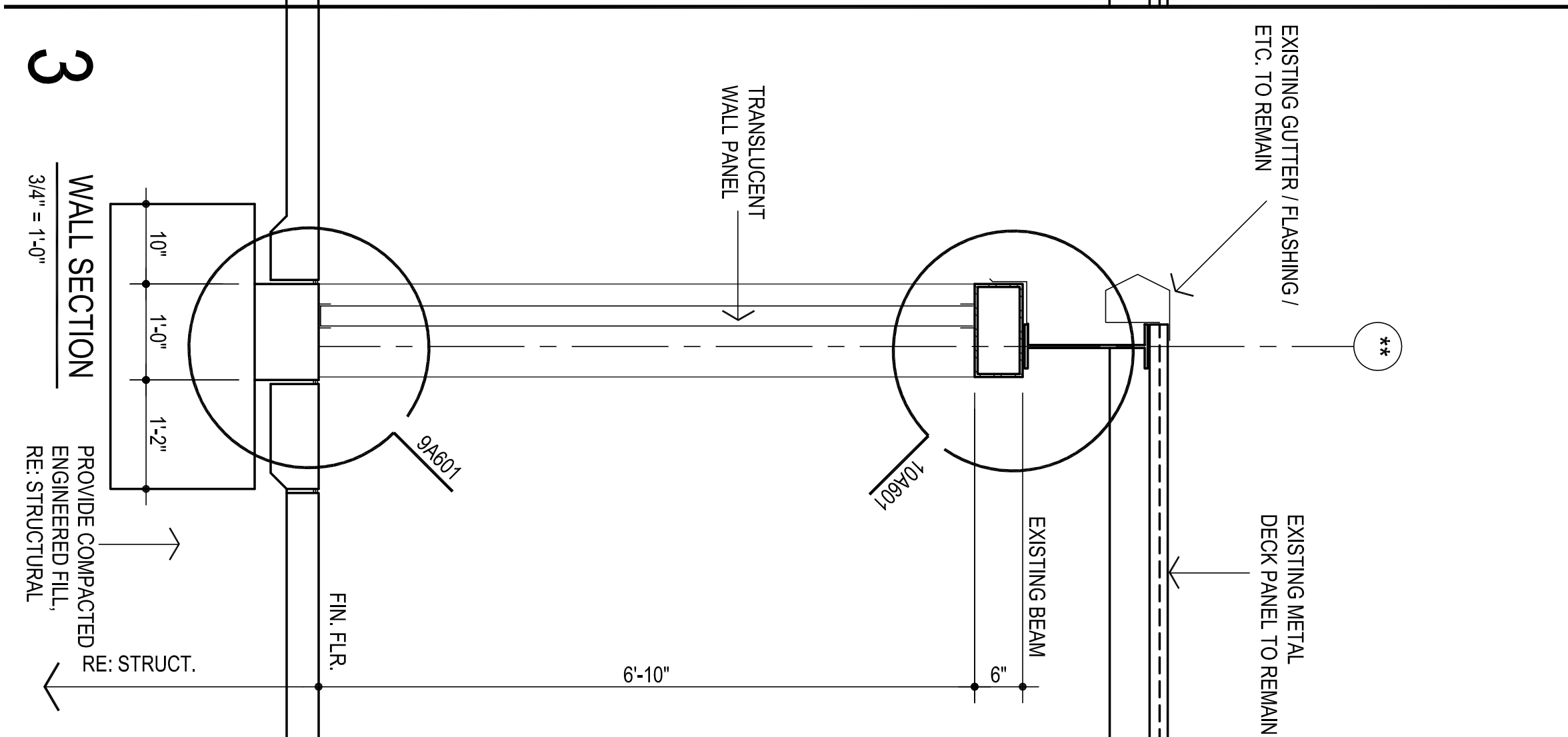
6 CONTROL JOINT

3/4" = 1'-0"



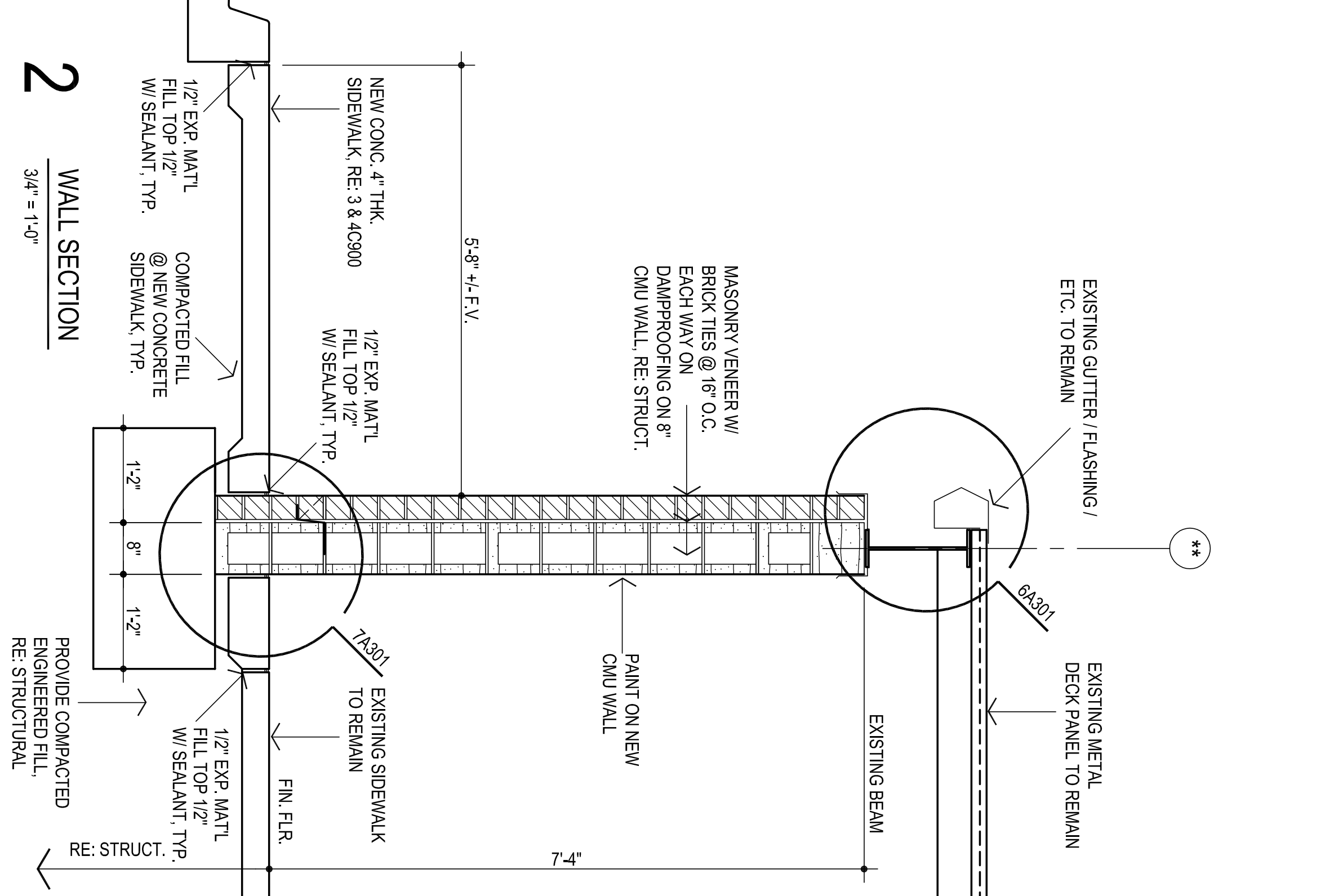
4 WALL SECTION

3/4" = 1'-0"



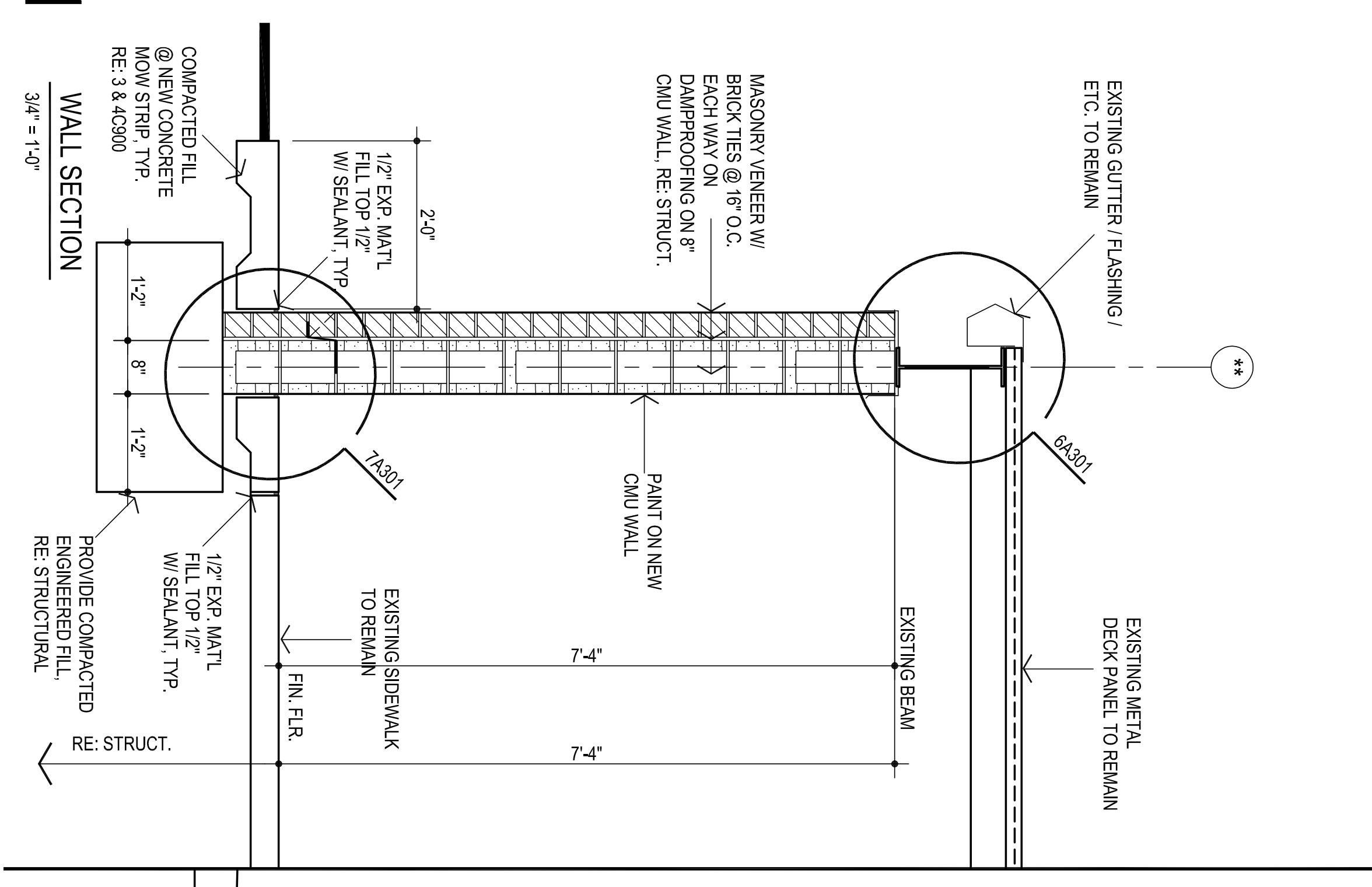
3 WALL SECTION

3/4" = 1'-0"



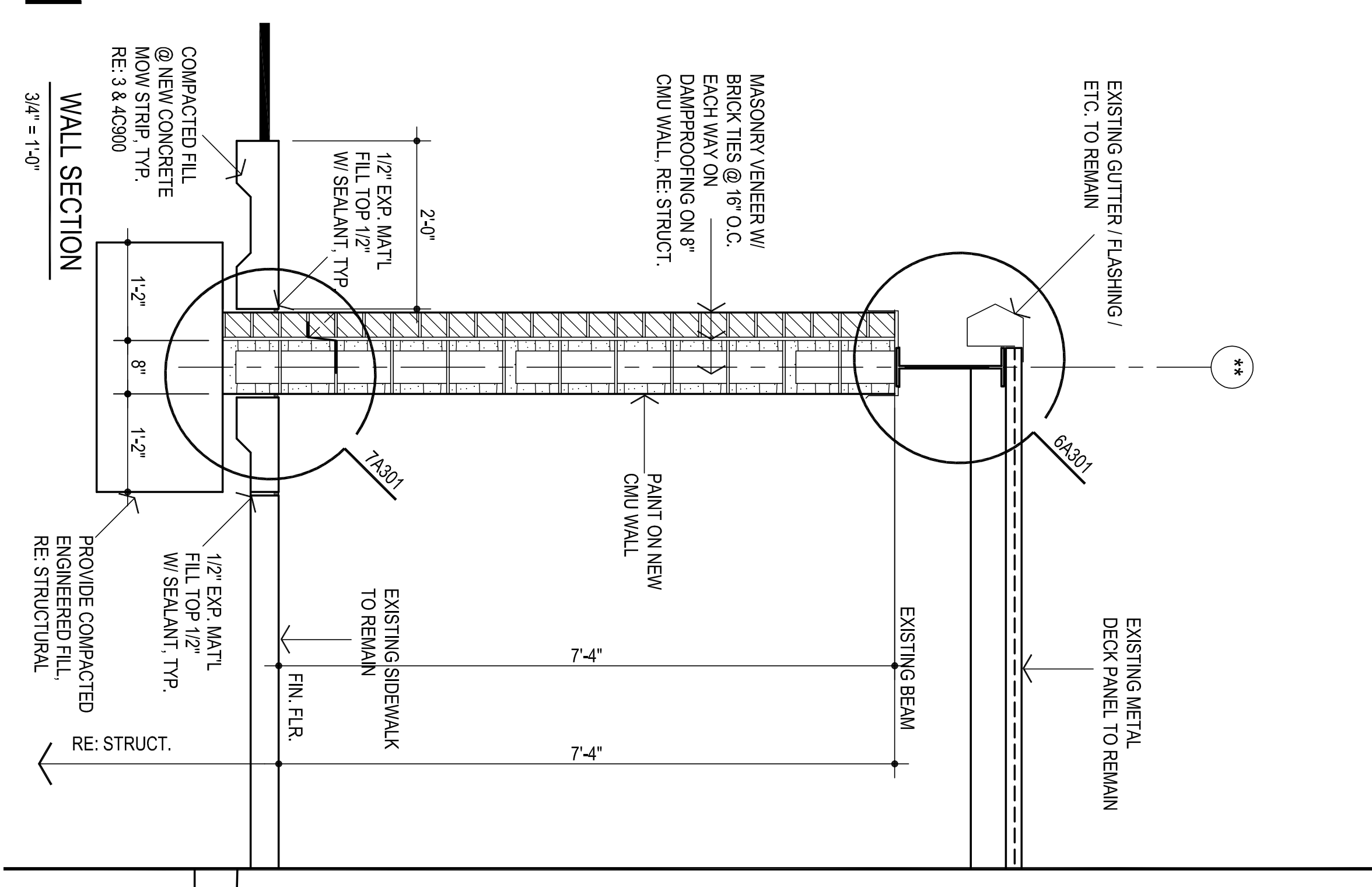
2 WALL SECTION

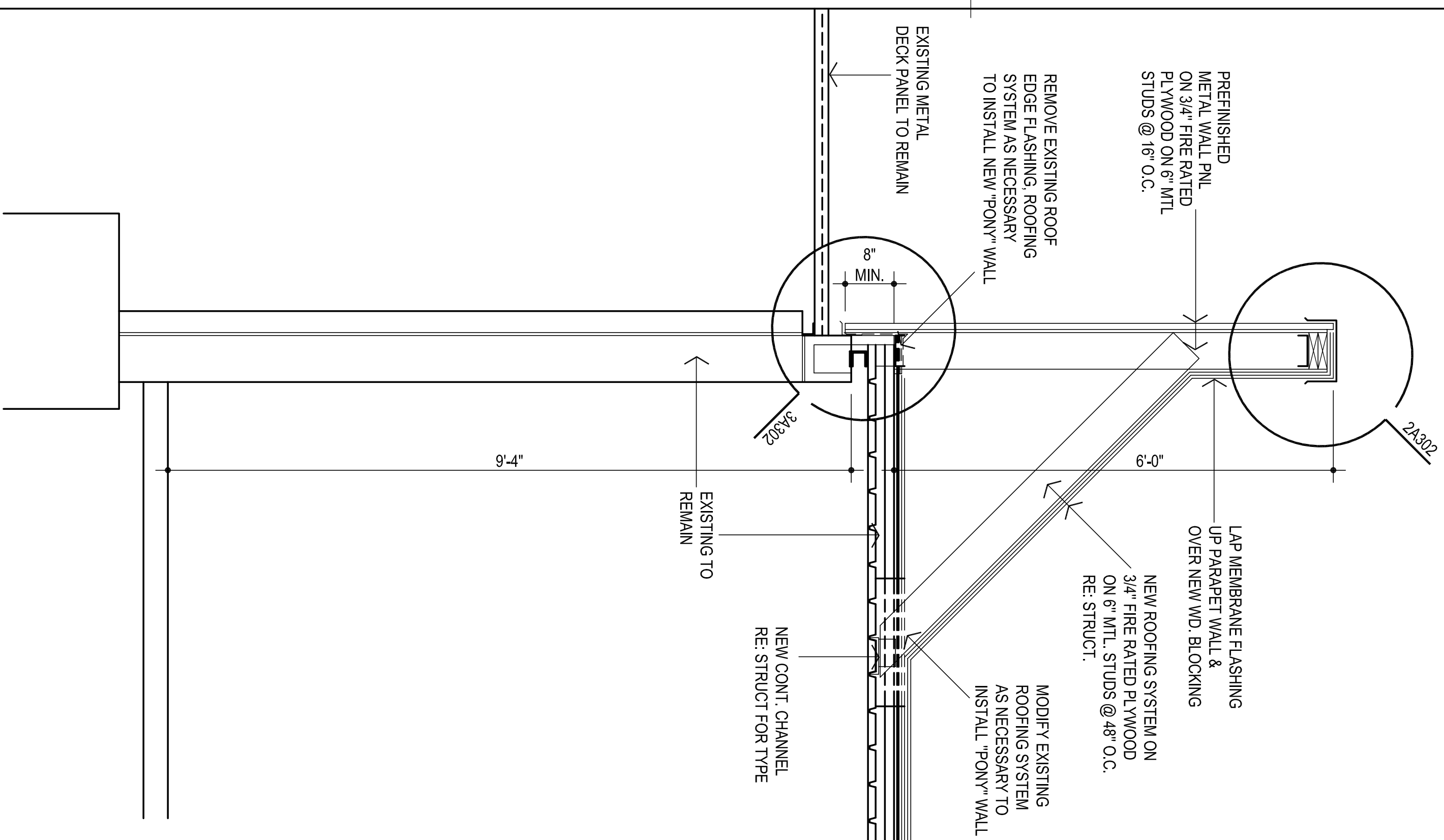
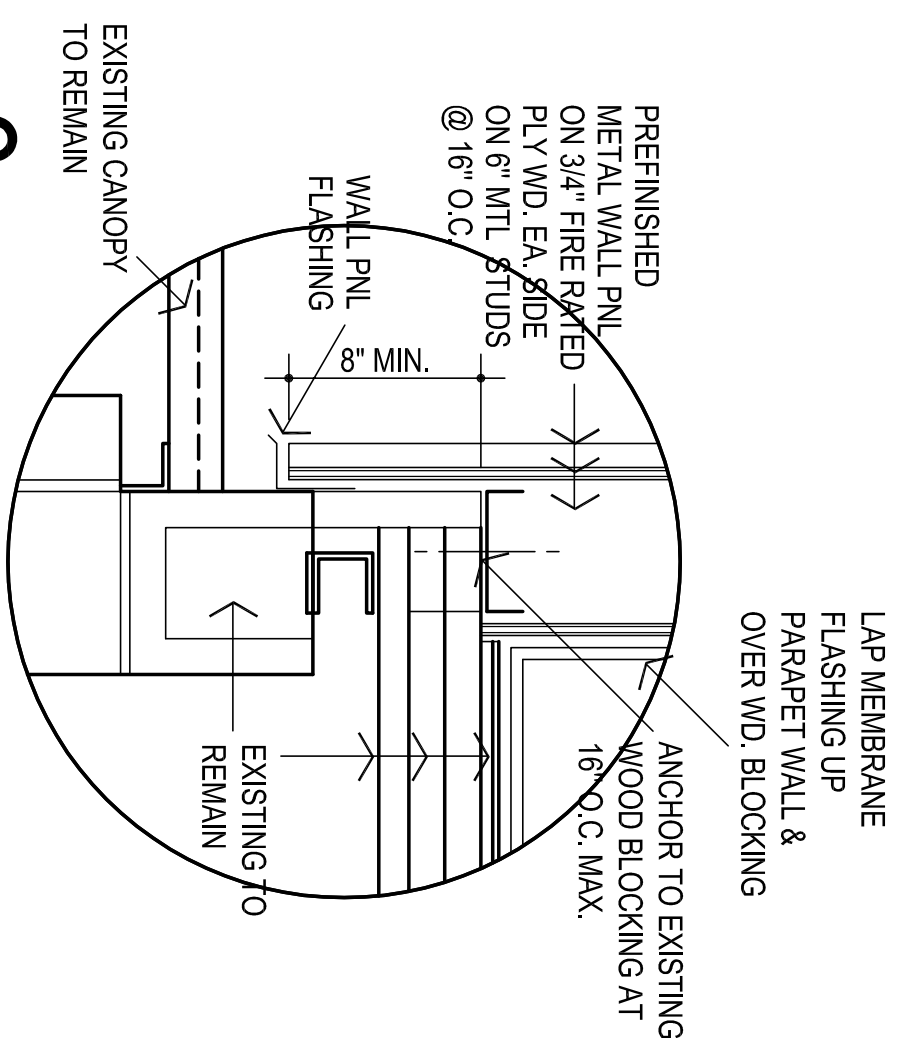
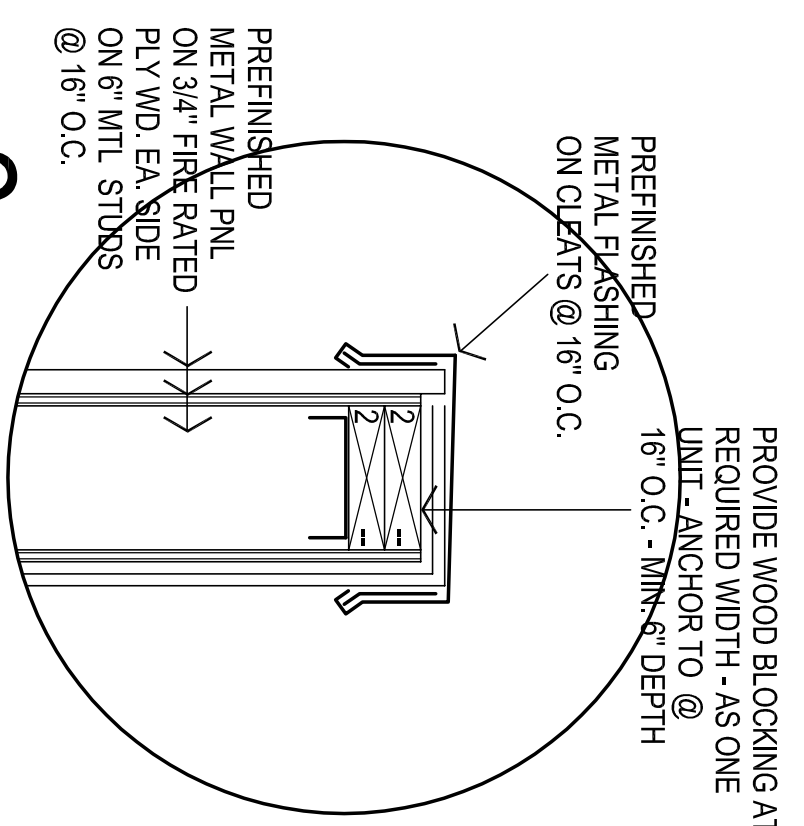
3/4" = 1'-0"



1 WALL SECTION

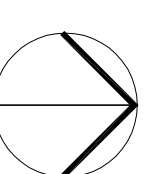
3/4" = 1'-0"



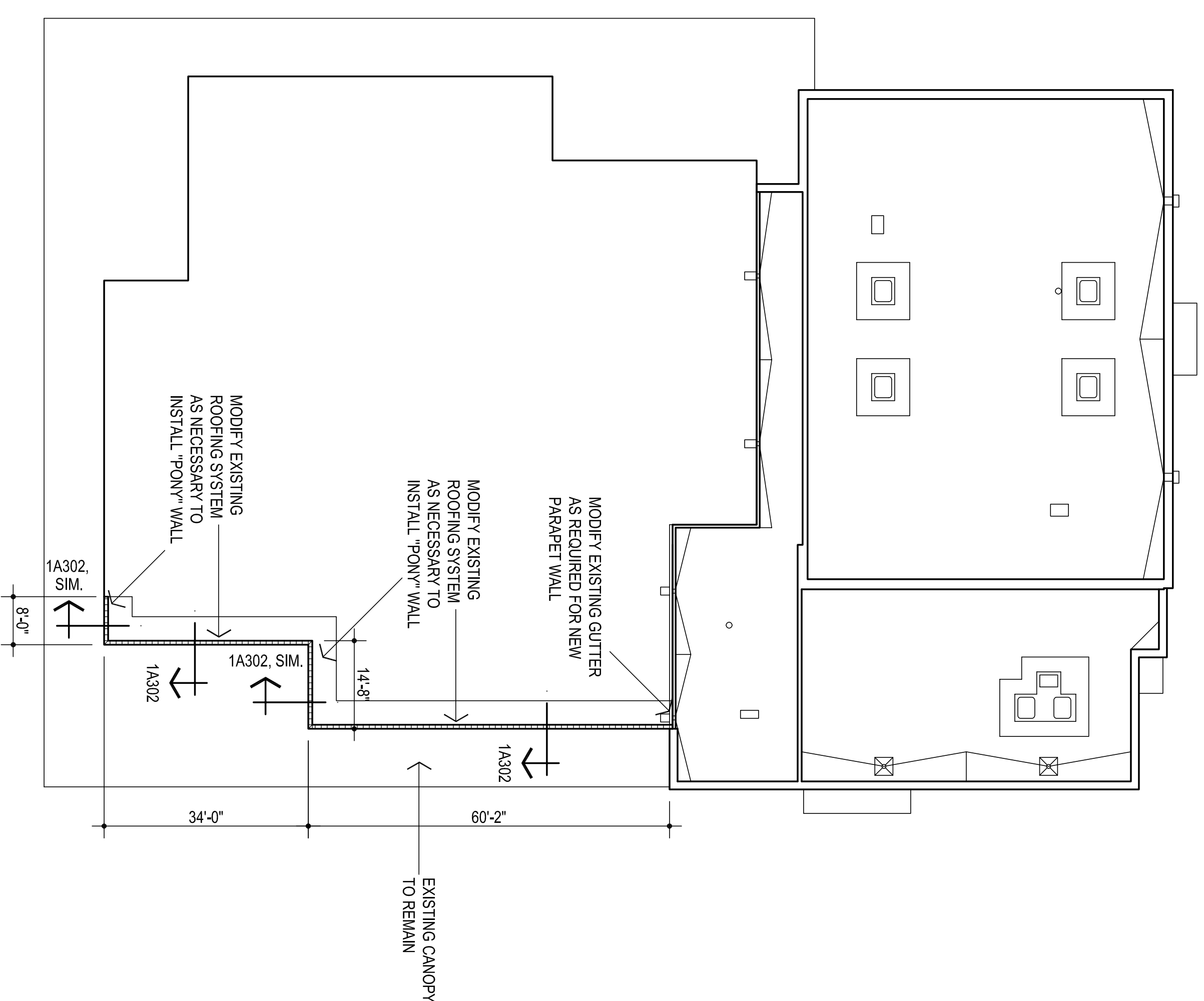


1 WALL SECTION
3/4" = 1'-0"

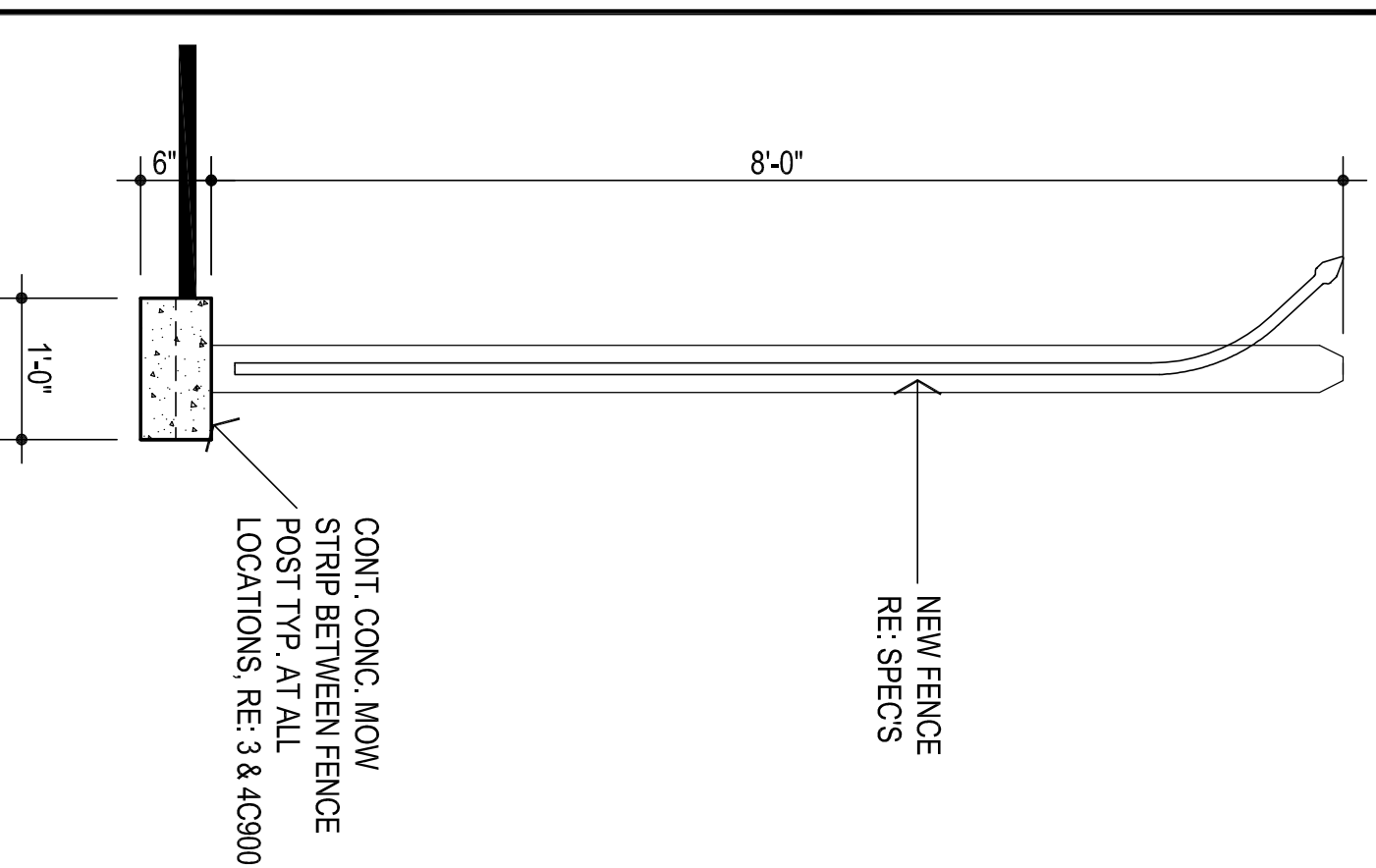
NORTH



4 PARAPET WALL LOCATION PLAN
1/16" = 1'-0"



5 FENCE SECTION
3/4" = 1'-0"



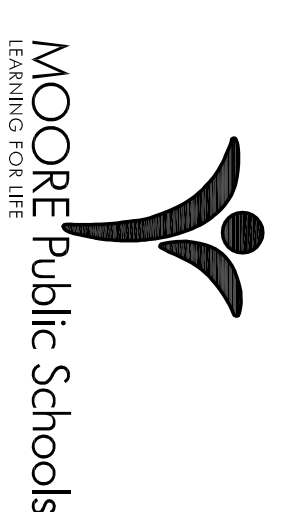
AGP
the Abila Griffin
Partnership L.L.C.
201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

KFC ENGINEERING
STRUCTURAL
SALAS O'BRIEN



CS
drawn by
MA
checked by
FEBRUARY 2024
0888
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

Sheet No.
A302

WALL SECTIONS
OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED HEREIN.
REPRODUCTION IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.

PAINT:

- 1 EXPOSED CMU WALLS - FIELD: SHERWIN-WILLIAMS - SW7008 - ALABASTER
- 2 H.M. DOORS & FRAMES : SHERWIN-WILLIAMS - SW6992 - INKWELL
- 3 MISCELLANEOUS METALS: SHERWIN-WILLIAMS - SW6992 - INKWELL

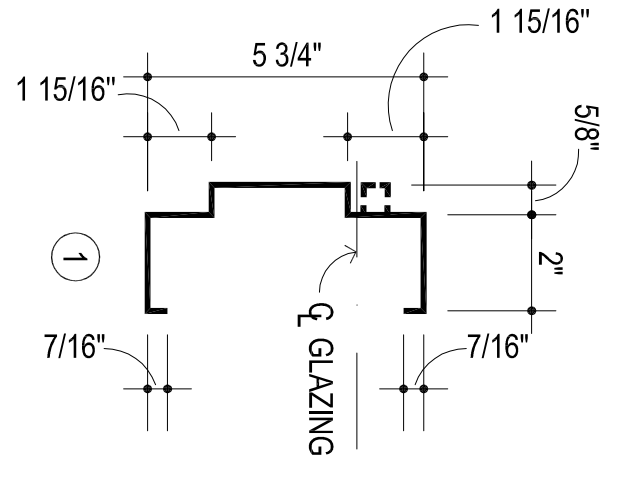
EXTERIOR COLORS:

- 4 PREFINISHED METAL COPING - TO BE VERIFIED WITH ARCHITECT PRIOR TO CONSTRUCTION - MATCH EXISTING
- 5 PREFINISHED METAL ROOF PANEL - TO VE VERIFIED WITH ARCHITECT PRIOR TO CONSTRUCTION - MATCH EXISTING
- 6 MASONRY BRICK VENEER: ACME BRICK - TO BE VERIFIED WITH ARCHITECT PRIOR TO CONSTRUCTION - MATCH EXISTING

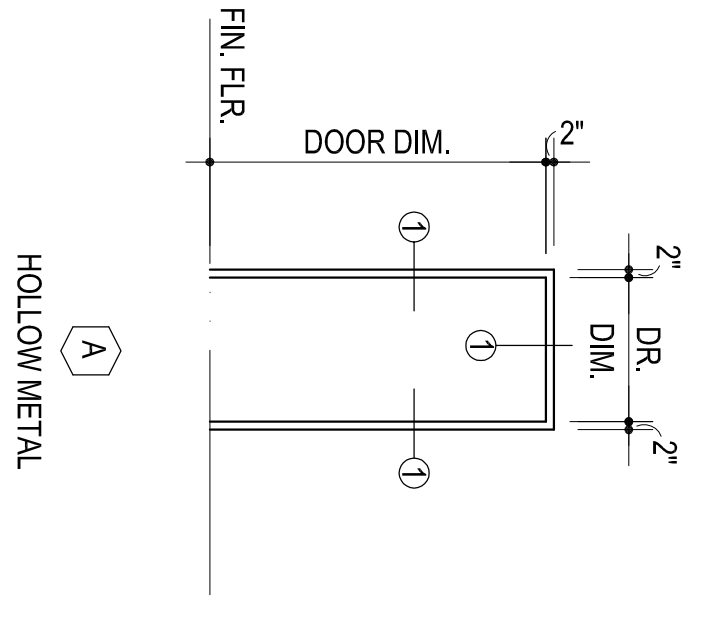
1 COLOR SCHEDULE

DOOR NO.	LOCATION FROM/ TO	DOOR ELEV.	DOOR MATL	DOOR SIZE WIDTH HEIGHT TH K	FRAME FL. ELEV.	DOOR DETAILS			REMARKS	HDWR. SET NO.		
						HEAD	SILL	JAMB				
1	CORR. EXT.	A	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	1
2	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
3	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
4	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
5	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
6	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
7	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
8	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
9	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
10	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
11	<	<	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2
12	CORR. EXT.	A	H.M.	3'-0" 6'-8"	134"	A	6A601	8A601	7A601	7A601	BY FENCE / GATE MFR.	2

2 DOOR SCHEDULE

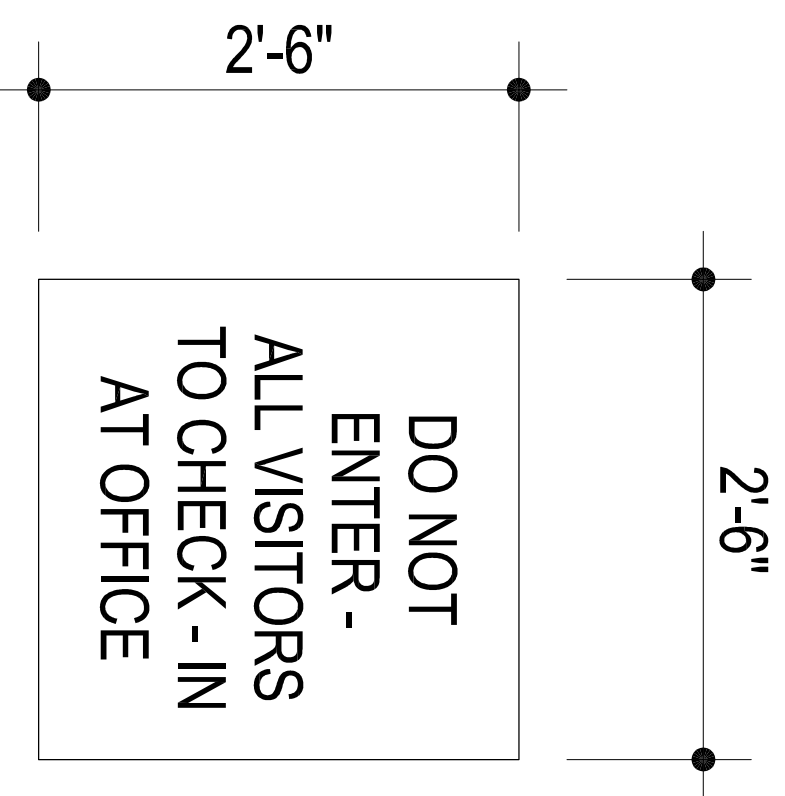
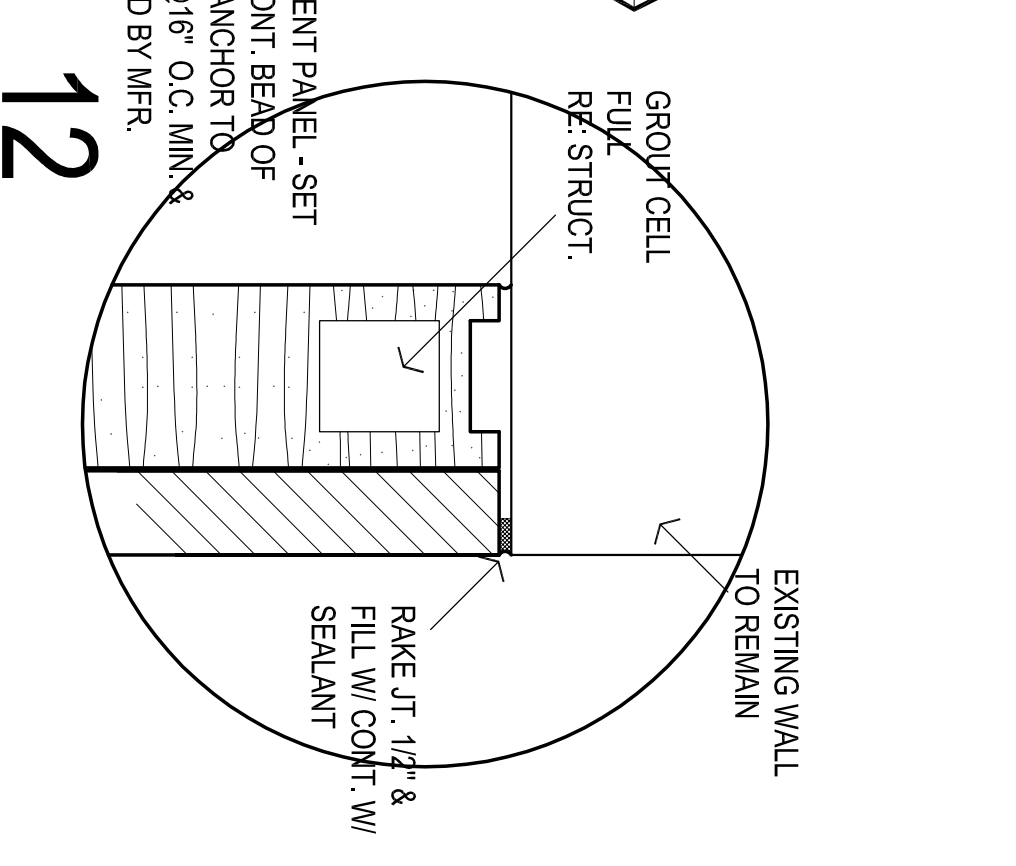
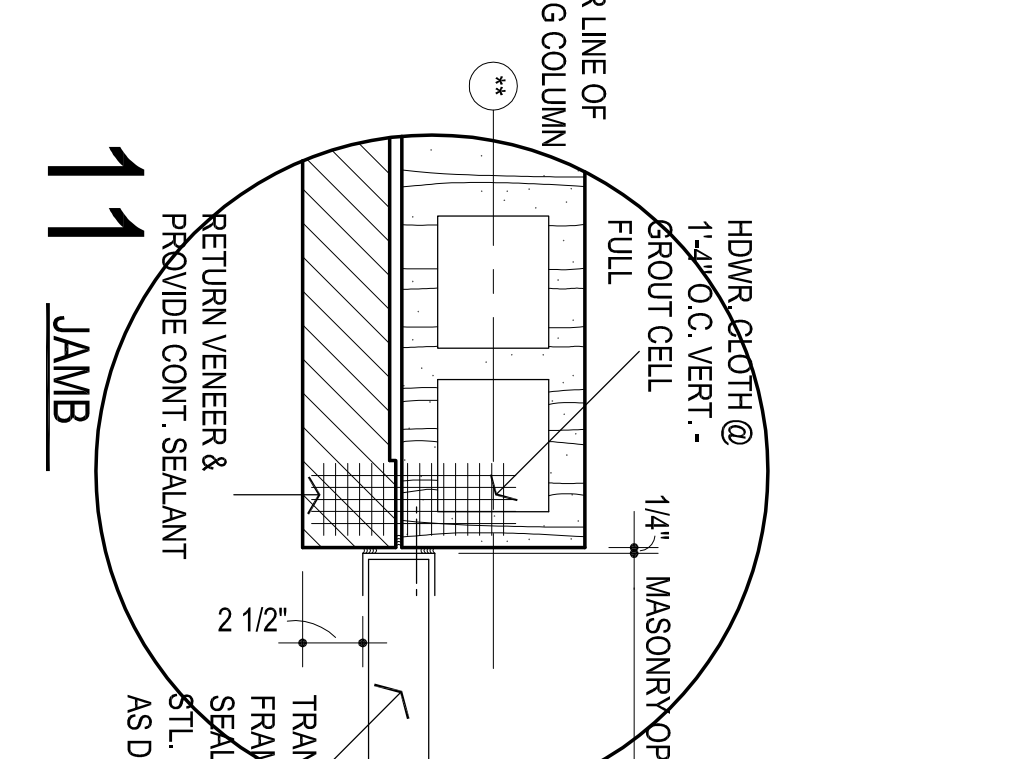
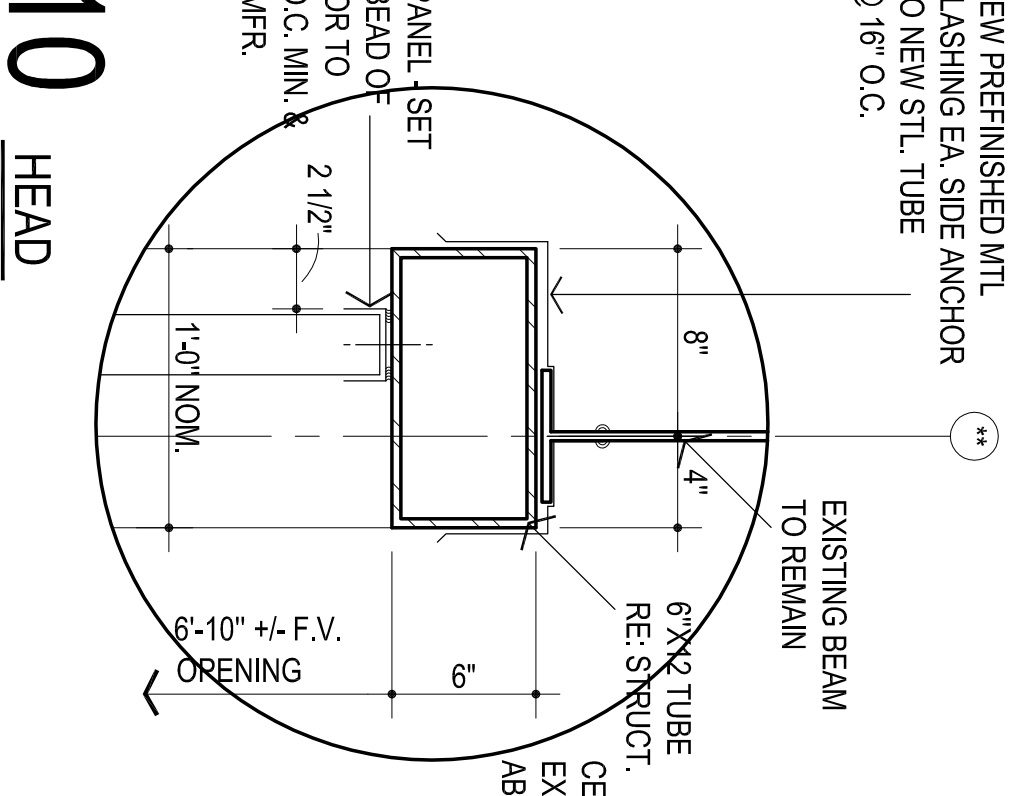
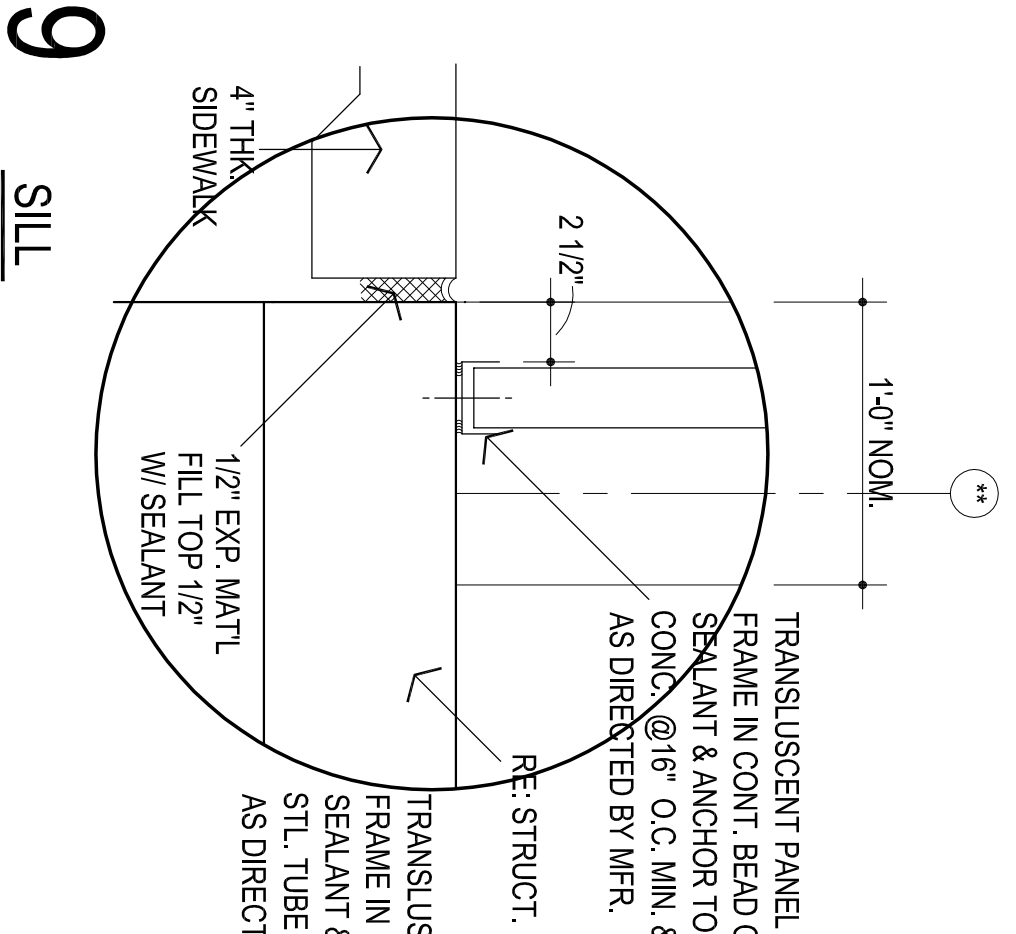
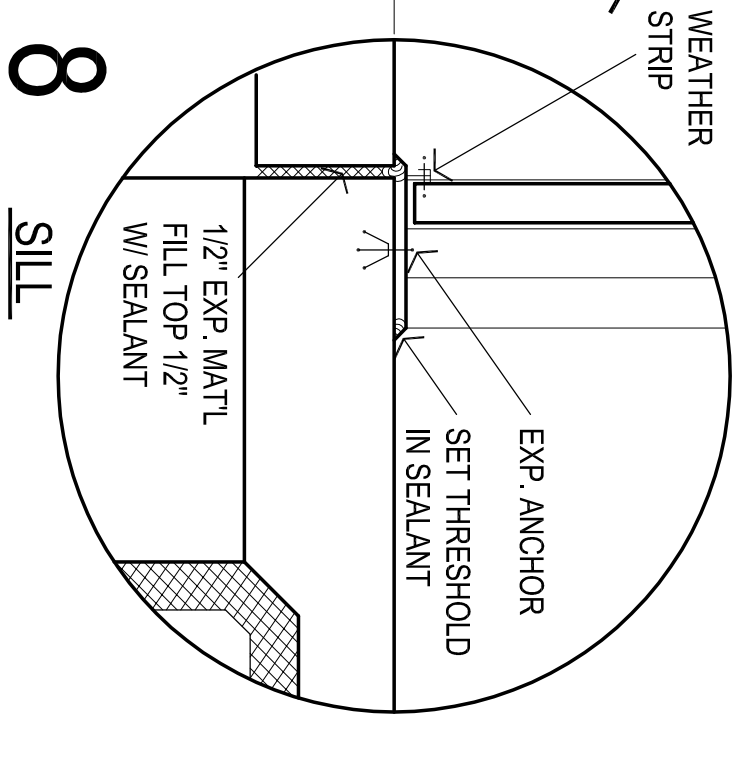
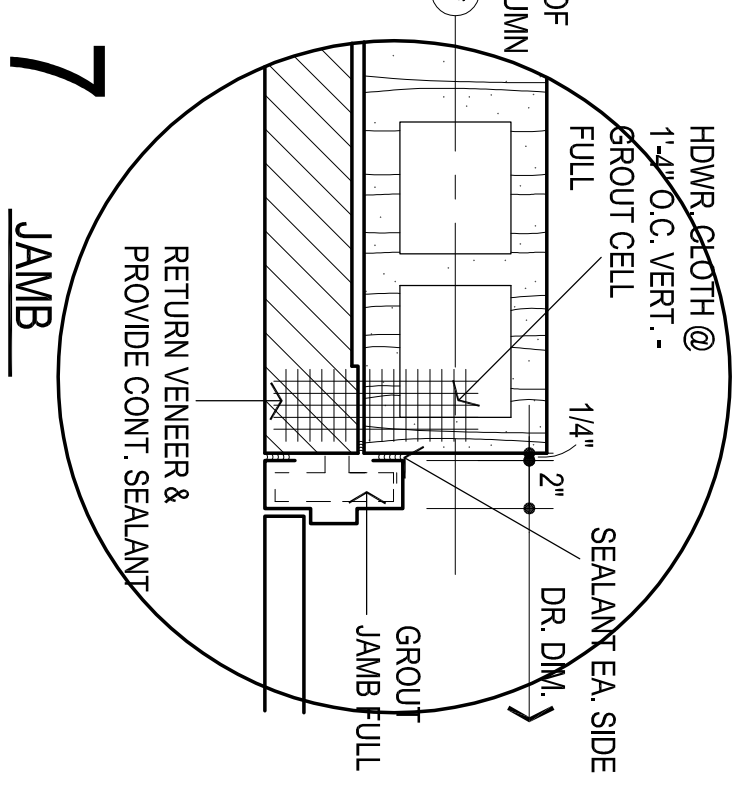
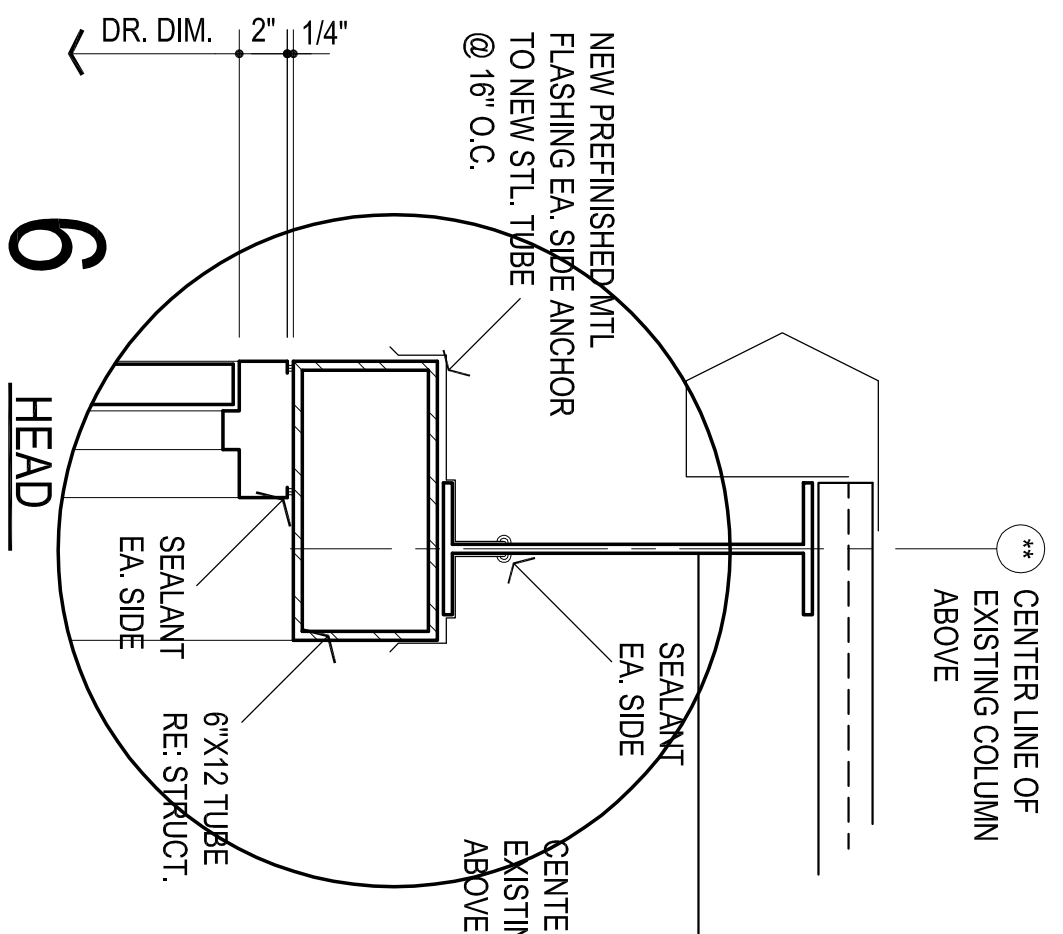
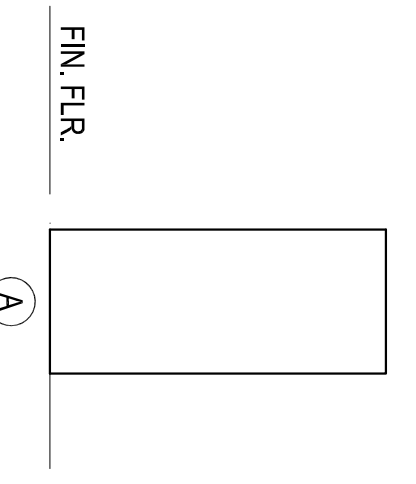


3 FRAME PROFILES



4 FRAME ELEVATIONS

5 DOOR ELEVATIONS



13 EXTERIOR SIGNAGE

**** -**
REFER 1A100 FOR LOCATIONS (ALL DOORS & /OR GATES THRU NEW PERIMETER WALLS & FENCE) & SPECIFICATIONS FOR FABRICATION INFORMATION



the Abia Griffin Partnership L.L.C.

201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
405.735.3477
ACGP@theACGP.net
www.theACGP.net

KFC ENGINEERING
STRUCTURAL
SALAS O'BRIEN
MECHANICAL ELECTRICAL



CG
designed by
MA
checked by
FEBRUARY 2024
dab
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

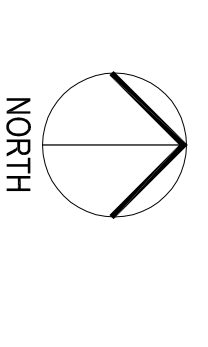
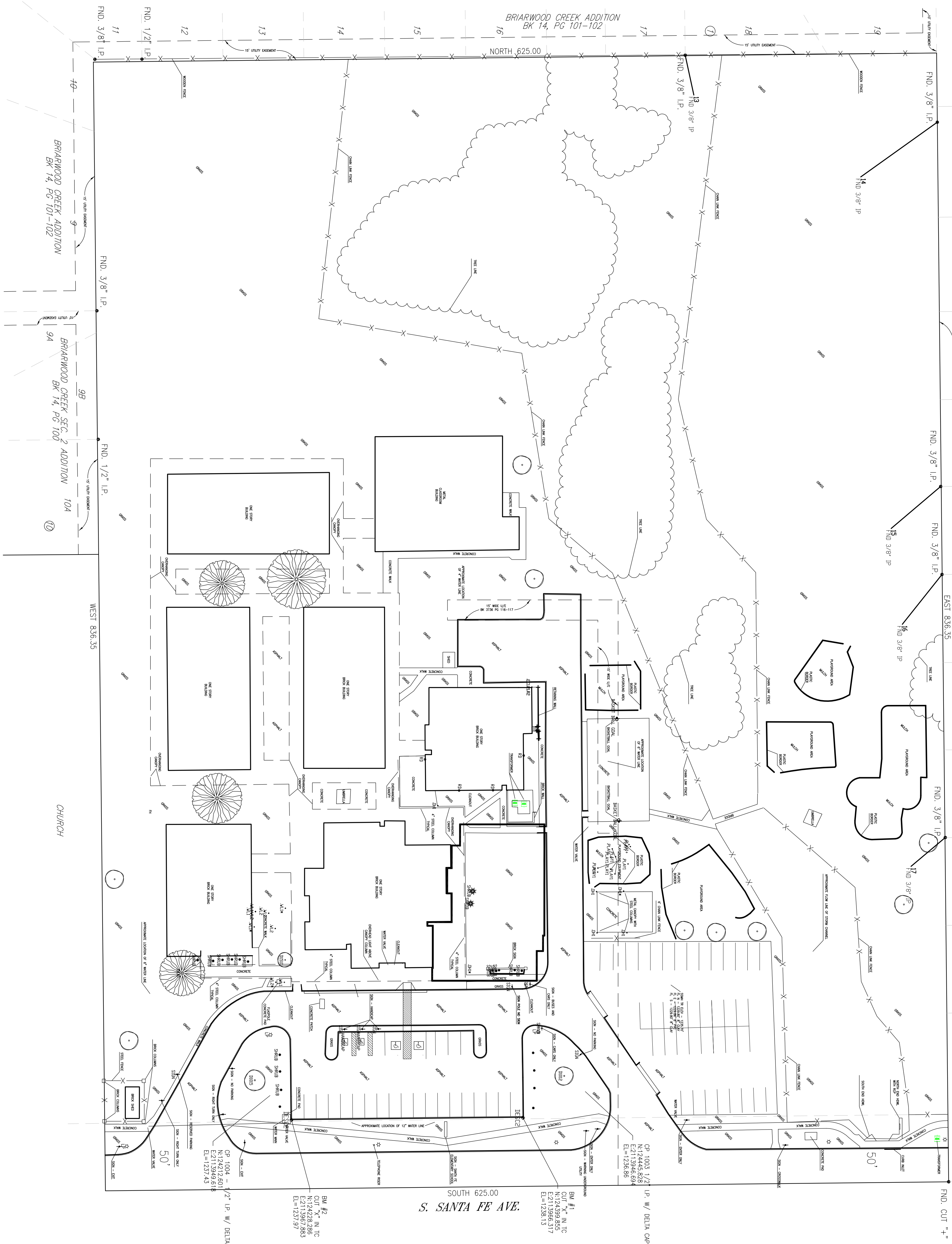
Sheet No.
A601

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED HEREON. ANY REPRODUCTION OR TRANSMISSION OF ANY PART OF THIS DOCUMENT WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.

NW 6TH PLACE

12
11
10
9
8
7
6
5
4
3
2
1

GREENBRIAR - EAST LAKE ADDITION
BK 11, PG 13-16



EXISTING OVERALL SITE PLAN
1
1" = 40'-0"



the Abla Griffin
Partnership L.L.C.

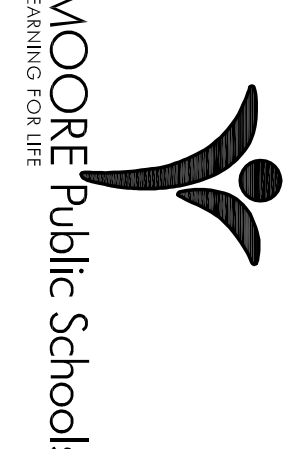
201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
ACGP@theACGP.net
www.theACGP.net

KFC ENGINEERING
STRUCTURAL
SALAS OBRIEN
MECHANICAL/ELECTRICAL



CG
drawn by
MA
checked by
FEBRUARY 2024
0818
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

C100

OWNERSHIP USE OF DOCUMENTS:
ACGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED HEREIN.
REPRODUCTION IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF ACP.



CS
drawn by
MA
checked by
FEBRUARY 2024
088
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA

MOORE Public Schools
LEARNING FOR LIFE

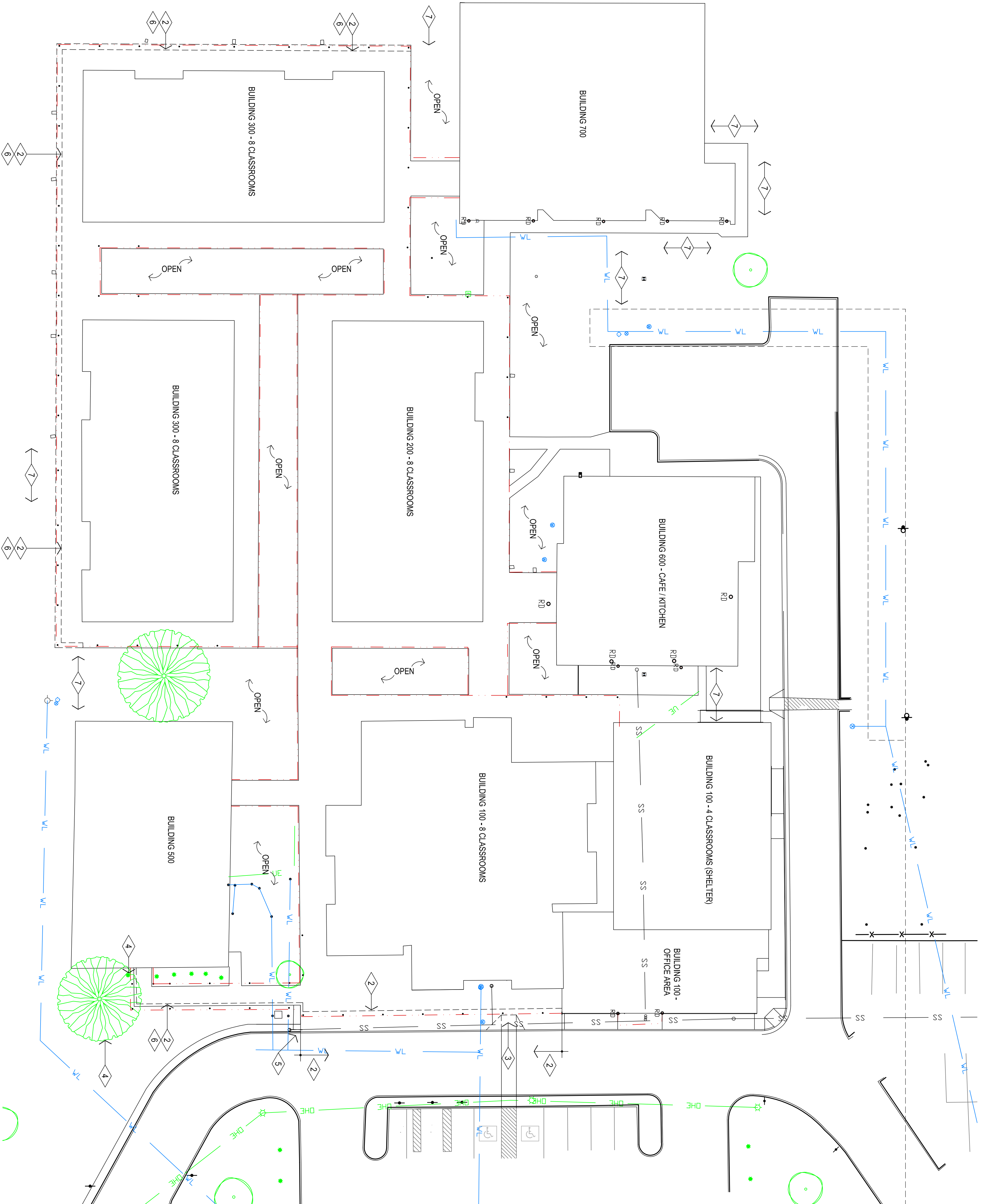
SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

Sheet No.

C200

OWNERSHIP USE OF DOCUMENTS:

AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED BY
AGP. ANY REPRODUCTION OR
REPRODUCTION IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



GENERAL NOTES:

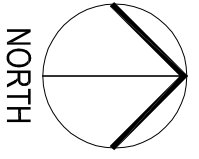
1. FILL GRADE & PREPARE ALL EXCAVATED AREAS TO RECEIVE NEW SITE FEATURES.
2. CONTRACTOR TO VISIT SITE PRIOR TO PREPARING BID & VERIFY ALL ITEMS TO BE DEMOLISHED. ANY ADDITIONAL ITEMS REQUIRING DEMOLITION THAT ARE NOT INCLUDED IN THESE DOCUMENTS SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND INCLUDED IN THE BASE BID.
3. EXISTING UNDERGROUND UTILITY LOCATIONS & CONTOUR INFORMATION HAVE BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK & COORDINATE W/ ARCHITECT.
4. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ELEVATIONS PRIOR TO STARTING EARTHWORK - AND ADJUST ACCORDINGLY AS DIRECTED BY THE ARCHITECT.
5. DURING ALL EXISTING UTILITY REVISIONS - TEMPORARY SERVICES IS TO BE PROVIDED @ ALL EFFECTED BUILDINGS.
6. ALL SALVAGEABLE ITEMS TO REMAIN OWNERS PROPERTY & SHALL BE STORED OR DISPOSED OF AS PER OWNERS INSTRUCTIONS.
7. CONSTRUCTION SHALL MEET ALL APPLICABLE CODES, ORDINANCES, REGULATIONS & STANDARDS REQUIRED BY THE CITY OF OKLAHOMA CITY, OKLAHOMA.
8. CONSTRUCTION SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE AMERICANS W/ DISABILITIES ACT INCLUDING ANY SUPPLEMENTAL REQUIREMENTS BY THE CITY OF OKLAHOMA CITY, OKLAHOMA.
9. CONTRACTOR SHALL COORDINATE ACCESS TO SITE W/ OWNER PRIOR TO STARTING WORK. OBTAIN APPROVAL FROM OWNER FOR ON-SITE MATERIAL STORAGE, ETC. CONTRACTOR SHALL PROVIDE PROPER SEPARATION BTWN. WORK & STUDENTS.

DEMOLITION NOTES:

1. REMOVE ALL EXISTING WALL MOUNTED ITEMS TO BE SALVAGED. RE: ELECTRICAL & COORDINATE W/ ARCHITECT & OWNER.
2. DEMOLISH EXISTING CONCRETE SIDEWALK TO LIMITS REQUIRED FOR NEW SECURITY WALLS & PREPARE SUBSTRATE TO RECEIVE NEW WORK. RE: A100 & STRUCTURAL
3. DEMOLISH EXISTING CONCRETE SIDEWALK, CURB & EXISTING ASPHALT TO LIMITS REQUIRED FOR NEW HANDICAP RAMP. RE: A100 & DETAILS
4. REMOVE EXISTING TREE & ROOT SYSTEM. FILL VOID & COMPACT
5. AT EXISTING CURB CUT (8' LF +/-) DEMOLISH EXISTING CONCRETE SIDEWALK, CURB & EXISTING ASPHALT TO LIMITS REQUIRED FOR NEW CURB AND GUTTER. RE: A100 & DETAILS
6. PREPARE EXISTING SUBSTRATE TO RECEIVE NEW CONCRETE MOW STRIP. RE: A100 & CIVIL
7. AT ALL LOCATIONS OF NEW SECURITY FENCE PREPARE SUBSTRATE FOR NEW FOOTINGS AND CONTINUOUS MOW STRIP. RE: SHEET A100 & SECTIONS

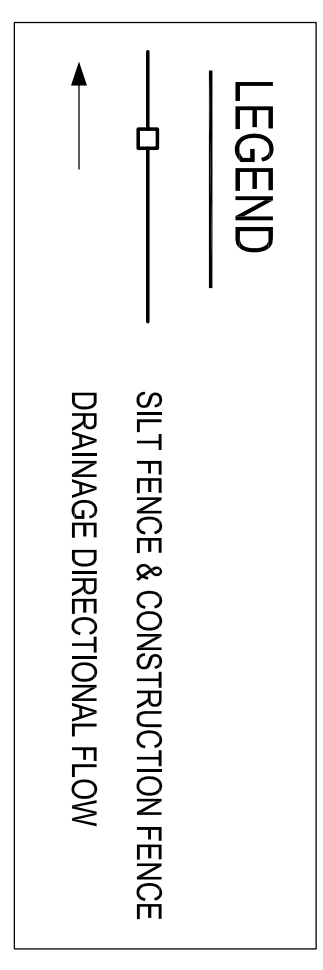
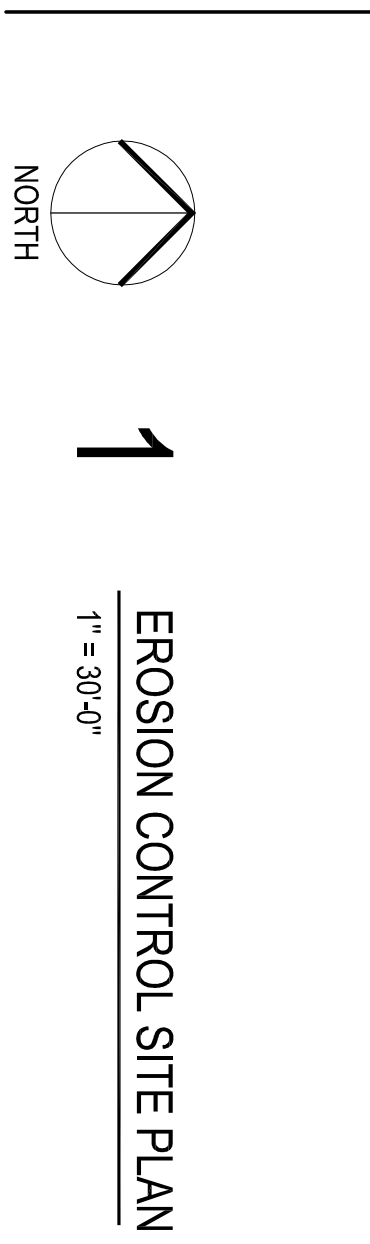
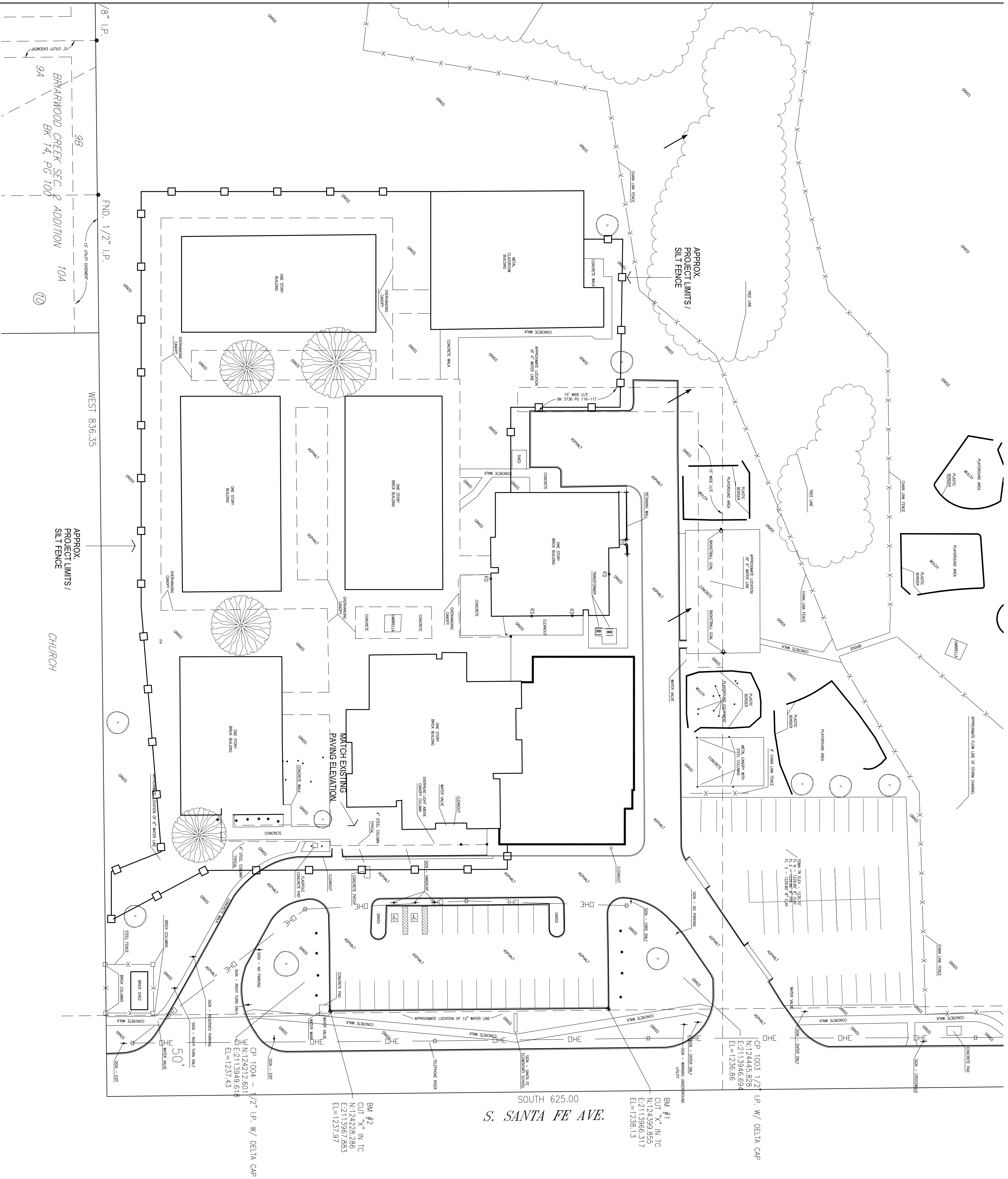
LEGEND:

- - - - - INDICATES EDGE OF EXISTING METAL CANOPIES - FIELD VERIFY



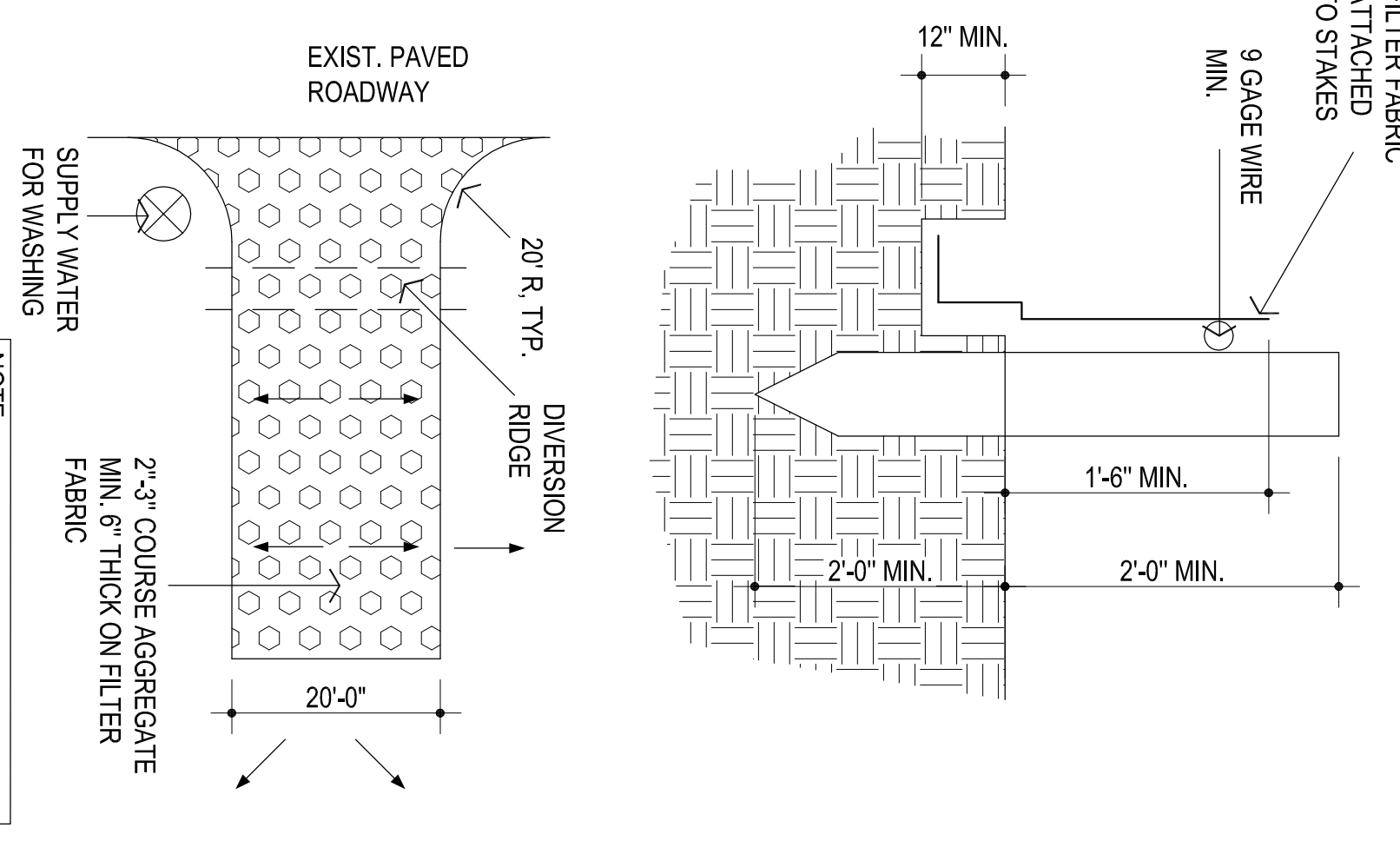
1
1" = 20'-0"

DEMOLITION SITE PLAN



EROSION CONTROL GENERAL NOTES

1. INSTALL PERMETER EROSION CONTROL DEVICES PRIOR TO REMOVING TOP SOIL OR BEGINNING GRADING ACTIVITIES.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE IN AN AREA DRAINING INTO THE POLLUTION CONTROL SYSTEM
3. AFTER ALL PRECIPITATION OF 0.5 INCHES OR GREATER EROSION CONTROL FACILITIES SHALL BE INSPECTED AND MAINTAINED AS NECESSARY. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST ONCE EVERY 7 DAYS. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR RE-ALIGNMENT OF ALL EROSION CONTROL DEVICES DAMAGED DUE TO CONSTRUCTION.
6. A COPY OF THE EROSION CONTROL SITE PLAN MUST BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE INSPECTOR UPON REQUEST.
7. MAINTAIN ALL FACILITIES UNTIL ALL PAVEMENT AND/OR GROUND COVER IS ESTABLISHED. ANY DISTURBED AREA WHICH WILL NOT SEE CONSTRUCTION ACTIVITY FOR 21 DAYS OR MORE SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 14 DAYS OF THE LAST DISTURBANCE.
8. A PERSON IN RESPONSIBLE CHARGE SHALL BE AVAILABLE DURING CONSTRUCTION HOURS TO SUPERVISE IMPLEMENTATION AND MAINTENANCE OF THE POLLUTION PREVENTION PLAN AND TO ASSIST WITH INSPECTIONS BY ANY REGULATORY AGENCY.
9. AFTER COMPLETION OF CONSTRUCTION, REMOVE ALL CONTROL DEVICES & MATERIALS. FILL, COMPACT & GRADE ALL DISTURBED SOIL & RE-SOD.



NOTE:
COORDINATE ACCESS DRIVE LOCATION
W/ OWNER AND ARCHITECT

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. USE SANDBAGS, STRAW BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQ'D.
5. DIVERSION RIDGE REQUIRED WHERE GRADE EXCEEDS 2%



2/13/24

CG
designed by
MA
checked by
FEBRUARY 2024
088
revisions

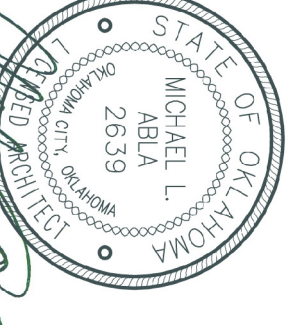
MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

Sheet No:
C600

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED BY AGP.
REPRODUCTION IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



2/13/24

CG
designed by
MA
checked by
FEBRUARY 2024
dab
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA

MOORE Public Schools
LEARNING FOR LIFE

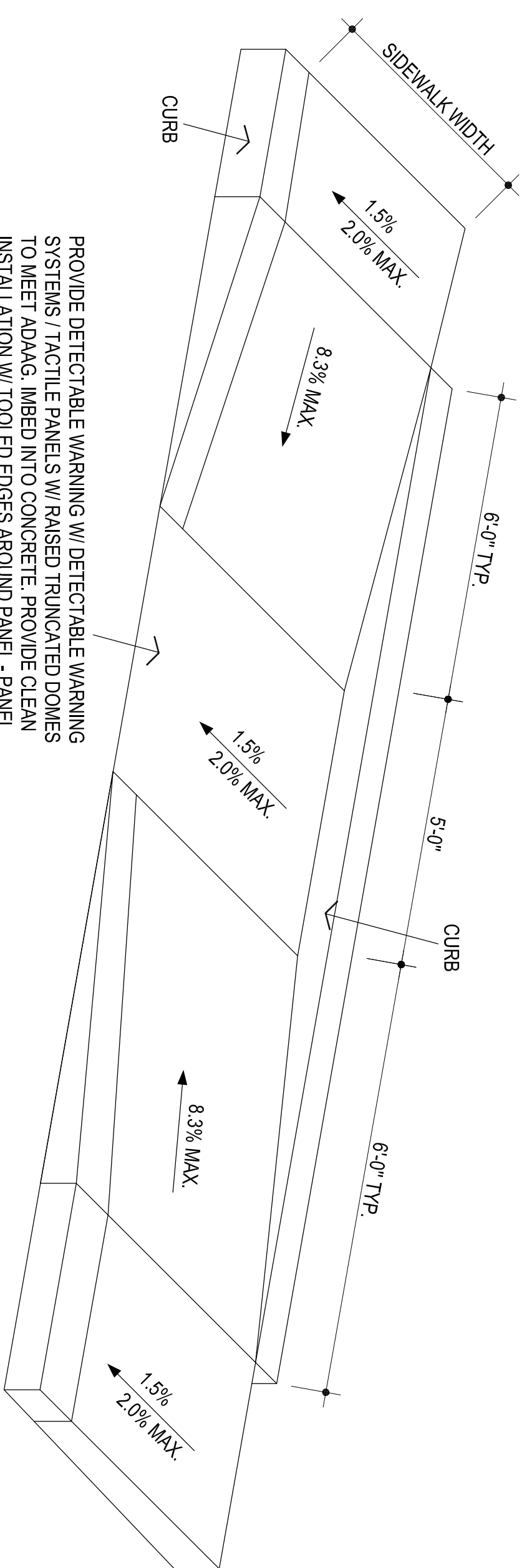
SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

Sheet No.

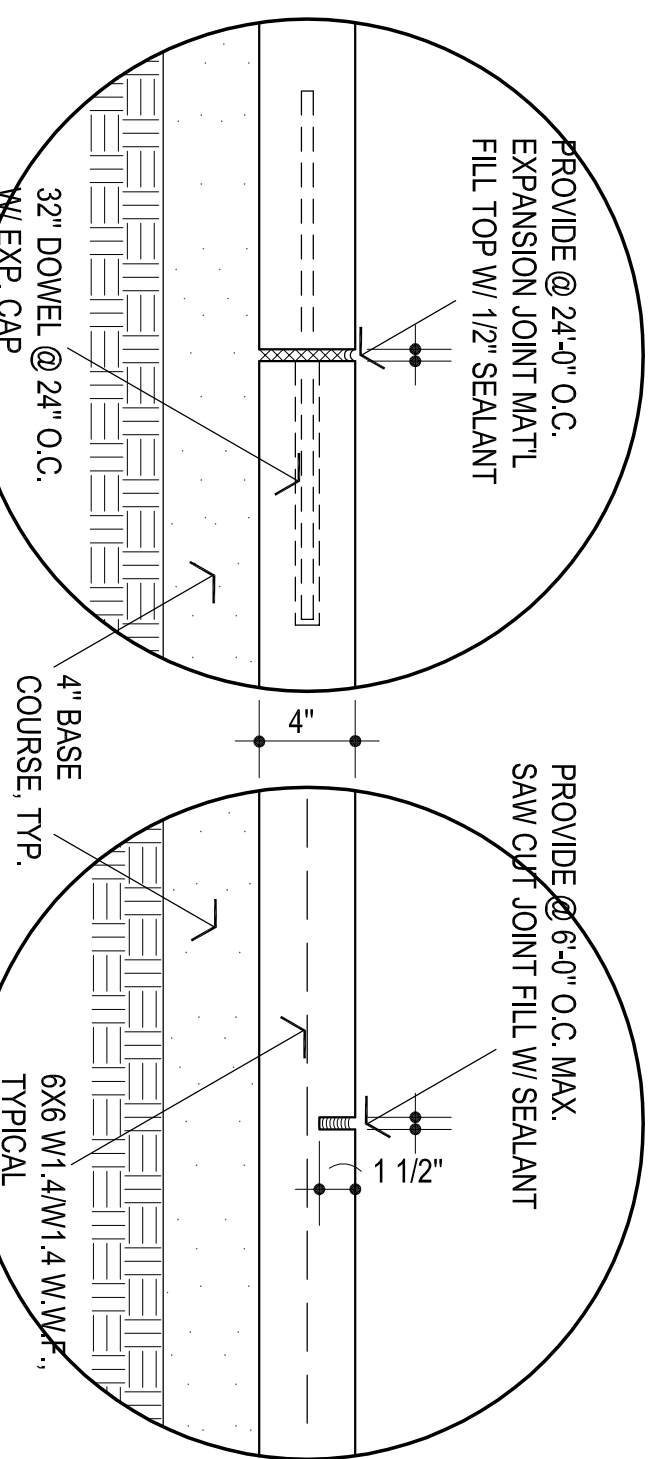
C900

OWNERSHIP USE OF DOCUMENTS:

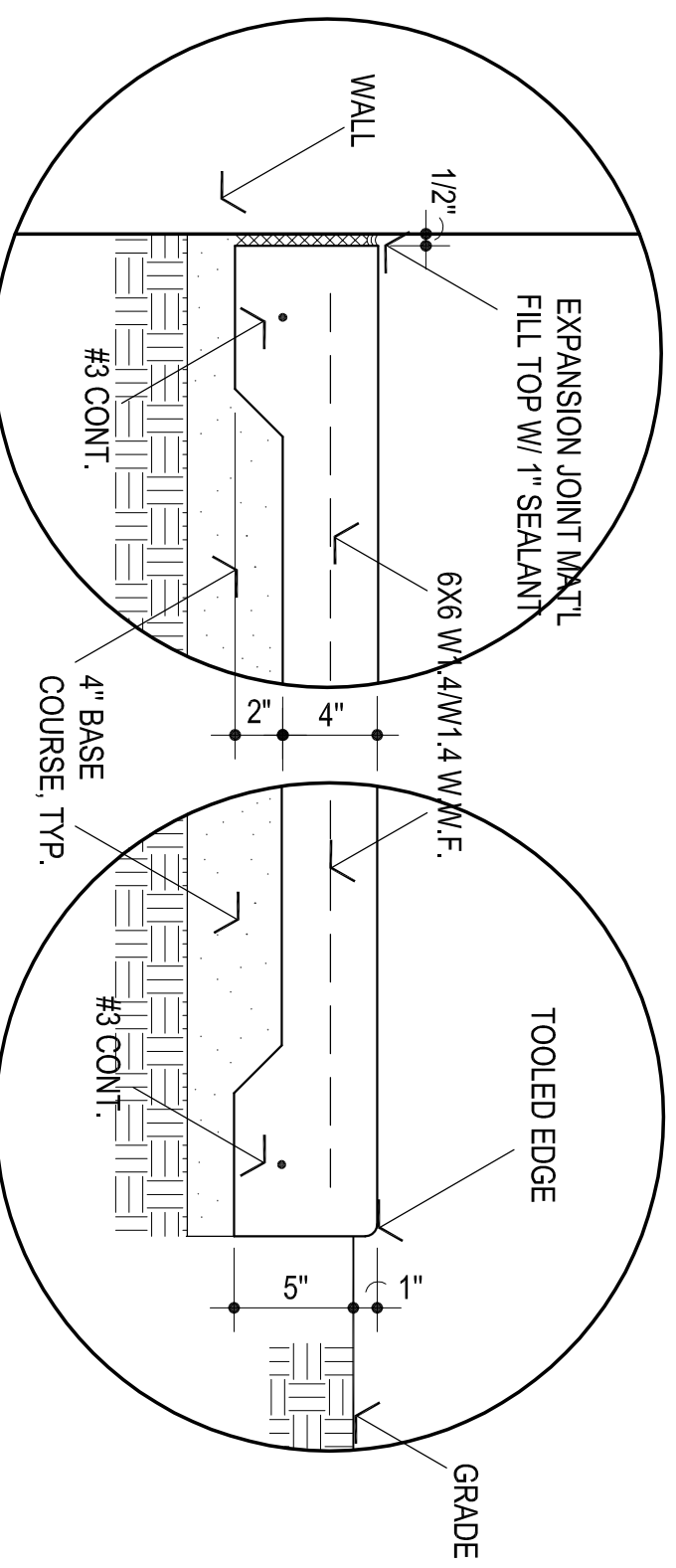
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED HEREIN.
NO PARTS OF THIS DOCUMENT SHALL
BE REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



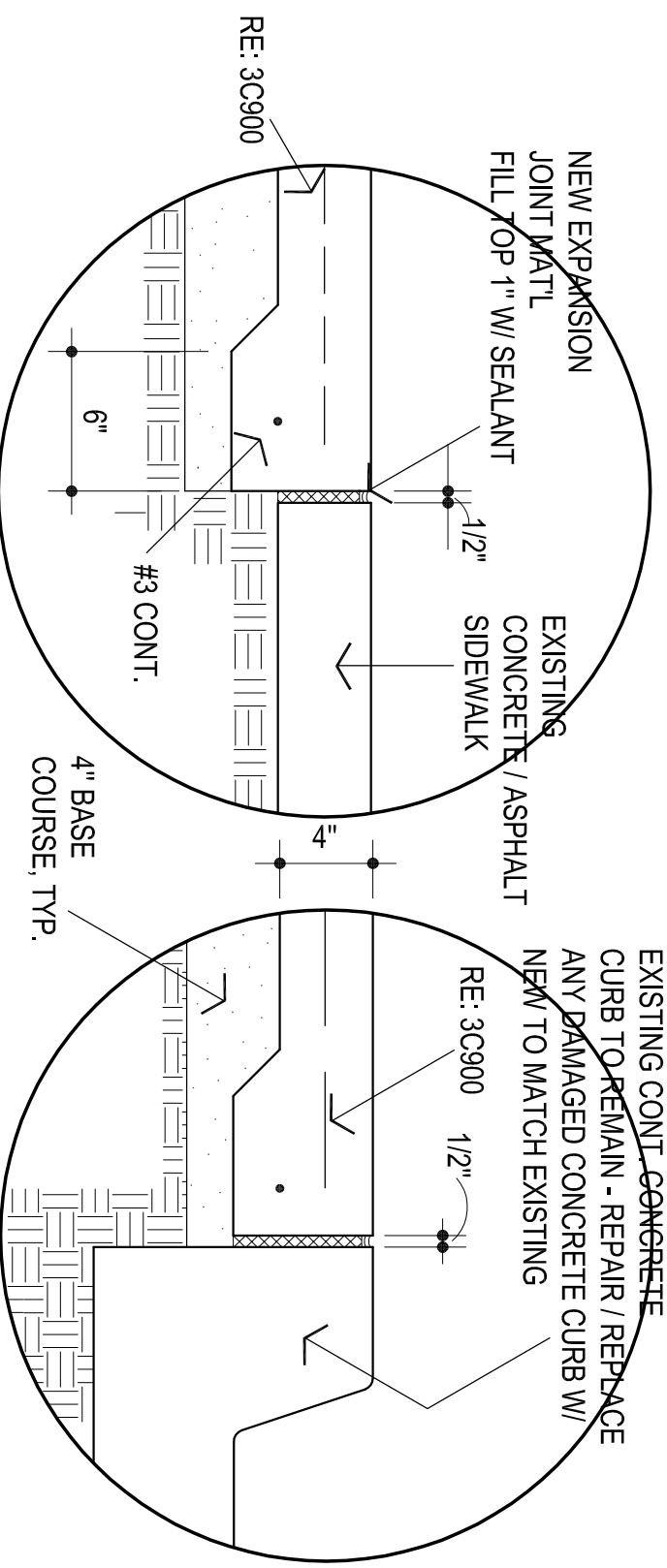
10
PARALLEL H.C. CURB RAMP
NOT TO SCALE



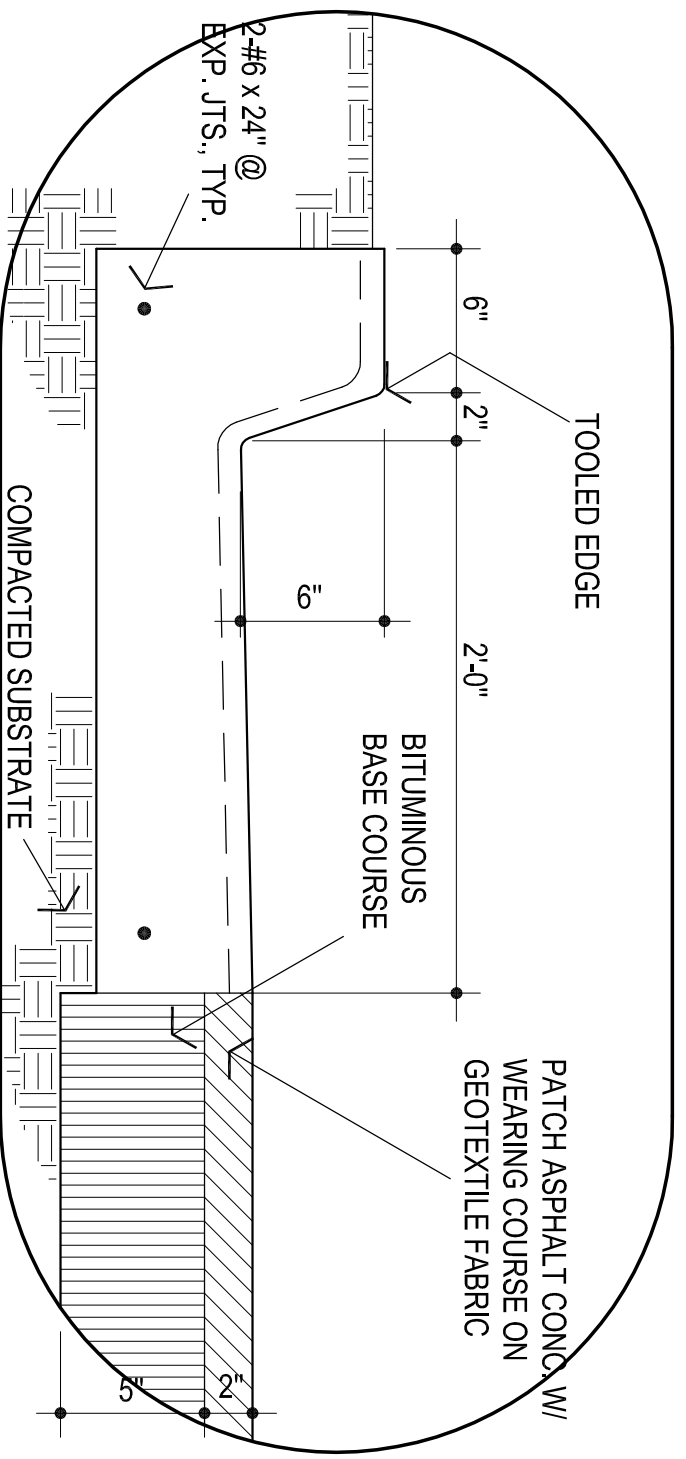
1 SIDEWALK EXP. JOINT
2 SIDEWALK CONTROL JT.



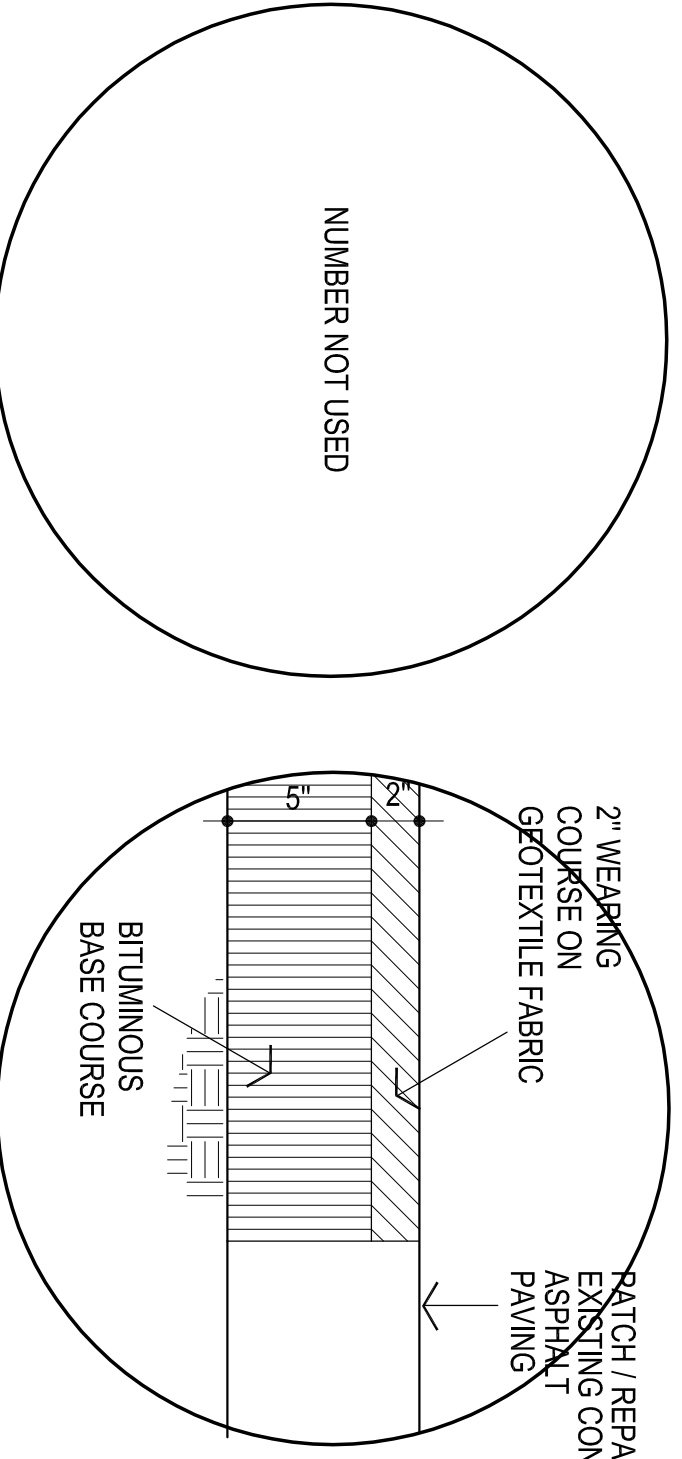
3 SIDEWALK @ VERT. SURF.
4 SIDEWALK EDGE



5 EXISTING / NEW CONCRETE SIDEWALK
6 SIDEWALK / CONC. CURB

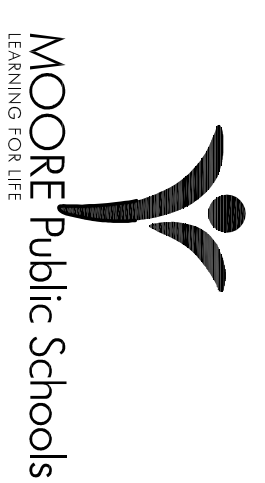


7 CONC. CURB / ASPHALT PAVING



8 NUMBER NOT USED
9 PAVING EDGE
NOT TO SCALE

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION



MOORE PUBLIC SCHOOLS DISTRICT NO. 1-2
CLEVELAND COUNTY MOORE, OKLAHOMA

SANTA FE ELEMENTARY SECURITY UPGRADES

12801 S. SANTA FE
OKLAHOMA CITY, OK. 73160

AGP | the Abila Griffin
Partnership

201 N. BROADWAY SUITE 210 MOORE, OK. 73160
405.735.3477 AGP@theAGP.net www.the-AGP.net



CONSTRUCTION MANAGER



1909 S. EASTERN AVE.
MOORE, OK 73160

STRUCTURAL

KFC ENGINEERING

205 NW 63rd, SUITE 300
OKLAHOMA CITY, OK 73116

MECHANICAL/ELECTRICAL/PLUMBING

SALAS O'BRIEN

2600 VAN BUREN ST., SUITE 2604
NORMAN, OKLAHOMA 73072

INDEX TO DRAWINGS

SHEET NUMBER	DESCRIPTION
C	COVER SHEET
G-100	LEGENDS / MAPS / ETC.
C100	OVERALL SITE PLAN
C200	DEMOLITION SITE PLAN
C800	EROSION CONTROL PLAN
C900	SITE DETAILS
S100	GENERAL NOTES
S101	GENERAL NOTES
S102	GENERAL NOTES
S103	DETAILS
S104	GENERAL NOTES/ /SPECIAL INSPECTION REQUIREMENTS
S201	SITE PLAN
S202	ENLARGED FOUNDATION PLAN / ENLARGED FRAMING PLAN / ENLARGED PLAN SECTIONS
S901	SITE PLAN
A100	BUILDING ELEVATIONS
A201	BUILDING ELEVATIONS
A301	WALL SECTIONS / DETAILS / PARAPET WALL LOCATION PLAN
A302	WALL SECTIONS / DETAILS / PARAPET WALL LOCATION PLAN
A801	COLOR SCHEDULE / DOOR SCHEDULE / DOOR ELEVATIONS / FRAME ELEVATIONS / DETAILS
T-400	TECHNOLOGY PLAN
T-201	LEGENDS / NOTES
T-401	SINGLE / DOUBLE DOOR EGRESS GATE DETAIL
T-301	SYSTEM SPECIFICATIONS
E000	ELECTRICAL NOTES / SCHEDULES
E-100	ELECTRICAL SPECIFICATIONS
E-101	ELECTRICAL LIGHTING PLAN

SANTA FE ELEMENTARY SCHOOL
SECURITY UPGRADES
SET NO.

REVISIONS

sheet no.

C

date:

FEBRUARY 2024

Panel		ROOM		VOLTS		208Y/120V 3P 4W		AIC EXISTING	
C-2		MOUNTING SURFACE		BUS AMPS		225		MAIN BKR MLO	
		FED FROM UTILITY		NEUTRAL		100%		LUGS STANDARD	
		NOTE EXISTING PANEL							
CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION	CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		
1	20/1	1.92	EXISTING LIGHTING LOAD	a	2	20/1	1.92	EXISTING LIGHTING LOAD	
3	20/1	1.92	EXISTING LIGHTING LOAD	b	4	20/1	1.92	EXISTING LIGHTING LOAD	
5	20/1	1.92	EXISTING RECEPTACLES LOAD	c	6	20/1	1.92	EXISTING RECEPTACLES LOAD	
7	20/1	1.92	EXISTING LIGHTING LOAD	a	8	20/1	1.92	EXISTING LIGHTING LOAD	
9	20/1	1.92	EXISTING LIGHTING LOAD	b	10	20/1	1.92	EXISTING LIGHTING LOAD	
11	20/1	1.92	EXISTING RECEPTACLES LOAD	c	12	20/1	1.92	EXISTING RECEPTACLES LOAD	
13	20/1	1.92	EXISTING LIGHTING LOAD	a	14	20/1	1.92	EXISTING RECEPTACLES LOAD	
15	20/1	1.92	EXISTING LIGHTING LOAD	b	16	20/1	1.92	HOT WATER EXISTING LOAD	
17	20/1	1.92	WATER FOUNT. EXISTING LOAD	c	18	20/1	1.92	WATER FOUNT. EXISTING LOAD	
19	20/1	1.92	HOT WATER EXISTING LOAD	a	20	20/1	1.92	WATER FOUNT. EXISTING LOAD	
21	20/1	1.92	EXISTING NIGHT LIGHT LOAD	b	22	20/1	1.92	WATER FOUNT. EXISTING LOAD	
23	20/1	1.92	EXISTING PLUGMOLD LOAD	c	24	20/1	1.92	EXISTING OUTSIDE DOORWAY LTS.	
25	20/1	1.92	EXISTING NIGHT LIGHT LOAD	a	26	20/1	1.92	EXISTING OUTSIDE CANOPY LTS.	
27	20/1	1.92	EXISTING POWER LOAD	b	28	20/1	1.92	EXISTING RECEPTACLES LOAD	
29	20/1	1.92	EXISTING RECEPTACLE LOAD	c	30	20/1	1.92	EXISTING RECEPTACLES LOAD	
31	20/1	1.92	EXISTING POWER POLE LOAD	a	32	20/1	1.92	EXISTING RECEPTACLES LOAD	
33	20/1	0.06	NEW CANPOY LIGHTING	b	34	20/1	0	SPACE	
35	20/1	0.108	NEW EXTERIOR WALL PACKS	c	36	20/1	1.92	EXISTING RECEPTACLE LOAD	
37	20/1	0	SPACE	a	38	20/1	0	SPACE	
39	20/1	0	SPACE	b	40	20/1	0	SPACE	
41	20/1	0	SPACE	c	42	20/1	0	SPACE	

	CONN KVA	CALC KVA		CALC KVA
LIGHTING	23.2	29	TOTAL LOAD	54.2
RECEPTACLES	40.3	25.2	BALANCED 3-PHASE LOAD	150 A
		(125%)	PHASE A	100%
		(50%>10)	PHASE B	91%
			PHASE C	100%

EXISTING LOADS ARE APPROXIMATIONS. EC TO FIELD VERIFY EXISTING LOADS PRIOR TO BEGINNING WORK.

TYPE	SYMBOL	DESCRIPTION	MANUFACTURER	REFERENCE CATALOG #
EX1		LED EMERGENCY EXIT SIGN WITH 90 BATTERY BACK-UP.	LITHONIA	LQM S W 3 R 120/277 EL N M6
EX2		DOUBLE FACED LED EMERGENCY EXIT SIGN WITH 90 BATTERY BACK-UP.	LITHONIA	LQM S W 3 R 120/277 EL N M6
S		1X4 WET LOCATION RATED STRIP FIXTURE.	LITHONIA	CSVT L48 AL03 MVOLT SWW3 80CRI
W		EXTERIOR WALL PACK.	LITHONIA	TWR1 LED AL0 SWW2 UVOLT PE DDBTXD

GENERAL NOTES:
EQUIVALENT ALTERNATE LIGHT FIXTURES MAY BE PROVIDED FOR BIDDING PURPOSES. THE ENGINEER DOES NOT TAKE RESPONSIBILITY FOR ENSURING ALTERNATE LIGHT FIXTURES USED FOR BIDDING ARE EQUAL; THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALTERNATE FIXTURES ARE EQUIVALENT TO THOSE SPECIFIED PRIOR TO BID. THE WINNING BID PACKAGE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH THE SPECIFICATIONS.

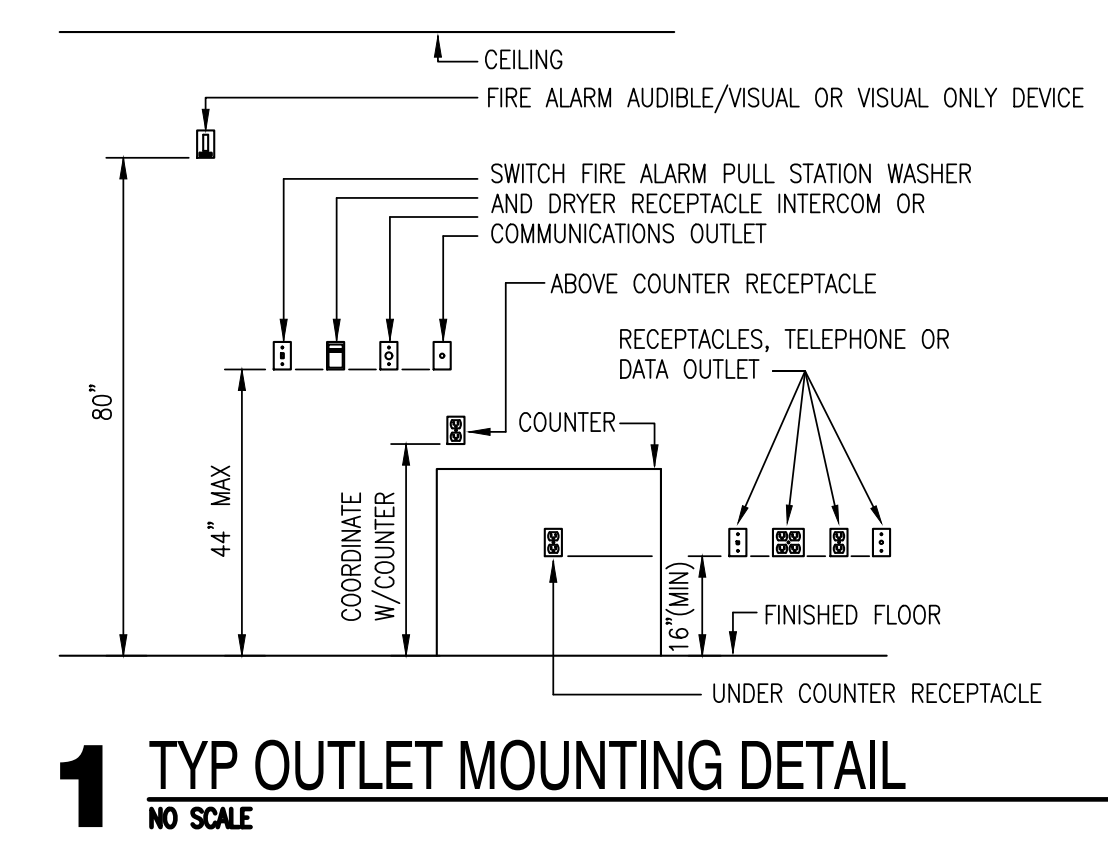
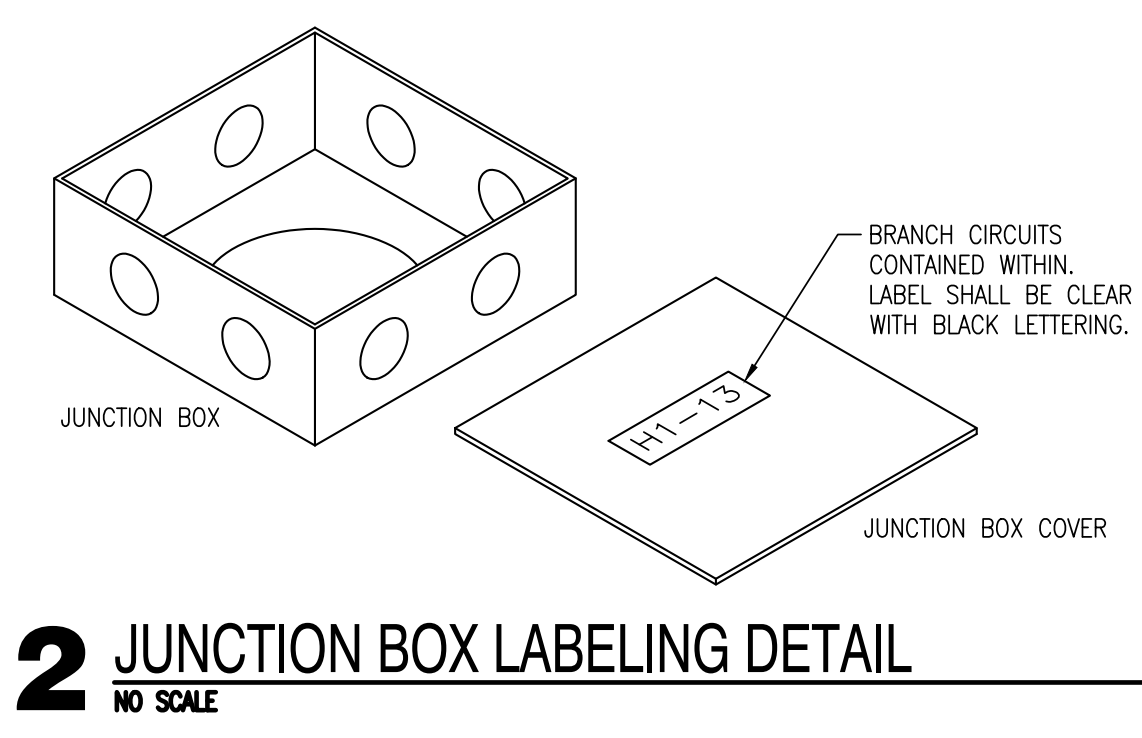
ELECTRICAL ABBREVIATIONS			
AC	ABOVE COUNTERTOP	MC	MECHANICAL CONTRACTOR
AFF	ABOVE FINISH FLOOR	MCA	MINIMUM CIRCUIT AMPS
AFG	ABOVE FINISH GRADE	MDP	MAIN DISTRIBUTION PANEL
ANNC	ANNUNCIATOR	MTD	MOUNTED
CC	CONTROLS CONTRACTOR	NIC	NOT IN CONTRACT
DF	DRINKING FOUNTAIN	OCC	OCCUPANCY
EC	ELECTRICAL CONTRACTOR	PC	PLUMBING CONTRACTOR
EF	EXHAUST FAN	PNL	PANEL
EX	EXISTING	SPST	SINGLE POLE SINGLE THROW
EXR	EXISTING RELOCATED	TTB	TELEPHONE TERMINAL BOARD
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GF	GROUND FAULT INTERRUPT	WG	WIRE GUARD
HP	HORSEPOWER	WP	WEATHER PROOF
IBC	INTERNATIONAL BUILDING CODE	20A	20 AMP
IG	ISOLATED GROUND	ø	PHASE
LV	LOW VOLTAGE	3W	3 WIRE
LVRP	LV RELAY PANEL	1P20A	SINGLE POLE 20 AMP

ELECTRICAL LEGEND	
	PANEL BOARD
	DISTRIBUTION PANEL BOARD
	TRANSFORMER
	UTILITY METER
	SEPARATE CIRCUIT BREAKER
	DISCONNECT
	FUSED DISCONNECT SWITCH
	EMERGENCY FUSED DISCONNECT SWITCH
	MOTOR STARTER/CONTRACTOR
	COMBINATION MOTOR STARTER
	PUSH BUTTON STATION AS NOTED
	PULL BOX, SIZE AS REQUIRED BY CODE
	ELECTRICAL CONNECTION
	MOTOR CONNECTION
	HOME RUN TO PANEL BOARD

GENERAL ELECTRICAL NOTES	
1.	CONTRACTOR TO VERIFY EXISTING ELECTRICAL CONDITIONS AND NOTIFY ARCHITECT/ENGINEER OF ANY ELECTRICAL OR CODE ISSUES PRIOR TO BID. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERATIONAL CODE COMPLIANT SYSTEM.
2.	ALL WORK SHALL BE IN CONFORMANCE WITH NATIONAL, STATE, AND LOCAL CODES AND/OR ORDINANCES.
3.	ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER CONTRACTORS & LOCAL UTILITY. E.C. SHALL CONTACT LOCAL UTILITY FOR EXACT SERVICE REQUIREMENTS TO INCLUDE BUT NOT LIMITED TO TRANSFORMER, METERING AND CABLING. LOCAL UTILITY REQUIREMENTS SUPPERSEDE DRAWINGS AND SPECIFICATIONS.
4.	SEE TECHNOLOGY DRAWINGS FOR ADDITIONAL REQUIREMENTS.
5.	ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO GIVE APPROXIMATE LOCATIONS AND OVERALL DESIGN INTENT. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCTS, MATERIALS, AND ELECTRICAL METHODS WHICH HAVE NOT BEEN SHOWN OR INDICATED BUT ARE REQUIRED FOR A COMPLETE SYSTEM TO THE STANDARDS OF THE INDUSTRY.
6.	INSTALL LIGHTING FIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTING DEVICES FOR ADEQUATE SUPPORT OF FIXTURES FROM STRUCTURE.
7.	UPON COMPLETION OF THE ELECTRICAL WORK, THE INSTALLATION SHALL BE TESTED FOR CONTINUITY, GROUNDS, AND SHORT CIRCUITS. THE ELECTRICAL CONTRACTOR SHALL DEMONSTRATE PROPER PERFORMANCE OF ALL SYSTEMS. ALL DEFECTIVE WORK OR MATERIALS SHALL BE REPLACED OR REPAIRED AS NECESSARY AND RETESTED.
8.	ELECTRICAL RACEWAYS THAT PENETRATE FIRE RATED ASSEMBLIES SHALL BE SLEEVED AND SEALED AS PER THE LOCAL BUILDING CODE.

FIXTURE LINE PHASE STYLES	
LINE STYLE	DESCRIPTION
	EXISTING FIXTURES TO REMAIN
	NEW/REPLACEMENT FIXTURES

ELECTRICAL SHEET INDEX	
E-000	ELECTRICAL TITLE SHEET
E-100	ELECTRICAL SPECIFICATIONS
E-101	ELECTRICAL LIGHTING PLAN



AGP
the Abila Griffin
Partnership L.L.C.

201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL



JV
drawn by
TVO
checked by
JANUARY 2024
date
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

E000

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.

GENERAL ELECTRICAL SPECIFICATIONS

GENERAL NOTES AND ELECTRICAL SPECIFICATIONS

CODE INFORMATION

APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO: NATIONAL ELECTRICAL CODE (NFPA 70), INTERNATIONAL BLDG CODE, LIFE SAFETY CODE (NFPA 101), AMERICANS WITH DISABILITIES ACT, AND ALL LOCAL CODES AND AMENDMENTS.

BASIC ELECTRICAL REQUIREMENTS

PERMITS AND CODES: OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND REQUIRED INSPECTIONS. COMPLY WITH ALL NATIONAL, STATE AND MUNICIPAL LAWS, CODES AND ORDINANCES RELATING TO BUILDING AND PUBLIC SAFETY. PROVIDE ANY REQUIRED TEMPORARY POWER AND UTILITIES FOR ALL TRADES AND ALL CONSTRUCTION TRAILERS. PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER. ELECTRICAL CONTRACTOR SHALL INCLUDE TEMPORARY ELECTRIC. ALL TEMPORARY ELECTRIC SHALL BE IN ACCORDANCE WITH OSHA CONSTRUCTION STANDARDS 29CFR, PART 1926 AND ARTICLE 590 OF THE NATIONAL ELECTRICAL CODE. TEMPORARY LIGHTING AND POWER SHALL BE PROVIDED IN ACCORDANCE WITH OSHA STANDARDS. THE OSHA MINIMUM ILLUMINATION IS 5 FOOTCANDLES IN GENERAL CONSTRUCTION AREAS, AND 10 FC IN MECHANICAL / ELECTRICAL ROOMS AND WORKROOMS. INCLUDED ARE CONNECTIONS TO ALL CONSTRUCTION TRAILERS. THE COST OF THIS WORK IS TO BE INCLUDED IN THE BASE ELECTRICAL BID FOR THE PROJECT.

VISITING THE JOB SITE

VISIT THE SITE OF THE PROPOSED CONSTRUCTION IN ORDER TO FULLY UNDERSTAND THE FACILITIES, DIFFICULTIES AND RESTRICTIONS ATTENDING THE EXECUTION OF THE WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED THIS CONTRACTOR FOR WORK OR ITEMS OMITTED FROM HIS ORIGINAL PROPOSAL DUE TO HIS FAILURE TO INFORM HIMSELF REGARDING SUCH MATTERS AFFECTING THE PERFORMANCE OF THE WORK IN THIS CONTRACT OR NECESSARY FOR THE INSTALLATION AND COMPLETION OF THE WORK INCLUDED HEREIN.

DRAWINGS

DRAWINGS ARE DIAGRAMMATIC, CONFIRM DIMENSIONS & LOCATIONS IN THE FIELD. IF CONFLICTING DIMENSIONS ARE SHOWN, USE LARGER DIMENSIONS AND VERIFY WITH ARCHITECT. SEE ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF FIXTURES AND WALL MOUNTED DEVICES.

MATERIAL

ALL MATERIALS SHALL BE NEW, MADE IN USA AND U.L. LISTED. MATERIAL INSTALLATION SHALL COMPLY WITH NEC REQUIREMENTS AND PERFORM BY CRAFTSMEN SKILLED IN THIS PARTICULAR WORK.

EQUIPMENT PROTECTION

PROTECT EQUIPMENT AND WORK FROM DAMAGE DURING HANDLING AND INSTALLATION UNTIL COMPLETION OF CONSTRUCTION.

COOPERATION WITH OTHER TRADES

COOPERATION WITH TRADES OF ADJACENT, RELATED OR AFFECTED MATERIALS OR OPERATIONS, AND WITH TRADES PERFORMING CONTINUATIONS OF THIS WORK UNDER SUBSEQUENT CONTRACTS, IS CONSIDERED A PART OF THIS WORK IN ORDER TO EFFECT TIMELY AND ACCURATE PLACING OF WORK AND TO BRING TOGETHER, IN PROPER AND CORRECT SEQUENCE, THE WORK OF SUCH TRADES. PROVIDE OTHER TRADES, AS REQUIRED, ALL NECESSARY TEMPLATES, PATTERNS, SETTING PLANS AND SHOP DETAILS FOR THE PROPER INSTALLATION OF THE WORK AND FOR THE PURPOSE OF COORDINATING ADJACENT WORK. ELECTRICAL POWER CONNECTIONS FOR MECHANICAL AND PLUMBING EQUIPMENT ARE IN THIS DIVISION UNLESS NOTED OTHERWISE. VERIFY ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT WITH OTHER DIVISIONS BEFORE ROUGHING IN THE ELECTRICAL CONNECTIONS AND ENERGIZING THE EQUIPMENT.

MECH/PLUMBING/SPECIAL EQPT ACCESS AND CLEARANCE AREAS: REMOVE ANY IMPROPERLY INSTALLED ELECTRICAL EQPT AND CONDUIT THAT ARE LIMITING PROPER ACCESS FOR EQPT SERVICE AND MAINTENANCE.

LOSS OR DAMAGE TO FACILITIES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOSS OR DAMAGE TO THE FACILITIES CAUSED BY HIM AND HIS WORKMEN, AND SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING SUCH LOSS OR DAMAGE. THE CONTRACTOR SHALL SEND PROPER NOTICES, MAKE NECESSARY ARRANGEMENTS, AND PERFORM OTHER SERVICES REQUIRED FOR THE CARE, PROTECTION AND IN-SERVICE MAINTENANCE OF ALL ELECTRICAL SERVICES FOR THE NEW FACILITIES. THE CONTRACTOR SHALL ERECT TEMPORARY BARRICADES, WITH NECESSARY SAFETY DEVICES, AS REQUIRED TO PROTECT PERSONNEL AND THE GENERAL PUBLIC FROM INJURY, REMOVING ALL SUCH TEMPORARY PROTECTION UPON COMPLETION OF THE WORK.

THE CONTRACTOR SHALL MODIFY, REMOVE AND/OR REPLACE ALL MATERIALS AND ITEMS SO INDICATED ON THE DRAWINGS OR REQUIRED BY THE INSTALLATION OF NEW FACILITIES. SALVAGE MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE DELIVERED TO SUCH DESTINATION AS DIRECTED BY THE OWNER. DISPOSE OF SALVAGE MATERIAL IF NOT RETAINED BY OWNER. WHERE EXISTING CONSTRUCTION IS REMOVED TO PROVIDE WORKING AND EXTENSION ACCESS TO EXISTING FACILITIES, CONTRACTOR SHALL REMOVE CEILING GRIDS, TILES, DOORS, PIPING, AIR CONDITIONING DUCTWORK AND EQUIPMENT, ETC., TO PROVIDE THIS ACCESS AND SHALL REINSTALL SAME UPON COMPLETION OF WORK IN THE AREAS AFFECTED.

WORK IN OCCUPIED AREAS

WORK IN, ABOVE, BELOW OR NEAR OCCUPIED AREAS SHALL BE AT OWNER'S CONVENIENCE AND MAY BE DURING EVENINGS OR WEEKENDS. SCHEDULE ALL REQUIRED POWER OUTAGES A MINIMUM OF 7 DAYS IN ADVANCE WITH FACILITY ENGINEER. DO NOT TURN OFF ANY POWER SOURCES. ONLY FACILITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE MAY DO SO.

CLEAN UP

- A) PROVIDE FOR ISOLATION OF WORK AREAS AND DAILY REMOVAL OF DEBRIS.
B) CLEAN ALL EQUIPMENT AND FIXTURE LENSES.
C) REPLACE ALL BURNED OUT LAMPS.
D) TOUCH UP WITH PAINT WHERE REQUIRED.

SUBMITTAL DATA

SUBMITTALS ARE REQUIRED BUT NOT LIMITED TO THE FOLLOWING EQUIPMENT: BRANCH CIRCUIT PANELBOARDS, TRANSFORMERS, SWITCHES, CONDUIT/FITTINGS, WIRES, DEVICES, LIGHTING FIXTURES, ETC. ALTERNATE EQUIPMENT SHALL BE APPROVED BY ARCHITECT/OWNER.

SHOP DRAWINGS

SHOP DRAWINGS AS REQUIRED SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST TO THE ARCHITECT. THESE SHOP DRAWINGS SHALL BE PREPARED TO INDICATE INSTALLATION AT MAJOR EQUIPMENT WHERE SPECIAL COORDINATION PROBLEMS EXIST. OVERCURRENT & SAFETY DISCONNECT DEVICES FOR HVAC EQPT, OVERCURRENT (OC) & DISCONNECT DEVICES SHOWN ON PLANS ARE BASED ON A SPECIFIC HVAC EQUIPMENT MANUFACTURER. HVAC CONTRACTOR MAY SUBMIT OTHER MANUFACTURERS, DIFFERENT MODELS OR RATINGS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE OC/DISCONNECT DEVICES WITH THE HVAC CONTRACTOR PRIOR TO SUBMITTING SUCH DEVICES FOR ENGINEER'S REVIEW. ANY DEVIATIONS FROM SIZES SHOWN ON DRAWINGS MUST BE NOTED IN THE SUBMITTALS. THE ELECTRICAL CONTRACTOR MUST CERTIFY THAT HE HAS REVIEWED AND COORDINATED WITH THE HVAC CONTRACTOR AND THAT ALL OC/DISCONNECT DEVICES SUBMITTED MATCH THE HVAC EQPT REQUIREMENTS. SHOP DRAWINGS WITHOUT SUCH CERTIFICATION WILL BE RETURNED TO THE CONTRACTOR. ONLY SUBMITTALS WITH SUCH CERTIFICATION WILL BE REVIEWED.

COMPLETE SYSTEMS

ALL SYSTEMS SHALL BE COMPLETE AND WORKING AT COMPLETION OF CONSTRUCTION.

FINAL INSPECTION & OPERATING TESTS

ALL ELECTRICAL SYSTEMS MUST BE CHECKED FOR PROPER POLARITY AND SEQUENCE, ALL MOTORS MUST BE CHECKED FOR PROPER ROTATION AND ALL EQUIPMENT (INCLUDING HVAC, ELEVATOR AND SPECIAL EQUIPMENT) CHECKED FOR PROPER VOLTAGE AND PHASING REQUIREMENTS. PRIOR TO THE APPLICATION OF ANY POWER, THE CONTRACTOR MUST CERTIFY THAT ALL CONNECTED EQUIPMENT MATCH THE CHARACTERISTICS OF THE SUPPLY CIRCUIT VOLTAGE, PHASING AND FEEDER REQUIREMENTS.

AT THE TIME DESIGNATED BY THE ARCHITECT, THE ENTIRE SYSTEM SHALL BE INSPECTED BY THE ARCHITECT AND THE ENGINEER. THE CONTRACTOR OR HIS REPRESENTATIVE SHALL BE PRESENT AT THIS INSPECTION.

AFTER ALL SYSTEMS HAVE BEEN COMPLETED AND PUT INTO OPERATION, SUBJECT EACH SYSTEM TO AN OPERATING TEST UNDER DESIGN CONDITIONS TO ENSURE PROPER SEQUENCE AND OPERATION THROUGHOUT THE RANGE OF OPERATION. MAKE ADJUSTMENTS AS REQUIRED TO ENSURE PROPER FUNCTIONING OF ALL SYSTEMS. SPECIAL TESTS ON INDIVIDUAL SYSTEMS ARE SPECIFIED UNDER INDIVIDUAL SECTIONS.

THE CONTRACTOR SHALL PROVIDE A SET OF AS-BUILT DRAWINGS IN PDF FORMAT TO THE ARCHITECT. AFTER THE INSPECTION, ANY ITEMS WHICH ARE NOTED AS NEEDING TO BE CHANGED OR CORRECTED IN ORDER TO COMPLY WITH THESE SPECIFICATIONS AND THE DRAWINGS SHALL BE ACCOMPLISHED WITHOUT DELAY.

GUARANTEE

GUARANTEE ALL WORK AND MATERIALS FURNISHED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE TENANT AND ARCHITECT. GUARANTEE SHALL INCLUDE: ALL LABOR, PARTS, TRAVEL/SUBSISTENCE, SOFTWARE CHANGES / RE--PROGRAMMING, ETC.

SHORT CIRCUIT CALCULATION, PROTECTIVE DEVICE COORDINATION AND ARC FLASH STUDIES

PROVIDE SHORT CIRCUIT CALCULATION, PROTECTIVE DEVICE COORDINATION AND ARC FLASH HAZARD STUDIES. STUDIES SHALL ENCOMPASS ELECTRICAL DISTRIBUTION SYSTEM FROM NORMAL POWER SOURCE OR SOURCES TO AND INCLUDING (BRANCH BREAKERS IN EACH PANELBOARD). PREPARE STUDY PRIOR TO ORDERING DISTRIBUTION EQUIPMENT TO VERIFY EQUIPMENT RATINGS REQUIRED. SUBMIT REPORT WITH EQUIPMENT SUBMITTALS FOR ENGINEER'S REVIEW. PERFORM STUDY WITH AID OF COMPUTER SOFTWARE PROGRAMS. REPORT SHALL INCLUDE: (A) CALCULATION METHODS AND ASSUMPTIONS, (B) ONE LINE DIAGRAM, (C) STATE CONCLUSIONS AND RECOMMENDATIONS. STUDIES AND REPORT SHALL BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS PERMITTED.

CONTRACTOR SHALL PROVIDE WARNING LABELS ON ELECTRICAL EQUIPMENT INDICATING INCIDENT ENERGY LEVEL, LEVEL OF HAZARD AND THE REQUIRED PERSONAL PROTECTION EQUIPMENT. EQUIPMENT SHALL INCLUDE, BUT NOT LIMITED TO, SWITCHBOARDS, DISTRIBUTION PANELS, MOTOR CONTROL CENTERS, PANELS, CONTRACTORS, DISCONNECT SWITCHES AND MOTOR STARTERS.

CONDUIT

CONDUIT: SHALL BE RIGID GALVANIZED STEEL (RGS) OR ELECTRICAL METALLIC TUBING (EMT) AS MANUFACTURED BY ALIED, TRIANGLE OR WHEATLAND.
INDOORS ABOVE GRADE: EMT OR RGS.
OUTDOORS ABOVE GRADE: STUB-UPS, OR, ON ROOF: RGS, IMC.
POWER TRANSITION FITTINGS FROM PVC SCH 40 OR 80 TO RGS FOR ALL ABOVE GRADE CONDUIT. ALL UNDERGROUND METALLIC CONDUIT SHALL HAVE 40-MIL THICK EXTERNAL PVC COATING FOR CORROSION PROTECTION. UNDERGROUND CONDUIT MINIMUM SIZE 3/4". MINIMUM 24" BURIAL DEPTH FROM FINISHED GRADE TO TOP OF CONDUIT. PROVIDE DEEPER BURIAL DEPTH IF REQUIRED BY LOCAL CODES. PROVIDE CONCRETE ENCASEMENT FOR ALL INCOMING SERVICE CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE. PROVIDE RED DETECTABLE WARNING TAPE OVER ENTIRE RUN OF SERVICE AND MAJOR CONDUIT RUNS.
UNDER SLAB: RGS, SCHEDULE 80 PVC.
INSTALL GROUND WIRES WHERE SHOWN ON THE DRAWINGS. COMPRESSION OR SET--SCREW TYPE FITTINGS MAY BE USED FOR EMT. MINIMUM CONDUIT SIZE 1/2 INCH. HOWEVER HOMERUN TO PANEL SHALL BE MINIMUM 3/4 INCH. TYPE "MC" METAL CLAD CABLE IS ACCEPTABLE ONLY IF APPROVED BY THE OWNER IN WRITING AND THE LOCAL AUTHORITY.

MC CABLE: IF APPROVED, HOWEVER, MAY BE USED ONLY FOR DROPS FROM CEILING PLENUM JUNCTION BOXES TO RECEPTACLES AND LIGHT SWITCHES IN WALLS. MC CABLE SHALL NOT BE USED AS FIXTURE WHIPS FROM CEILING PLENUM JUNCTION BOXES TO LIGHT FIXTURES. WHIPS MUST BE 6-FT OR LESS. HOMERUN CIRCUITS TO PANELS SHALL BE IN CONDUIT, MC HOMERUN TO PANELS ARE NOT ACCEPTABLE.

TYPE "AC" ARMORED CABLE (COMMONLY REFERRED TO AS "BX") IS NOT ACCEPTABLE AND SHALL NOT BE USED. ELECTRICAL NONMETALLIC TUBING (ENT, NEC ARTICLE 362) SHALL NOT BE USED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. FLEXIBLE CONDUIT SHALL BE UTILIZED AS FINAL CONNECTIONS (#1-5 ONLY) AT THE FOLLOWING EQUIPMENT: MOTORS, LIGHTING FIXTURES, HEATER, POWER SUPPLIES, AND ANY OTHER VIBRATION PRODUCING EQUIPMENT. UTILIZE 1/2" FLEXIBLE METALLIC CONDUIT MINIMUM AND INCLUDE A GREEN GROUND WIRE. USE SEALTITE IN WET LOCATIONS SUCH AS OUTDOOR CONDENSING UNITS, WALK-IN COOLER/FREEZER, KITCHEN, ROOFTOP HVAC EQPT, ETC. CONDUIT SHALL BE SUPPORTED FROM STRUCTURE EVERY 5 FEET AND WITHIN 3 FEET OF ALL BOXES. USE LOCKNUTS INSIDE AND OUT AT BOXES. MAINTAIN MINIMUM 12" SEPARATION FROM ALL HIGH TEMPERATURE PIPES. ALL CONDUIT RUNS SHALL BE INSTALLED EITHER PARALLEL OR PERPENDICULAR TO BUILDING LINES. ROUTE CONDUIT AS DIRECTLY AS POSSIBLE WITH LARGEST RADIUS BENDS POSSIBLE. MAKE BENDS WITH STANDARD ELLS OR BENDS PER NEC. PROVIDE EXPANSIONS FITTINGS IF CONDUIT CROSSES STRUCTURAL EXPANSION JOINT. ALL CONDUIT ON ROOF SHALL BE SUPPORTED BY AN ENGINEERED, PREFABRICATED PORTABLE PIPE SYSTEM SPECIFICALLY DESIGNED TO BE INSTALLED ABOVE FINISHED ROOF WITHOUT ROOF PENETRATIONS, FLASHINGS OR DAMAGE TO ROOF MEMBRANE. PROVIDE MANUFACTURED PIPE HANGER SYSTEMS SIMILAR TO PHP. PROVIDE SS8-C FOR CONDUIT UP TO 2 1/2", FOR CONDUIT 3 1/2" AND SMALLER PROVIDE PP10 WITH STRUT, FOR CONDUIT 4" AND LARGER PROVIDE PSE-CUSTOM OR PPH-D. SUPPORT AT INTERVAL NOT TO EXCEED 10' ON CENTER, AND WITHIN 5' OF ANY DEFLECTION OF CONDUIT. CLEAN CONDUIT INTERIOR AFTER INSTALLATION. COAT SCRATCHES WITH ZINC PAINT. PROVIDE PULL WIRE IN ALL CONDUIT (POWER, FIRE ALARM, TELEPHONE AND OTHER COMMUNICATION CONDUIT). PULL WIRE ALSO REQUIRED IN ALL SPARE CONDUIT. PROJECT RECORD DOCUMENTS: ACCURATELY RECORD ACTUAL ROUTING OF ALL UNDERSLAB AND UNDERGROUND CONDUITS; INCLUDE DIMENSIONS FROM KEY BUILDING POINTS AND DEPTH OF COVER.

BOXES

OUTLET BOXES: SHALL BE GALVANIZED STEEL SUITABLE FOR LOCATION. CEILING OUTLET BOXES SHALL BE 4" OCTAGON. WALL OUTLET BOXES SHALL BE PROPER DESIGN TO ACCOMMODATE THE DEVICES REQUIRED -- 4 INCH SQUARE WITH RAISED COVER. PROVIDE RACO, STEEL CITY OR APPLETON. ALL J--BOXES / SPLICE BOXES MUST BE ACCESSIBLE.

JUNCTION /PULL BOXES: (A) FOR EACH CONDUIT RUN: PROVIDE ONE JUNCTION/PULL BOX FOR EACH EQUIVALENT THREE QUARTER BENDS (270°). (B) UNDERGROUND FEEDERS: MINIMUM ONE PULL BOX FOR EACH 350 FEET <500 FEET> OF CONDUIT RUN.

BUILDING WIRE AND CABLE

WIRE: (TRIANGLE, AMERICAN INSULATED CABLE CO., OR CABLEC)
ALL WIRING SHALL BE IN CONDUIT (EXCEPT PLENUM RATED LOW VOLTAGE CABLES). ALL WIRES MUST BE 75C RATED OR BETTER, 60C RATED WIRE SHALL NOT BE USED. 90C RATED WIRE MAY BE USED BUT ONLY AT 75C AMPACITY.

- A.) MINIMUM SIZE #12 EXCEPT CONTROLS MAY BE #14. USE #10 CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET. USE #10 CONDUCTORS FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET.
B.) TYPE THHN/THWN STRANDED COPPER THERMOPLASTIC IN DRY LOCATIONS.
C.) TYPE THWN IN WET LOCATIONS (OUTDOOR, UNDERGROUND, ON ROOF, ...).
D.) ALL WIRE SHALL BE 98% CONDUCTIVITY COPPER, 600 VOLT. NO ALUMINUM WIRES.
E.) WIRE #10 AND SMALLER MAY BE SOLID OR STRANDED, #8 OR LARGER SHALL BE STRANDED.
F.) COMMUNICATION WIRES (FIRE ALARM, TELEPHONE, HVAC THERMOSTAT, DATA ETC.): PLENUM RATED LOW-SMOKE CABLE MAY BE USED IN LIEU OF WIRE/CONDUIT TYPE INSTALLATION. ALL PLENUM RATED CABLE SHALL BE PROPERLY SUPPORTED BY BRIDAL RINGS, CABLE TIES, CLIPS ETC MADE BY ERICO (CADDY COMMUNICATION FASTENERS) OR EQUAL. DO NOT USE SCRAP WIRE TO WRAP AND SUPPORT COMMUNICATION WIRES. HOME-MADE SUPPORT DEVICES ARE NOT ACCEPTABLE. DO NOT LAY COMMUNICATION CABLE DIRECTLY ON TOP OF CEILING TILES. INSTALL CABLES A MINIMUM OF 12" ABOVE CEILING TILES AND 12" FROM HVAC DUCTWORK. PROVIDE MINIMUM 6" SEPARATION BETWEEN POWER CONDUIT AND COMMUNICATION WIRINGS.

FIELD INSULATION TESTING

INSULATION RESISTANCE OF ALL CONDUCTORS SHALL BE TESTED. EACH CONDUCTOR SHALL HAVE ITS INSULATION RESISTANCE TESTED AFTER THE INSTALLATION IS COMPLETED AND ALL SPLICES, TAPS AND CONNECTIONS ARE MADE EXCEPT CONNECTION TO OR INTO ITS SOURCE AND POINT (OR POINTS) OF TERMINATION. INSULATION RESISTANCE OF CONDUCTORS WHICH ARE TO OPERATE AT 600 VOLTS OR LESS SHALL BE TESTED BY USING A BIDOLE MEGGER OF NOT LES THAN 1000 VOLTS DC. INSULATION RESISTANCE OF CONDUCTORS RATED AT 600 VOLTS SHALL BE FREE OF SHORTS AND GROUNDS AND HAVE A MINIMUM RESISTANCE PHASE--TO PHASE AND PHASE--TO-GROUND OF AT LEAST 10 MEGOHMS. CONDUCTORS THAT DO NOT EXCEED INSULATION RESISTANCE VALUES LISTED ABOVE SHALL BE REMOVED AT CONTRACTOR'S EXPENSE AND REPLACED AND TEST REPEATED. THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS AND PERSONNEL REQUIRED FOR TESTS, SHALL TABULATE READINGS OBSERVED, AND SHALL FORWARD COPIES OF THE TEST READINGS TO THE ARCHITECT. THESE TEST REPORTS SHALL IDENTIFY EACH CONDUCTOR TESTED, DATE AND TIME OF TESTING AND WEATHER CONDITIONS. EACH TEST SHALL BE SIGNED BY THE PARTY MAKING THE TEST.

WIRING DEVICES

WIRING DEVICES: FURNISH AND INSTALL WHERE INDICATED ON DRAWINGS. ALL DEVICES SHALL BE LEVITON "DECORA" TYPE (CONFIRM W/ ARCHITECT) OR APPROVED EQUAL UNLESS SPECIFIED OTHERWISE BY ARCHITECT.

GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLE SHALL COMPLY WITH 2006 UL 943 SAFETY STANDARD. GFCI RECEPTACLE SHALL HAVE INTEGRAL END-OF-LIFE LED INDICATOR LIGHT, AND CONTINUOUS SENSING AND SELF--TESTING EVERY 60 SECONDS. PROVIDE HUBBELL GFR3532 OR APPROVED EQUAL.

COVER PLATES: STAINLESS STEEL (CONFIRM W/ ARCHITECT). PROVIDE CIRCUIT NUMBER LABEL ON ALL DEVICE PLATES.

GROUNDING AND BONDING

GROUNDING: ALL CONDUIT WORK AND ELECTRICAL EQUIPMENT SHALL BE EFFECTIVELY AND PERMANENTLY GROUNDED IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE GREEN EQUIPMENT GROUNDING CONDUCTOR WITH ALL POWER AND RECEPTACLE AND LIGHTING CIRCUITS. GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE ROUTED FROM PANEL GROUND BUS TO FINAL DEVICES.

GROUNDING AND BONDING

GROUNDING: ALL CONDUIT WORK AND ELECTRICAL EQUIPMENT SHALL BE EFFECTIVELY AND PERMANENTLY GROUNDED IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE GREEN EQUIPMENT GROUNDING CONDUCTOR WITH ALL POWER AND RECEPTACLE AND LIGHTING CIRCUITS. GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE ROUTED FROM PANEL GROUND BUS TO FINAL DEVICES. GROUNDING ELECTRODES: PROVIDE 3/4" X 10--FT LONG, COPPER--CLAD, STEEL GROUNDING ROD. FOR BELOW--GRADE CONNECTIONS PROVIDE EXOTHERMIC WELDED TYPE. FOR ABOVE GRADE CONNECTIONS PROVIDE MECHANICAL BOLTED--TYPE CONNECTIONS UTILIZING HIGH CONDUCTIVE COPPER ALLOY OR BRONZE LUGS OR CLAMPS.

ELECTRICAL IDENTIFICATION

IDENTIFICATION: LABEL ALL JUNCTION AND PULL BOXES WITH PANELS AND CIRCUIT NUMBERS. FURNISH MARKERS OR PAINT BAND FOR EACH CONDUIT LONGER THAN 6 FEET. SPACING 20 FEET ON CENTER. COLOR OF PAINT BAND (CONFIRM COLOR MATCHES EXISTING FACILITY COLOR CODE.): (A) 480 VOLT SYSTEM -- BLACK, (B) 208 VOLT SYSTEM -- BLACK W/BLUE STRIPES, (C) FIRE ALARM SYSTEM -- RED, (D) TELEPHONE SYSTEM -- YELLOW, (E) OTHER SYSTEM -- BY SPECIFIC LETTER DESCRIPTION. LABEL ALL HOMERUN AND MAJOR CONDUIT WITH HOME PANELS/SWITCHES, ETC. AT EVERY 10--FT. INTERVAL IF ACCESSIBLE AND/OR VISIBLE, EXAMPLE: PANEL "X", SW. "X", COND UNIT XXX, XFMR DISC. SW., FEEDER XXX, ETC. MARK ALL BRANCH CONDUIT WITH CIRCUIT NUMBERS AT EACH SURFACE MOUNTED PANEL LOCATION. FOR RECESSED PANELS, MARK BRANCH CONDUIT IN CEILING PLENUM JUST ABOVE PANELS. COLOR CODE: CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS.

Table with 5 columns: Label, Phase A, Phase B, Phase C, Ground. Rows include 480Y/277V, 208Y/120V, 240/120V, 120/240V and color codes for Brown, Purple, Yellow, Gray or White, Green, Black, Red, Blue, White, Orange (High Leg), Red, White, Green.

ALL PANELS SHALL BE IDENTIFIED USING NAMEPLATES WITH 4 ROWS OF TEXT (LETTER HEIGHT SHALL BE 1/4" MINIMUM), EXAMPLE:
PANEL "XX" 225 AMPS MCB, SECTION #1 OF 2--SECTION PNL
208Y/120V, 3 PHASE, 4 WIRE
FEEDER SIZE 4 # 4/0 THWN, 1 # 4 G, 2 1/2" C.
FED FROM DIST PANEL "XXX", 1ST FLOOR

HIGH NAMEPLATES SHALL BE ENGRAVED THREE--LAYER LAMINATED PLASTIC, WHITE LETTERS ON BLACK BACKGROUND. SECURE NAMEPLATES TO EQUIPMENT USING SCREWS OR RWETS.

ALL SWITCHES, STARTERS, COMBINATION STARTER/DISCONNECT, TRANSFORMERS, WIREWAYS, COMMUNICATION CABINETS, JUNCTION AND PULL BOXES ETC. SHALL BE SIMILARLY IDENTIFIED. PROVIDE LABEL FOR EACH BRANCH CIRCUIT ON DISTRIBUTION PANELS, SWITCHBOARDS AND MCC'S. EXAMPLE:
ACCU-1
208V, 3 PHASE, 3 WIRE
FEEDER SIZE 3 # 4/0 THWN, 1 # 4 G, 2 1/2" C.
FED FROM DIST PANEL "XXX", 1ST FLOOR

ELECTRICAL SERVICE
CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY AND PERMANENT SERVICE. COMPLY WITH ALL SERVICE INSTALLATION STANDARDS OF THE SERVING UTILITY. ELECTRICAL SERVICE CHARACTERISTICS SHALL BE AS SHOWN ON THE ELECTRICAL ONE LINE DIAGRAM. CONTRACTOR SHALL COORDINATE LOCATION OF SERVICE ENTRANCE WITH THE POWER COMPANY. PROVIDE MATERIALS AND EQUIPMENT REQUIRED TO CONNECT THE PROJECT SERVICE TO THE UTILITY SYSTEM. CONTRACTOR SHALL SUBMIT TO THE POWER COMPANY AN APPLICATION FOR SERVICE.

SHALL SUBMIT TO THE POWER COMPANY AN APPLICATION FOR SERVICE. SERVICE APPLICATION TO THE POWER COMPANY WITHIN 30 DAYS AFTER AWARD OF PROJECT CONTRACTOR SHALL SECURE A SERVICE OUTLET AND DATA STATEMENT ("STATEMENT") FROM THE POWER COMPANY. VERIFY THAT THE INFORMATION ON THE STATEMENT IS CORRECT, INCLUDING VOLTAGE, PHASE AND NUMBER OF WIRES, TYPE OF SERVICE, SERVICE FACILITY ARRANGEMENTS, AND LOCATION OF SERVICE OUTLET. PROVIDE A COPY OF THE STATEMENT FOR ENGINEER'S REVIEW. FAILURE TO SUBMIT SERVICE APPLICATION IN A TIMELY MANNER MAY CAUSE PROJECT DELAY AND ADDITIONAL COST. ALL SUCH COST DUE TO CONTRACTOR'S FAILURE TO APPLY AND COORDINATE FOR SERVICE IN A TIMELY MANNER SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE AND ASSIST OWNER IF APPLICATION IS REQUIRED TO BE SUBMITTED BY OWNER.

PANELBOARDS -- DISTRIBUTION AND BRANCH CIRCUIT

ALL PANELBOARDS SHALL HAVE COPPER BUSES. LOAD CENTER TYPE PANELBOARDS ARE NOT ACCEPTABLE AND SHALL NOT BE USED. PROVIDE BREAKERS WHICH ARE QUICK--MAKE AND QUICK--BREAK ON BOTH MANUAL AND AUTOMATIC OPERATION. USE A TRIP--FREE BREAKER WHICH IS TRIP INDICATING. INCORPORATE INVERSE TIME CHARACTERISTIC BY BIMETALLIC OVERLOAD ELEMENTS AND INSTANTANEOUS CHARACTERISTIC BY MAGNETIC TRIP. FOR 2--POLE AND 3--POLE BREAKERS, USE THE COMMON--TRIP TYPE SO THAT AN OVERLOAD OR FAULT ON ONE POLE WILL TRIP ALL POLES SIMULTANEOUSLY. HANDLE TIES ARE NOT ACCEPTABLE. ALL BREAKERS SHALL BE BOLT--ON THERMAL MAGNETIC TYPE. STAB--ON BREAKERS ARE NOT ACCEPTABLE. DO NOT USE TANDEM CIRCUIT BREAKERS. ALL CIRCUIT BREAKERS RATED 100 AMP OR LESS SHALL BE SUITABLE FOR TERMINATING 75C WIRE (BREAKERS RATED FOR ONLY 60C WIRE IS NOT ACCEPTABLE. SEE 16123 -- BUILDING WIRE AND CABLE). ALL EQUIPMENT SHALL BE LABELED, PANELBOARDS SHALL BE LABELED BOTH ON THE COVERPLATES AND THE INTERIORS. PANELBOARD DIRECTORIES: PROVIDE A STEEL DIRECTORY FRAME MOUNTED INSIDE THE DOOR WITH A HEAT--RESISTANT TRANSPARENT FACE AND A DIRECTORY CARD FOR IDENTIFYING THE LOADS SERVED. IDENTIFY EACH CIRCUIT WITH LOAD AND LOCATIONS (ROOM NAMES AND ROOM NUMBERS) AND INDICATE WITH TYPED DIRECTORIES. (EXAMPLE: 5 DUPLEX RECEPTACLES, OFFICE, RM XXX). INSTALL THE PANELBOARDS SUCH THAT THE CENTER OF THE SWITCH OR CIRCUIT BREAKER IN THE HIGHEST POSITION WILL NOT BE MORE THAN 6 1/2 FEET ABOVE THE FLOOR OR WORKING PLATFORM. FOR EACH PANEL-- FURNISH AND INSTALL ONE SPARE 3/4" CONDUIT FOR EVERY 6 SPARES AND/OR SPACES IN THE PANEL. EACH SPARE CONDUIT SHALL BE INSTALLED WITH PULL STRINGS STUBBED TO A J--BOX LOCATED IN ACCESSIBLE CEILING/PLENUM SPACE. INSTALL A MINIMUM OF ONE SPARE 3/4" CONDUIT FOR EVERY PANEL SHOWN ON PLANS, EVEN IF THERE ARE NO SPARES/SPACES IN SOME PANELS. MANUFACTURER SHALL BE SQUARE D.

ENCLOSED SAFETY SWITCHES

ENCLOSED SAFETY SWITCHES SHALL BE HEAVY--DUTY TYPE WITH QUICK--MAKE, QUICK--BREAK CONTACTS AND SUITABLE FOR TERMINATING 75C WIRE. PROVIDE EACH SWITCH WITH A GROUND LUG. PROVIDE A DEFEATABLE, FRONT ACCESSIBLE, COIN--PROOF DOOR INTERLOCK TO PREVENT OPENING THE DOOR WHEN THE SWITCH IS IN THE ON POSITION AND TO PREVENT TURNING THE SWITCH ON WHEN THE DOOR WHEN THE SWITCH IS IN THE ON POSITION AND TO PREVENT TURNING THE SWITCH ON WHEN THE DOOR IS OPEN. PROVIDE INCOMING LINE TERMINALS WITH AN INSULATED SHIELD SO THAT NO LIVE PARTS ARE EXPOSED WHEN THE DOOR IS OPEN. PROVIDE EACH SWITCH WITH AN ISOLATED, FULL RATED NEUTRAL BAY AND PROVISIONS FOR BONDING THE BLOCK TO THE ENCLOSURE. WHERE FUSIBLE SWITCHES ARE SHOWN, PROVIDE SWITCHES WITH REJECTION--TYPE FUSE HOLDERS WHICH ARE SUITABLE FOR USE WITH FUSES. IN GENERAL, MOUNT SWITCHES SO THAT OPERATING HANDLE IS APPROXIMATELY 44 INCHES ABOVE FINISHED FLOOR; WHERE GROUPED, ALIGN TOPS OF SWITCHES. MANUFACTURER SHALL BE SQUARE D.

INTERIOR LIGHTING FIXTURES, LAMPS, AND BALLASTS

SEE THE LIGHT FIXTURE SCHEDULE ON THE DRAWINGS FOR TYPE OF LUMINAIRES AND CATALOG NUMBERS. CATALOG NUMBERS ARE SHOWN ON THE DRAWINGS FOR QUALITY AND PERFORMANCE REQUIREMENTS ONLY. LUMINAIRES MANUFACTURED BY OTHERS ARE EQUALLY ACCEPTABLE PROVIDED THEY MEET OR EXCEED THE PERFORMANCE OF THE INDICATED LUMINAIRES, AND MEET THE INTENT OF THE DESIGN.

LUMINAIRES SHALL BE CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (UL, ETL, OR IEQ).

WHERE ALTERNATE FIXTURES TO THOSE SPECIFIED ARE PROVIDED, NOTIFICATION OF ALTERNATES ARE REQUIRED PRIOR TO BID AND MUST BE APPROVED BY THE ARCHITECT/OWNER. FULL PHOTOMETRIC DRAWINGS AND A SPREADSHEET INDICATING THE DIFFERENCES BETWEEN THE SPECIFIED FIXTURES AND ALTERNATE FIXTURES SHALL BE PROVIDED AS PART OF THE PRE--BID NOTIFICATION. THE SPREADSHEET SHALL INDICATE ALL ASPECTS OF THE ALTERNATE FIXTURE THAT DIFFER FROM THE SPECIFIED FIXTURE, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

- 1. PHYSICAL DIMENSIONS.
2. MOUNTING TYPE.
3. FIXTURE RATINGS/LISTINGS.
4. HOUSING MATERIALS/CONSTRUCTION.
5. LUMEN OUTPUT.
6. FIXTURE VOLTAGE.
7. FIXTURE WATTAGE.
8. FIXTURE EFFICACY.
9. CCT.
10.CRI.
11.BEAM ANGLES/DISTRIBUTION.
12.MANUFACTURER WARRANTY.
13.EMERGENCY POWER.
14.CONTROLS REQUIREMENTS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH THE PROPER CEILING FRAMES FOR THE CEILING MATERIAL IN WHICH RECESSED FIXTURES ARE TO BE INSTALLED.

ALL FIXTURES BROKEN OR DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.



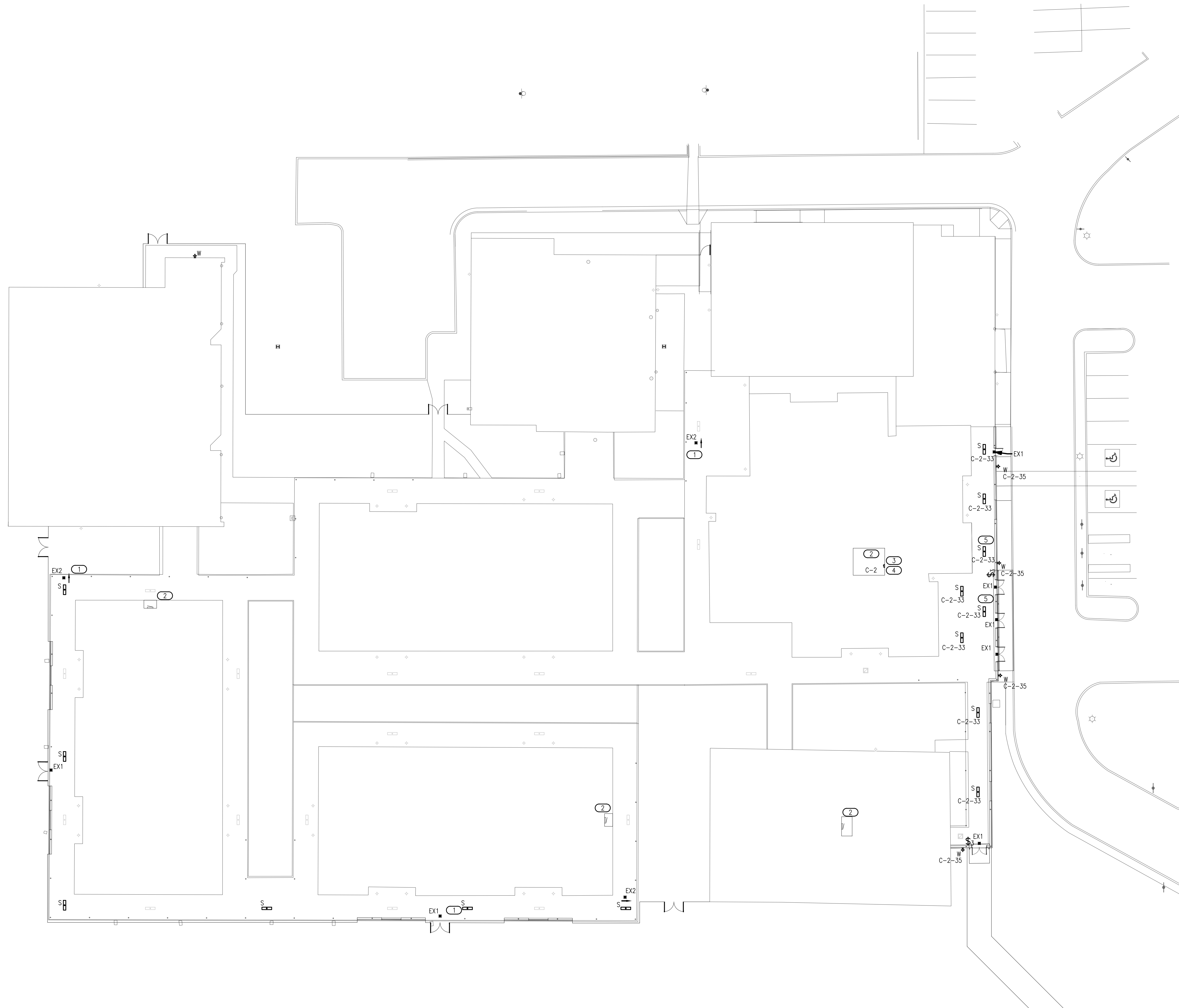
Table with columns for date and revision. Rows include JV drawn by, TVO checked by, JANUARY 2024 date, and revisions.

MOORE PUBLIC SCHOOLS BOARD OF EDUCATION MOORE, OKLAHOMA



SECURITY UPGRADES SANTA FE ELEMENTARY SCHOOL

sheet no:



- LIGHTING GENERAL NOTES**
- CONNECT BATTERY PACKS TO UNSWITCHED HOT OF LOCAL LIGHTING CIRCUIT.
 - COORDINATE WITH THE ARCHITECT, OWNER, AND ASSOCIATED TRADES FOR THE EXACT HEIGHT/LOCATION OF EXTERIOR MOUNTED LIGHTING FIXTURES PRIOR TO ROUGH-IN.
 - LABEL SWITCH PLATES AND J-BOXES WITH CIRCUIT PER SPECS.
 - ALL NEW DEVICES TO BE GRAY UNLESS OTHERWISE NOTED.
 - ALL NEW LIGHTING TO BE CONNECTED TO EXISTING EXTERIOR LIGHTING CIRCUITS, UNLESS OTHERWISE NOTED IN DRAWINGS. EC TO DETERMINE PEAK LOAD ON PANEL AND REPORT ANY ANOMALIES TO THE ARCHITECT AND ENGINEERING BEFORE PROCEEDING.
 - PROVIDE NEW LIGHTING CONTACTOR. NEW LIGHTS SHALL BE CONTROLLED BY CONTACTOR TO INTERLOCK WITH EXISTING LIGHTING CONTROLS. EC SHALL FIELD INVESTIGATE AND REPORT ANY ANOMALIES TO THE ARCHITECT AND ENGINEER PRIOR TO PROCEEDING.

- KEYED NOTES**
- NEW EXIT SIGN TO BE CEILING MOUNTED AND TO BE PLACED UNDER CANOPY.
 - APPROXIMATE LOCATION OF EXISTING PANELS. EC TO FIELD VERIFY EXACT LOCATION AND EXISTING CONDITIONS.
 - EC TO PROVIDE NEW 120V CONNECTION FOR NEW WALL PACKS.
 - EC TO PROVIDE NEW 120V CONNECTION FOR NEW SURFACE MOUNTED CANOPY LIGHTS.
 - EXISTING LIGHT FIXTURE TO BE DEMOLISHED AND REPLACED WITH NEW. EC TO DISCONNECT LIGHTING FIXTURE FROM EXISTING CIRCUIT AND CONNECT TO NEW LIGHTING CIRCUIT.

AGP
the Abila Griffin
Partnership L.L.C.

201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL



JV
drawn by
TVO
checked by
JANUARY 2024
date
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

E-101

1 ELECTRICAL LIGHTING PLAN

SCALE: 1"=0' = 20'-0"



OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED. PLANS
AND DRAWINGS ARE NOT TO BE
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.

ABBREVIATIONS

ABV	ABOVE	HWND	HARDWOOD
ACOUNT.	ACOUNTABLE	HWR	HARDWARE
ADJ.	ADJUSTABLE	HORIZ.	HORIZONTAL
ANCHOR	ANCHOR	HT	HEIGHT
APPROX.	APPROXIMATE	INSUL.	INSULATION
BD.	BOARD	JST.	JOIST
BLG.	BLOCKING	JT.	JOINT
BL.	BOTTOM	LAV.	LAVATORY
BOT.	BOTTOM	MAT.	MATERIAL
C	CENTERLINE	MAX.	MAXIMUM
CL.G.	CEILING	MECH.	MECHANICAL
CMU	CONCRETE MASONRY UNIT	MFG.	MANUFACTURING
CONC.	CONCRETE	MFR.	MANUFACTURER
COL.	COLUMN	MISC.	MISCELLANEOUS
CONT.	CONTINUOUS	MTL.	METAL
D.F.	DRINKING FOUNTAIN	N.I.C.	NOT IN CONTRACT
DM.	DRINKING FOUNTAIN	NT./#	NUMBER NOT TO SCALE
DR.	DRINKING FOUNTAIN	N.T.S.	NOT TO SCALE
DWG.	DRAWING	O.C.	ON CENTER
DWL.	DOWEL	OPNG.	OPENING
EACH	EACH	OP.	OPENING
ELECT.	ELECTRICAL	PP.	POWER POLE
ELEV.	ELEVATION	PREFN.	PREFINISHED
EQ.	EQUAL	P.V. / PLY. WD.	PAPER TOWEL
E.I.	EXPANSION JOINT	REDD.	REQUIRED
E.W.	EACH WAY	RELD.	REQUIRED
EXIST.	EXISTING	RM.	ROOM
EXT.	EXTERIOR	SB.	SCHEDULE
F.D.	FLOOR DRAIN	SCHD.	SCHEDULE
F.E.	FIRE EXTINGUISHER	STD.	STANDARD
FEC.	FIRE EXTINGUISHER CABINET	STL.	STEEL
FEL.	FINISH FLOOR LINE	S.U.	SAWJOINT
FIN.	FINISH	T.C.	TOP OF CURB
FRMG.	FRAMING	T.P.H.	TYPICAL
GA.	GAUGE	U.N.O.	UNLESS NOTED OTHERWISE
GB.	GALVANIZED	VTR.	VENT THROUGH ROOF
GALV.	GALVANIZED	W.C.	WATERCLOSET
GYP.	GYP-SUM BOARD	WD.	WOOD
HC.	HANDICAP	WWF.	WELDED WIRE FABRIC

MATERIALS LEGEND

	MASONRY VENEER
	CONCRETE
	FRAME PARTITION, METAL STUDS
	GYP-SUM BOARD
	PARTICLE BOARD
	RIGID INSULATION
	WOOD BLOCKING / FRAMING, CONTINUOUS
	WOOD BLOCKING, DISCONTINUOUS
	FINISH WOOD
	SMALL SCALE STRUCTURAL STEEL / MISCELLANEOUS METAL
	LARGE SCALE STRUCTURAL STEEL
	BATT INSULATION
	ACOUSTICAL CEILING TILE
	EARTH FILL

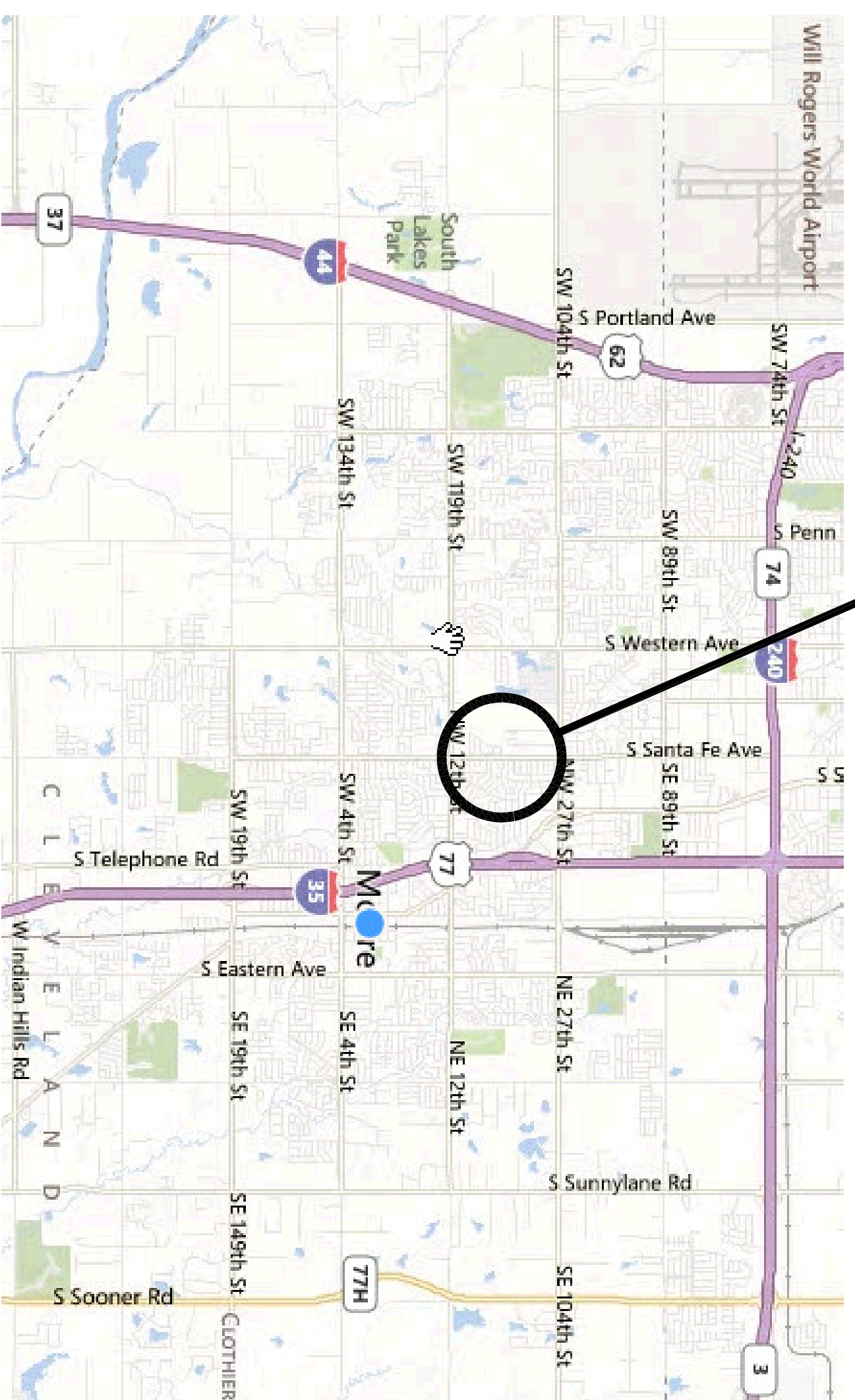
SYMBOLS LEGEND

	EXISTING SPOT ELEVATION
	FINISH SPOT ELEVATION
	EXISTING GRADE CONTOUR
	FINISH GRADE CONTOUR
	EXISTING TREE TO BE PROTECTED
	EXISTING TREE TO BE REMOVED
	PROJECT LIMITS
	CHANLINK FENCE
	BARBED WIRE FENCE
	CONCRETE PAVING
	ASPHALT PAVING
	CONCRETE SIDEWALK
	EXISTING PAVING/SIDEWALK TO REMAIN
	EXISTING PAVING TO BE REMOVED
	NEW BUILDING
	EXISTING BUILDING - NO WORK
	ROOM NUMBER
	ROOM NUMBER, LARGE
	SCALE PLAN REFERENCE
	ROOM NUMBER/INTERIOR ELEVATION REFERENCE
	WALL SECTION/DETAIL CUT MARK
	LARGE SCALE DETAIL MARK
	STRUCTURAL GRID COORDINATES
	BUILDING SECTION CUT MARK
	DOOR NUMBER
	WINDOW MARK
	FRAME MARK
	GLAZING MATERIAL MARK
	EQUIPMENT MARK
	EXTERIOR ELEVATION MARK
	TEST HOLE
	BENCH MARK/BUILDING ELEVATION (SECTION)

GENERAL NOTES:

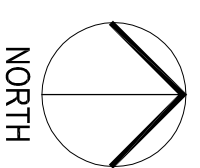
- ALL REQUIRED HANDICAP ACCESSIBLE ITEMS TO COMPLY WITH AMERICANS WITH DISABILITIES ACT AND ARCHITECTURAL BARRIERS ACT ACCESSIBILITY GUIDELINES.
- THE CONTRACTOR SHALL ON THIS PROJECT CONTAINING MATERIAL NOT USE PROJECT CONTAINING MATERIAL.
- THESE CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO THE DRAWINGS, PROJECT MANUAL AND ANY SUBSEQUENT ADDENDA ARE ISSUED AS A "WHOLE" AND SHALL BE BID AS SUCH. EACH DISCIPLINE / SUBCONTRACTOR SHALL REVIEW THE ENTIRE SET OF CONTRACT DOCUMENTS AND INCLUDE APPLICABLE WORK IN THEIR BID REGARDLESS OF LOCATION WITHIN THE CONTRACT DOCUMENTS. REVIEWING ONLY A PORTION OF THE CONTRACT DOCUMENTS SHALL NOT ABSOLVE THE CONTRACTOR OR SUBCONTRACTOR OF THE REQUIREMENT TO PERFORM THE WORK OF THEIR RESPECTIVE DISCIPLINES.
- LOCATIONS OF EXISTING BUILDINGS, SITE FEATURES, & UNDERGROUND UTILITIES HAVE BEEN OBTAINED FROM EXISTING AVAILABLE SOURCES. THE CONTRACTOR IS TO FIELD VERIFY EXISTING LOCATIONS PRIOR TO STARTING CONSTRUCTION AND NOTIFY THE ARCHITECT IMMEDIATELY IF ANY EXISTING BUILDING OR SITE FEATURE CONFLICTS WITH THE NEW CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING SITE UTILITIES AND PROTECT DURING CONSTRUCTION. COORDINATE NEW UTILITY REQUIREMENTS WITH APPLICABLE UTILITY COMPANIES (WATER, GAS, ELECTRICITY, SANITARY, SEWER, TELEPHONE, CABLE, SITE DRAINAGE AND OTHERS, AS REQUIRED). COMPLY WITH ALL APPLICABLE REGULATIONS. INCLUDE ALL CONNECTION FEES AND OTHER CHARGES IN BID.
- REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR UTILITY INFORMATION.
- REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONCRETE TO BE PROVIDED BY CONTRACTOR.
- GENERAL CONTRACTOR TO VERIFY LOCATIONS OF EXISTING ENCUMBRANCES AND SET BACKS PRIOR TO STARTING CONSTRUCTION
- CONFLICTS BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO ARCHITECTS ATTENTION. FAILURE TO BID ITEMS NOTED ON DRAWINGS AND OMITTED FROM SPECIFICATIONS DOES NOT REMOVE RESPONSIBILITY TO PROVIDE AND INSTALL SUCH CHANGES IN BID.

PROJECT LOCATION



SANTA FE ELEMENTARY SCHOOL,
301 N. SANTA FE
OKLAHOMA CITY, OKLAHOMA 73160

VICINITY MAP



GENERAL NOTES (CONT):

- CONSTRUCTION STAGING AREA & VEHICLE ACCESS SHALL BE CONFIRMED WITH OWNER, AND CONSTRUCTION MANAGER IF APPLICABLE. PRIOR TO CONSTRUCTION, FINISH GRADE AT BUILDING PERIMETERS SHALL BE 6" BELOW FINISH FLOOR UNLESS SPECIFICALLY NOTED OTHERWISE ON CIVIL DRAWINGS. DEVELOP POSITIVE DRAINAGE AWAY FROM NEW AND/OR EXISTING BUILDINGS!
- ALL GRID LINES IDENTIFIED BY A LETTER OR NUMBER ARE PARALLEL, UNLESS OTHERWISE NOTED.
- SIZES OF HOUSKEEPING PADS AND BASES FOR MECHANICAL EQUIPMENT ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION AND REQUIRED SIZE OF ALL CONCRETE PADS AND BASES WITH EQUIPMENT MANUFACTURERS BEFORE POURING. ALL PADS TO BE PROVIDED BY THE CONTRACTOR.
- CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE VARIOUS TRADE ITEMS WITHIN THE SPACE ABOVE THE CEILING INCLUDING, BUT NOT LIMITED TO STRUCTURAL MEMBERS AND SPRAY-ON INSULATION OR FIBERGLASS, MECHANICAL DUCTS AND BATT INSULATION, RACEWAY, SPRINKLER SYSTEMS, LIGHT FIXTURES, CEILING SYSTEMS, AND ANY SPECIAL STRUCTURAL SUPPORTS (REQUIRED) AND SHALL BE RESPONSIBLE FOR MAINTAINING THE FINISH CEILING HEIGHT ABOVE THE FINISH FLOOR INDICATED IN THE DRAWINGS AND FINISH SCHEDULE.
- ALL METAL STUDS WHERE PLUMBING OCCURS OR STRUCTURAL COLUMNS ARE LOCATED SHALL BE MINIMUM 6" METAL STUDS. NOTIFY ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS.
- PROVIDE AND INSTALL ACCESS PANELS WHERE REQUIRED BY BUILDING CODE OR FOR THE PROPER OPERATION OF MECHANICAL OR ELECTRICAL EQUIPMENT, AND AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL COORDINATE SIZE, LOCATION, AND TYPE OF ACCESS PANEL WITH OTHER CONTRACTORS WORK AND RECEIVE APPROVAL OF THE ARCHITECT. ACCESS PANEL SHALL BE AS SPECIFIED.
- 3/4" FIRE-RETARDANT TREATED PLYWOOD BACKING 8'-0" HIGH SHALL BE PROVIDED AND INSTALLED ON ALL WALLS OF TELEPHONE AND ELECTRICAL ROOMS UNLESS SPECIFICALLY SHOWN OTHERWISE ON ELECTRICAL DRAWINGS.
- ALL WOOD WITHIN THIS PROJECT (IE. PLYWOOD, BLOCKING, ETC.) SHALL BE FIRE-RETARDANT TREATED.
- FOR ILLUSTRATION AND DEFINITION OF TYPICAL SYMBOLS USED ON THE ARCHITECTURAL DRAWINGS, SEE "SYMBOLS AND ABBREVIATIONS" SHEET. ADDITIONAL SYMBOLS NOT SHOWN OR DENIED THESE MAY OCCUR AND ARE DENIED ON OTHER DRAWINGS.
- REFER TO SPECIFICATIONS FOR ADDITIONAL PAINT ITEMS NOT SHOWN ON ROOM FINISH SCHEDULE.
- THE SPECIFICATIONS AND ALL CONSULTANT DRAWINGS ARE SUPPLEMENTAL TO THE ARCHITECT'S WORK AND TO BRING ANY DISCREPANCIES OR CONFLICTS TO THE ARCHITECT'S ATTENTION FOR CLARIFICATION. IMPROPERLY INSTALLED WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE ARCHITECT. HIS CONSULTANTS, OR THE OWNER.
- THE ARCHITECTURAL DRAWINGS ARE A PART OF A LARGER SET OF DRAWINGS WHICH, WHEN COMPLETE, CONSISTS OF ALL DRAWINGS LISTED BY THE INDEX OF DRAWINGS. THE WORK DESCRIBED BY THE DRAWINGS OF ANY ONE DISCIPLINE MAY BE AFFECTED BY THE WORK DESCRIBED ON DRAWINGS OF ANOTHER DISCIPLINE AND MAY REQUIRE REFERENCE TO DRAWINGS OF ANOTHER DISCIPLINE. PARTIAL SETS OF DRAWINGS SHALL NOT BE DISTRIBUTED AND UTILIZED BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT BEFORE COMMENCING CONSTRUCTION AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS.
- THE ARCHITECTURAL DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND EXACT LOCATIONS OF ALL EXPOSED ELEMENTS OF THE WORK INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES. LOCATIONS SHOWN ON OTHER DRAWINGS ARE SCHEMATIC, UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS. TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND EXACT LOCATION OF ALL PARTS OF THE WORK. EXCEPTIONS, DIMENSIONED LOCATIONS SHOWN ON DRAWINGS OF OTHER DISCIPLINES SHALL GOVERN ONLY WHERE: (A) SPECIFICALLY AND INDIVIDUALLY INDICATED BY SYMBOL, KEYED NOTE OR NOTATION ON THE ARCHITECTURAL DRAWINGS; (B) OCCURRING WITHIN A ROOM OR OTHER IDENTIFIED SPACE FOR WHICH ARCHITECTURAL SHEET OR SCHEDULE NOTES INDICATE THAT DIMENSIONS PROVIDED ELSEWHERE SHALL GOVERN; AND (C) OCCURRING WITHIN A ROOM OR OTHER IDENTIFIED SPACE FOR WHICH ARCHITECTURAL SHEET OR SCHEDULE NOTES INDICATE THAT DIMENSIONS PROVIDED ELSEWHERE SHALL GOVERN.
- WORK NOT SPECIFICALLY INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO WORK SHOWN ON THE DRAWINGS IN CORRESPONDING AND OTHER PLACES SHALL BE CONSTRUCTED SIMILARLY.
- PROVIDE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2A WITHIN 75 FOOT TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILDING. PROVIDE PORTABLE FIRE EXTINGUISHERS AS THE BUILDING IS CONSTRUCTED.

STATE OF OKLAHOMA
MICHAEL L. ABILA
No. 2839
Professional Engineer
2/13/24

CG
designed by
MA
checked by
FEBRUARY 2024
088
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA

MOORE Public Schools
LEARNING FOR LIFE

SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

Sheet No.
G100

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED BY
AGP. ANY REPRODUCTION OF ANY
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



6) CONCRETE MIX PROPORTIONS SHALL BE ESTABLISHED IN ACCORDANCE WITH ARTICLE 4.2.3 OF ACI 301 SO THAT THE CONCRETE SATISFIES THE FOLLOWING THREE REQUIREMENTS:
A) THE CONCRETE CAN BE PLACED READILY WITHOUT SEGREGATION INTO FORMS AND AROUND REINFORCEMENT UNDER ANTICIPATED PLACEMENT CONDITIONS. THE CONCRETE PRODUCER SHALL DETERMINE WHETHER ADMIXTURES ARE NECESSARY FOR WATER REDUCTION, SET TIME, OR SLUMP REQUIREMENTS.
B) THE CONCRETE SHALL MEET REQUIREMENTS FOR THE ASSIGNED EXPOSURE CLASSES OUTLINED HEREIN.
C) THE CONCRETE SHALL CONFORM TO STRENGTH TEST REQUIREMENTS FOR STANDARD-CURED SPECIMENS.

7) DOCUMENTATION OF CONCRETE MIXTURE CHARACTERISTICS SHALL BE SUBMITTED FOR REVIEW BEFORE THE MIXTURE IS USED. EVIDENCE OF THE ABILITY OF THE PROPOSED MIXTURE TO COMPLY WITH THE CONCRETE MIXTURE REQUIREMENTS IN THE CONSTRUCTION DOCUMENTS SHALL BE INCLUDED IN THE SUBMITTAL. THE EVIDENCE SHALL BE BASED ON FIELD TEST RECORDS OR LABORATORY TRIAL BATCHES.

C. CONCRETE REINFORCING:

1) ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL, UNLESS OTHERWISE NOTED, SHALL FOLLOW ALL SECTIONS OF ACI MNL-66, ACI 318, AND THE CRSI MSP.
2) UNLESS OTHERWISE NOTED, LAP SPLICES OF DEFORMED REINFORCING BARS SHALL CONFORM TO ACI REQUIREMENTS FOR CLASS B TENSION SPLICES. REFER TO LAP LENGTH SCHEDULES FOR TYPICAL LAP REQUIREMENTS.

3) PROVIDE CORNER BARS IN BOTH FACES OF ALL CONTINUOUS GRADE BEAMS, FOOTINGS AND WALLS. NUMBER, SIZE, AND SPACING OF CORNER BARS SHALL BE EQUAL TO NUMBER, SIZE AND SPACING OF HORIZONTAL REINFORCING WITH WHICH THEY LAP AND SHALL HAVE CLASS B TENSION LAP SPLICES IN EACH DIRECTION. REFER TO TYPICAL DETAILS FOR ADDITIONAL INFORMATION.

4) AT INTERSECTING FOUNDATIONS, EXTEND ALL HORIZONTAL REINFORCING OF THE INTERSECTING MEMBERS BEYOND THE POINT OF INTERSECTION TO THE OPPOSITE FACE. BEND TO A STANDARD 90 DEGREE HOOK OR PROVIDE BENT DOWELS OF EQUAL SIZE AND SPACING AND LAP AS REQUIRED FOR A CLASS B TENSION SPLICE (BUT NOT LESS THAN 12") IN EACH DIRECTION. REFER TO TYPICAL DETAILS FOR ADDITIONAL INFORMATION.

5) PROVIDE TIES COMPLYING WITH ACI 318 IN ALL CONCRETE COLUMNS AND PILASTERS. EVERY CORNER AND ALTERNATING LONGITUDINAL BAR SHALL HAVE A LATERAL SUPPORT PROVIDED BY THE CORNER OF A TIE WITH AN INCLUDED ANGLE ON NOT MORE THAN 135-DEGREES. NO UNSUPPORTED LONGITUDINAL BAR SHALL BE FARTHER THAN 6-IN. CLEAR ON EACH SIDE ALONG THE TIE FROM A LATERALLY SUPPORTED BAR.

6) CONCRETE COVER OVER STEEL REINFORCING SHALL CONFORM TO THE TABLE PROVIDED IN THE CONCRETE TYPICAL DETAILS.

D. JOINTS IN CONCRETE CONSTRUCTION:

1) CURING AT CONSTRUCTION JOINTS: CONCRETE POURS EITHER SIDE OF CONSTRUCTION JOINTS SHALL NOT BE CONCURRENT. CONCRETE SHALL BE ALLOWED TO CURE A MINIMUM OF 7 DAYS PRIOR TO PLACEMENT OF ADJACENT CONCRETE.

8) REINFORCED HOLLOW CONCRETE MASONRY NOTES

A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL MASONRY SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) TMS 402-2013, "BUILDING CODE FOR MASONRY STRUCTURES"
2) TMS 602-2013, "SPECIFICATION FOR MASONRY STRUCTURES"

B. MASONRY DIMENSIONS: REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS RELEVANT TO ALL CONCRETE MASONRY CONSTRUCTION.

C. CONCRETE MASONRY UNITS:

1) ALL CONCRETE MASONRY UNITS SHALL BE 1 OR 2-CELL LIGHTWEIGHT CONCRETE BLOCK WITH AN OVEN DRY WEIGHT OF LESS THAN 105 LBS PER CUBIC FOOT.
2) ALL CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI ON THE NET AREA (INDIVIDUAL STRENGTH PER ASTM C 90).

D. MORTAR:

1) MORTAR MATERIALS: CONCRETE MASONRY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT/LIME, TYPE S MORTAR CONFORMING TO THE PROPORTION SPECIFICATION OF ASTM C270.

2) MORTAR SUBMITTAL REQUIREMENTS: BECAUSE THE PROPORTION SPECIFICATION FOR MORTAR IS PRESCRIPTIVE, THERE ARE NO MORTAR TESTS REQUIRED. SUBMITTAL INFORMATION SHALL INCLUDE THE PROPORTIONS OF MORTAR MATERIALS AND CERTIFICATES OF COMPLIANCE FOR EACH RAW MATERIAL USED.

3) MORTAR MIX PROPORTIONS: MORTAR MATERIAL PROPORTIONS BY VOLUME SHALL BE AS FOLLOWS:
A) PORTLAND CEMENT: 1
B) HYDRATED LIME OR LIME PUTTY: OVER 0.25 TO 0.50
C) AGGREGATE RATIO (MEASURED IN DAMP LOOSE CONDITIONS): NOT LESS THAN 2.25 AND NOT MORE THAN 3.0 TIMES THE SUM OF THE VOLUMES OF CEMENT AND LIME MATERIALS.

4) MORTAR MIXING: MIX CEMENTITIOUS MATERIALS AND AGGREGATES BETWEEN 3 AND 5 MINUTES IN A MECHANICAL BATCH MIXER WITH A SUFFICIENT AMOUNT OF WATER TO PRODUCE A WORKABLE CONSISTENCY, UNLESS SPECIFICALLY ALLOWED BY THE OWNER'S REPRESENTATIVE. DO NOT HAND MIX MORTAR. MAINTAIN WORKABILITY OF MORTAR BY REMIXING OR RETEMPERING. DISCARD MORTAR WHICH HAS BEGUN TO STIFFEN OR IS NOT USED WITHIN 2.5 HOURS AFTER INITIAL MIXING.

5) MORTAR PROTRUSIONS: REMOVE MORTAR PROTRUSIONS EXTENDING 1/4-INCH OR MORE INTO CELLS OR CAVITIES TO BE GROUTED.
6) ADMIXTURES: DO NOT USE ADMIXTURES CONTAINING MORE THAN 0.2 PERCENT CHLORIDE IONS.

7) MORTAR QUALITY ASSURANCE: TESTING AGENCY SHALL PERIODICALLY OBSERVE AND CONFIRM THAT THE PROPORTIONS OF SITE-PREPARED MORTAR COMPLY WITH THE PROPORTIONS OUTLINED ABOVE.

E. GROUT:

1) GROUT MATERIALS: GROUT USED IN THE CONSTRUCTION OF MASONRY SHALL CONFORM TO THE PROPORTION SPECIFICATION OF ASTM C476. GROUT AGGREGATES SHALL COMPLY WITH ASTM C404.

2) GROUT SUBMITTAL REQUIREMENTS: BECAUSE THE PROPORTION SPECIFICATION FOR GROUT IS PRESCRIPTIVE, THERE ARE NO GROUT TESTS REQUIRED. SUBMITTAL INFORMATION SHALL INCLUDE THE PROPORTIONS OF GROUT MATERIALS AND CERTIFICATES OF COMPLIANCE FOR EACH RAW MATERIAL USED.

3) GROUT MIX PROPORTIONS: GROUT MATERIAL PROPORTIONS BY VOLUME SHALL BE AS FOLLOWS:

GROUT TYPE	CEMENT	LIME	AGGREGATE (DAMP, LOOSE)*	
			FINE	COARSE
FINE	1	0 TO 1/10	2.25 TO 3	-
COARSE	1	0 TO 1/10	2.25 TO 3	1 TO 2

*TIMES THE SUM OF THE VOLUMES OF THE CEMENT & LIME MATERIALS

3) IMPROVEMENT OF BEARING CONDITIONS: SOFT OR LOOSE SOIL ZONES ENCOUNTERED AT THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED TO THE LEVEL OF STIFF OR DENSE SOIL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CAVITIES FORMED AS A RESULT OF EXCAVATION OF SOFT OR LOOSE SOIL ZONES SHALL BE BACKFILLED WITH ENGINEERED FILL, LEAN CONCRETE OR FLOWABLE FILL, AS DETERMINED BY THE GEOTECHNICAL ENGINEER. CARE SHALL BE TAKEN TO PREVENT WETTING OR DRYING OF THE BEARING MATERIALS DURING CONSTRUCTION. ANY EXTREMELY WET OR DRY MATERIAL, OR ANY LOOSE OR DISTURBED MATERIAL IN THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED PRIOR TO PLACING CONCRETE.

4) TRENCHED FOOTINGS: EARTH-FORMED TRENCHED FOOTINGS ARE PERMITTED, EXCEPT WHERE BRICK LEDGES OR EXPOSED SURFACES REQUIRE FORMING AND/OR WHERE SOIL SIDE WALLS SLOUGH INTO THE TRENCH. IN ORDER TO ACHIEVE 3" MINIMUM CONCRETE COVER OVER STEEL REINFORCING ON SIDEWALLS, EARTH FORMED TRENCHES SHALL BE A MINIMUM OF 2" WIDER THAN THE FORMED DIMENSIONS SHOWN IN ALL SECTIONS AND DETAILS.

5) PIPE PENETRATIONS: ALL HORIZONTAL PIPE OR SIMILAR PENETRATIONS OR SLEEVES THROUGH FOOTINGS SHALL PREFERABLY OCCUR WITHIN THE MIDDLE 1/3 OF THE FOOTING DEPTH AND SHALL HAVE A MAXIMUM OPENING DIAMETER OF ONE-FOURTH THE FOOTING DEPTH. AT PENETRATIONS, PROVIDE (4) #5 DIAGONAL BARS AT 12" ON CENTER. THE STRUCTURE HAS NOT BEEN DESIGNED OR CHECKED FOR TEMPORARY CONSTRUCTION LOADS NOR HAS IT BEEN DESIGNED OR CHECKED FOR ADEQUACY OR STABILITY AS A PARTIALLY ERECTED STRUCTURE.

A. FOUNDATION MISCELLANEOUS

1) GROUNDWATER CONDITIONS: GROUNDWATER WAS ENCOUNTERED IN SOME OF THE BORINGS AT THE TIME OF DRILLING. HOWEVER, IT IS POSSIBLE THAT TRANSIENT OVER-SATURATED GROUND CONDITIONS COULD DEVELOP AT SHALLOWER DEPTHS AT A LATER TIME DUE TO PERIODS OF HEAVY PRECIPITATION, LANDSCAPE WATERING, LEAKING WATER LINES, OR OTHER UNFORESEEN CAUSES. THE CONTRACTOR SHALL DETERMINE THE ACTUAL GROUNDWATER LEVELS AT TIME OF CONSTRUCTION. IF GROUNDWATER ISSUES ARE ENCOUNTERED DURING CONSTRUCTION, THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED AND REQUESTED TO ASSESS THE POSSIBLE NEED FOR REMEDIAL MEASURES.

2) DRAINAGE CONSIDERATIONS DURING CONSTRUCTION: DUE TO ADVERSE EFFECT ON STRUCTURES, WATER SHALL NOT BE ALLOWED TO COLLECT IN THE FOUNDATION EXCAVATION OR IN THE CONSTRUCTION AREA EITHER DURING OR AFTER CONSTRUCTION. UNDERCUT OR EXCAVATED AREAS SHALL BE SLOPED TOWARD ONE CORNER TO FACILITATE REMOVAL OF ANY COLLECTED RAINWATER, OR POSITIVE RUNOFF SHALL BE PROVIDED. THE CONTRACTOR SHALL EXERCISE CARE IN CREATING DRAINAGE PATHS FOR WATER DURING THE CONSTRUCTION PHASE OF THE PROJECT. POSITIVE DRAINAGE SHALL BE PROVIDED DURING ALL PHASES OF CONSTRUCTION.

3) FINAL SITE GRADING: PER SECTION 1804.4 OF IBC, THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 20 UNITS HORIZONTAL (5-PERCENT SLOPE) FOR A MINIMUM DISTANCE OF 10 FEET PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10 FEET OF HORIZONTAL DISTANCE, A 5-PERCENT SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER AWAY FROM THE FOUNDATION. SWALES USED FOR THIS PURPOSE SHALL BE SLOPED A MINIMUM OF 2-PERCENT WHERE LOCATED WITHIN 10 FEET OF THE BUILDING FOUNDATION. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING SHALL BE SLOPED A MINIMUM OF 2-PERCENT AWAY FROM THE BUILDING.

4) EXCAVATION AND TEMPORARY SLOPES: THE CONTRACTOR, DESIGNATED AS "RESPONSIBLE PERSON" IN OSHA CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, IS SOLELY RESPONSIBLE FOR PLANNING AND IMPLEMENTING ALL SAFETY PROCEDURES DURING CONSTRUCTION. ALL EXCAVATION HEIGHT, SLOPE, AND DEPTH MUST ADHERE TO ALL SPECIFICATIONS OUTLINED IN LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. THE STRUCTURAL ENGINEER DOES NOT ASSUME ANY RESPONSIBILITY FOR CONSTRUCTION SITE SAFETY OR ANY PARTY'S, INCLUDING THE CONTRACTOR'S, COMPLIANCE WITH THE APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS OR ANY OTHER APPLICABLE REGULATIONS.

5) TRENCH BACKFILL: ALL REQUIRED TRENCH BACKFILL SHALL BE ACCEPTABLE FILL MATERIAL AS DEFINED ABOVE AND SHALL BE MECHANICALLY COMPACTED IN LAYERS TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. SOME SECTIONS OF THE BACKFILL MAY BE EXPECTED AND ANY UTILITIES WITHIN THE TRENCHES SHALL BE CONSTRUCTED TO ALLOW THESE DIFFERENTIAL MOVEMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

6) CONSTRUCTION MONITORING: A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATIONS AND TESTING OF SOILS EXPOSED DURING PROJECT CONSTRUCTION IN ORDER TO VERIFY THAT SOIL CONDITIONS ARE AS ANTICIPATED. CONSTRUCTION ACTIVITIES PERTAINING TO EARTHWORK AND OTHER RELATED ACTIVITIES SHALL ALSO BE OBSERVED BY THE GEOTECHNICAL ENGINEER AS OUTLINED ABOVE.

7) CONCRETE CONSTRUCTION NOTES

A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL CONCRETE SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.

1) ACI 117-10 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
2) ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
3) ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
4) ACI 347-04 "GUIDE TO FORMWORK FOR CONCRETE"
5) ACI SP-66(04) "ACI DETAILING MANUAL"
6) AWS D1.4-2011 "STRUCTURAL WELDING CODE - REINFORCING STEEL".
7) CRSI MSP-2009 "CRSI MANUAL OF STANDARD PRACTICE"

B. CONCRETE MIXTURES:

1) CEMENTITIOUS MATERIALS
A) OPTION 1 - ORDINARY PORTLAND CEMENT (OPC): ASTM C150 TYPE I OR II UNLESS SPECIFICALLY NOTED OTHERWISE.
B) OPTION 2 - PORTLAND LIMESTONE CEMENT (PLC): ASTM C595 TYPE 1L UNLESS SPECIFICALLY NOTED OTHERWISE.

2) ALL CONCRETE MIXES SHALL BE COMPRISED OF NORMAL WEIGHT AGGREGATES CONFORMING TO ASTM C33, EXCEPT WHERE SPECIFICALLY INDICATED AS LIGHTWEIGHT, IN WHICH CASE AGGREGATES SHALL CONFORM TO ASTM C330.

3) MIXING WATER SHALL CONFORM TO ASTM C1062. MIXING WATER, INCLUDING THAT PORTION OF MIXING WATER CONTRIBUTED IN THE FORM OF FREE MOISTURE ON AGGREGATES, SHALL NOT CONTAIN DELETERIOUS AMOUNTS OF CHLORIDE IONS.

4) ADMIXTURES, IF USED, SHALL CONFORM TO THE FOLLOWING:
A) WATER REDUCTION AND SETTING TIME MODIFICATION: ASTM C494.
B) PRODUCING FLOWING CONCRETE: ASTM C1017.
C) AIR ENTRAINMENT: ASTM C280.
D) INHIBITING CHLORIDE INDUCED CORROSION: ASTM C1582.

5) MIX DESIGNS SHALL BE PROPORTIONED BASED ON THE FOLLOWING MIX CHARACTERISTICS:

A) BELOW-GRADE FOUNDATIONS
1) FREEZING AND THAWING EXPOSURE CATEGORY (F): CLASS F1
2) SULFATE EXPOSURE CATEGORY (S): CLASS S0
3) WATER EXPOSURE CATEGORY (W): CLASS W0
4) CORROSION PROTECTION CATEGORY (C): CLASS C1
5) 28-DAY COMPRESSIVE STRENGTH: 3,500 PSI
6) MAXIMUM WATER/CEMENT RATIO: 0.55
7) MAXIMUM AGGREGATE SIZE: 1 1/2 INCHES
8) TARGET AIR CONTENT: 4.5 PERCENT PLUS OR MINUS 1.5 PERCENT
9) MAXIMUM WATER-SOLUBLE CHLORIDE ION CONTENT IN CONCRETE, PERCENT BY WEIGHT OF CEMENT: 0.30

3) WELDED DEFORMED WIRE REINFORCEMENT (ASTM A1064).....FY = 70 KSI
4) WELDABLE REINFORCING BARS (ASTM A706)FY = 60 KSI

D. STRUCTURAL STEEL (MINIMUM YIELD STRENGTH)

1) ALL WIDE FLANGE SHAPES (ASTM A992).....FY = 50 KSI
2) SQUARE AND RECTANGULAR HSS (ASTM A500, GRADE C).....FY = 50 KSI
3) ANCHOR RODS (ASTM F1554, GRADE 36).....FY = 36 KSI
4) ALL OTHER SHAPES AND PLATES UNLESS NOTED (ASTM A36).....FY = 36 KSI (FABRICATOR MAY OPTIONALLY USE ASTM A572-50 PLATE MATERIAL)

E. COLD FORMED STEEL (MINIMUM YIELD STRENGTH)

1) ROOF DECK (ASTM A653, SS GRADE 33, G-60 GALVANIZED).....FY = 33 KSI

4) CONSTRUCTION LOADS AND STABILITY

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL TEMPORARY CONSTRUCTION LOADS CAN BE SAFELY SUPPORTED BY THE STRUCTURE DURING CONSTRUCTION.

B. THE STRUCTURAL FRAMING SYSTEM AND FOUNDATIONS HAVE BEEN DESIGNED AS A COMPLETE STRUCTURAL SYSTEM FOR SUPPORT OF THE LOADS INDICATED IN THE CONSTRUCTION DOCUMENTS. THE STRUCTURE HAS NOT BEEN DESIGNED OR CHECKED FOR TEMPORARY CONSTRUCTION LOADS NOR HAS IT BEEN DESIGNED OR CHECKED FOR ADEQUACY OR STABILITY AS A PARTIALLY ERECTED STRUCTURE.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE ABILITY OF THE PARTIALLY COMPLETED OR FULLY COMPLETED STRUCTURE TO RESIST ALL CONSTRUCTION LOADS INCLUDING BUT ARE NOT NECESSARILY LIMITED TO MATERIAL STAGING, PERSONNEL, AND EQUIPMENT.

D. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING CONSTRUCTION TO KEEP STRUCTURAL FRAMING COMPONENTS SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. THE TEMPORARY SUPPORTS SHALL BE SUFFICIENT TO SECURE THE PARTIALLY ERECTED STRUCTURE OR ANY PORTION THEREOF AGAINST LOADS THAT ARE LIKELY TO BE ENCOUNTERED DURING CONSTRUCTION, INCLUDING THOSE DUE TO WIND AND THOSE THAT RESULT FROM CONSTRUCTION OPERATIONS.

E. THE CONTRACTOR SHALL NOT REMOVE TEMPORARY SUPPORTS UNTIL THE INSTALLATION OF ALL STRUCTURAL ELEMENTS IS COMPLETE AND HAS BEEN ACCEPTED AS COMPLETE BY THE ENGINEER. FOR THE PURPOSES OF THIS PARAGRAPH, "ALL STRUCTURAL ELEMENTS" INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING STRUCTURAL ELEMENTS:
1) FOUNDATIONS
2) MASONRY SHEAR WALLS
3) STRUCTURAL STEEL FRAMING WITH COMPLETED STEEL CONNECTIONS, INCLUDING PERMANENT VERTICAL AND/OR HORIZONTAL BRACING
4) ROOF DECK

5) EXISTING CONSTRUCTION

A. ALL VERTICAL AND HORIZONTAL DIMENSIONS, FINISHED FLOOR AND ROOF ELEVATIONS, PLUMBNESS, AND DETAIL FOR THE EXISTING STRUCTURE SHALL BE VERIFIED IN THE FIELD PRIOR TO PROCEEDING WITH ANY DEMOLITION OR INSTALLATION OF NEW WORK.

B. PRIOR TO DEMOLITION OR INSTALLATION OF NEW WORK, THE CONTRACTOR SHALL MAKE WRITTEN DOCUMENTATION IF UNFORESEEN CONDITIONS OCCUR IN THE EXISTING CONSTRUCTION. THESE UNFORESEEN CONDITIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND A WRITTEN RESPONSE BEFORE PROCEEDING WITH THE WORK.

C. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL SHORING, PROPS, AND GUYS REQUIRED FOR THE TEMPORARY SUPPORT OF THE EXISTING STRUCTURE, UTILITIES, ETC. AS MAY BE NECESSARY TO SAFELY COMPLETE DEMOLITION OR NEW WORK.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES, BOTH CHARTED AND UNCHARTED BEFORE COMMENCING WITH ANY EXCAVATION OR DEMOLITION WORK. DEPTH OF CONCRETE SAW SHALL BE SET SO AS NOT TO CUT ANY LOCAL EMBEDDED OR UNDER-FLOOR PIPING OR WIRING WHICH IS TO REMAIN.

E. ALL DRILLING, CUTTING, DEMOLITION OR OTHER MODIFICATIONS TO EXISTING CONSTRUCTION SHALL BE PERFORMED IN A MANNER THAT WILL NOT REDUCE THE STABILITY OR STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION. WHEN SAW CUTTING, SPECIAL CARE SHALL BE TAKEN TO NOT OVER CUT INTO AN EXISTING AREA OF STRUCTURE THAT WILL REMAIN.

F. CORING FOR PIPING OR CONDUIT THROUGH EXISTING STRUCTURAL MEMBERS IS NOT ALLOWED UNLESS SPECIFICALLY SHOWN IN THE CONTRACT DOCUMENTS OR SPECIFICALLY ALLOWED BY THE STRUCTURAL ENGINEER IN WRITING.

G. DAMAGE TO PORTIONS OF THE EXISTING STRUCTURE OR OTHER EXISTING BUILDING COMPONENTS CAUSED BY DEMOLITION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND TO A LEVEL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.

H. WHEN EXISTING FOUNDATIONS ARE TO BE DEMOLISHED, EXCAVATION DEPTHS EXCEEDING 4 FEET SHALL BE BACKFILLED WITH PROPERLY COMPACTED CRUSHED STONE OR FLOWABLE FILL TO WITHIN 4 FEET OF THE REQUIRED FINISHED BACKFILL ELEVATION. THE REMAINING DEPTH OF BACKFILL SHALL BE COMPLETED WITH PROPERLY COMPACTED STRUCTURAL FILL AS OUTLINED IN THE FOUNDATION NOTES.

I. THE PROJECT AREA SHALL BE MAINTAINED AS CLEAN AS POSSIBLE WITH DUST BEING LIMITED AS MUCH AS PRACTICAL.

6) FOUNDATION NOTES

A. GEOTECHNICAL REPORT: A PREVIOUSLY SUBMITTED GEOTECHNICAL ENGINEERING SERVICES REPORT FOR SANTA FE ELEMENTARY SCHOOL WILL BE UTILIZED FOR THE SECURITY UPGRADES TO SANTA FE ELEMENTARY SCHOOL IN OKLAHOMA CITY, OK. THE PREVIOUSLY SUBMITTED REPORT WAS PERFORMED BY PROFESSIONAL SERVICES INDUSTRIES, INC. (PSI), DATED NOVEMBER 16, 2016 (PSI PROJECT 05471124-6).

B. SITE SUB-GRADE PREPARATION:

1) SITE DRAINAGE: THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM THE AREAS OF EXCAVATION DURING CONSTRUCTION TO PREVENT PONDING UNDER FUTURE FOOTINGS. THE CONTRACTOR SHALL PROVIDE POSITIVE CUTOFF IN UTILITY TRENCHES AS REQUIRED TO PREVENT WATER MIGRATION INTO AREAS OF EXCAVATIONS AND FUTURE FOOTINGS.

2) MAINTENANCE OF SOIL MOISTURE: SOIL MOISTURE SHALL BE MAINTAINED UP UNTIL CONCRETE PLACEMENT TO PREVENT SHRINKAGE AND SUBSEQUENT POST-CONSTRUCTION SWELL OF SUBGRADE SOILS.

C. SHALLOW FOUNDATIONS:

1) FOOTING DESIGN PARAMETERS: THE PROPOSED SITE WALLS AND CANOPY SHALL BE SUPPORTED ON CONVENTIONAL SHALLOW SPREAD FOOTINGS BASED ON THE FOLLOWING DESIGN PARAMETERS:
A) BEARING MATERIAL: EXISTING SOIL
B) ALLOWABLE BEARING PRESSURE FOR SPOT FOOTINGS: 2500 PSF
C) ALLOWABLE BEARING PRESSURE FOR CONTINUOUS FOOTINGS: 2000 PSF

2) OBSERVATION OF BEARING CONDITIONS: A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE FOUNDATION EXCAVATIONS PRIOR TO STEEL OR CONCRETE PLACEMENT TO DETERMINE IF THE FOUNDATION MATERIALS ARE CAPABLE OF SUPPORTING THE DESIGN LOADS AND ARE CONSISTENT WITH THE MATERIALS DISCUSSED ABOVE.

1) GENERAL INFORMATION

A. GOVERNING BUILDING CODE: IBC-2015 "INTERNATIONAL BUILDING CODE" WITH CITY OF OKLAHOMA CITY AMENDMENTS.

B. RISK CATEGORY: THE RISK CATEGORY ACCORDING TO IBC-2015 TABLE 1604.5 AND ASCE 7-10 TABLE 1.5-1 IS CATEGORY II.

C. CONTRACT DOCUMENTS:

1) THE CONTRACT DOCUMENTS CONSIST OF THE AGREEMENT BETWEEN THE OWNER AND CONTRACTOR, CONDITIONS OF THE CONTRACT, DRAWINGS, SPECIFICATIONS, ADDENDA ISSUED PRIOR TO EXECUTION OF THE CONTRACT, OTHER DOCUMENTS LISTED IN THE AGREEMENT AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT.

2) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND DISSEMINATING ALL CONTRACT DOCUMENTS AND LATEST ADDENDA TO ALL SUB-CONTRACTORS PRIOR TO DETAILING, FABRICATION, OR INSTALLATION OF WORK.

3) CORRELATION OF THE CONTRACT DOCUMENTS: THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IF CONFLICTING REQUIREMENTS ARE FOUND BETWEEN THE DRAWINGS, SPECIFICATIONS AND/OR THESE GENERAL NOTES, THE MORE STRINGENT AND HIGHEST COST REQUIREMENT SHALL CONTROL UNLESS DIRECTED OTHERWISE IN WRITING BY THE OWNER'S REPRESENTATIVE.

4) THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DISCREPANCIES BETWEEN EACH SET, AND WITHIN EACH SET OF DRAWINGS, AND REPORT DISCREPANCIES, IF ANY, TO THE OWNER'S REPRESENTATIVE PRIOR TO THE DETAILING, FABRICATION, AND INSTALLATION OF AFFECTED WORK.

5) ALTHOUGH NOT NECESSARILY SPECIFICALLY REFERENCED IN THE CONTRACT DOCUMENTS, TYPICAL DETAILS AND GENERAL NOTES APPLY TO THE ENTIRE PROJECT WHEREVER CONDITIONS SIMILAR TO THOSE DETAILED OR NOTED EXIST.

6) THE USE OF ELECTRONIC FILES OR REPRODUCTION OF CONTRACT DOCUMENTS BY ANY TRADE OR MATERIAL SUPPLIER IN LIEU OF COMPLETELY INDEPENDENT PREPARATION OF SHOP DRAWINGS SIGNIFIES THE SUPPLIER'S CERTIFICATION THAT ALL INFORMATION SHOWN IN THE SHOP DRAWINGS IS CORRECT, AND ASSIGNS THEMSELVES TO RESPONSIBILITY FOR ANY JOB EXPENSE ARISING DUE TO ANY ERRORS OCCURRING THEREIN.

D. FIELD MODIFICATIONS: THE CONTRACTOR OR SUBCONTRACTOR FIELD MODIFICATIONS TO THE STRUCTURE WITHOUT THE PRIOR WRITTEN CONSENT OF THE STRUCTURAL ENGINEER ARE EXPRESSLY PROHIBITED AND MAY REQUIRE SUBSEQUENT REMEDIATION DIRECTED BY THE STRUCTURAL ENGINEER AT CONTRACTOR'S EXPENSE.

2) DESIGN LOADS

A. GOVERNING STANDARD FOR DESIGN LOADS: ASCE 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"

B. DEAD LOAD: SELF WEIGHT OF MATERIALS, UNLESS NOTED OTHERWISE

C. ROOF DEAD LOAD:
1) METAL ROOF DECK.....3 PSF
2) BEAM, SELF-WEIGHT.....2 PSF
3) TOTAL.....5 PSF

D. WIND LOADS:
1) RISK CATEGORY:.....II
2) EXPOSURE CATEGORY:.....C
3) ENCLOSURE CLASSIFICATION:.....ENCLOSED
4) INTERNAL PRESSURE COEFFICIENT, GCPI:.....+/- 0.18
5) TOPOGRAPHIC FACTOR, KZT:.....1.0
6) DIRECTIONALITY FACTOR, KD:.....0.85
7) ULTIMATE DESIGN WIND SPEED, Vult:.....109 MPH

E. SNOW LOADS:
1) SNOW IMPORTANCE FACTOR, Is:.....1.0
2) GROUND SNOW LOAD, Pg:.....10 PSF
3) EXPOSURE OF ROOF:.....PARTIALLY EXPOSED
4) SURFACE ROUGHNESS CATEGORY:.....C
5) EXPOSURE FACTOR, Ce:.....1.0
6) THERMAL FACTOR, Ct:.....1.0
7) ROOF SLOPE FACTOR, Cs:.....1.0
8) CALCULATED FLAT ROOF SNOW LOAD, Pf:.....7.0 PSF
9) MINIMUM FLAT ROOF SNOW LOAD, I*Pg:.....10 PSF
10) RAIN ON SNOW SURCHARGE LOAD:.....5 PSF

F. RAIN LOADS:
1) DEPTH OF WATER ON THE UNDEFFECTED ROOF UP TO THE INLET OF THE SECONDARY DRAINAGE SYSTEM WHEN THE PRIMARY DRAINAGE SYSTEM IS BLOCKED (I.E., THE STATIC HEAD), ds:.....4.0 INCHES
2) ADDITIONAL DEPTH OF WATER ON THE UNDEFFECTED ROOF ABOVE THE INLET OF THE SECONDARY DRAINAGE SYSTEM AT ITS DESIGN FLOW (I.E., THE HYDRAULIC HEAD), dh:.....2.0 INCHES

G. SEISMIC DESIGN CRITERIA:
1) RISK CATEGORY:.....II
2) SEISMIC IMPORTANCE FACTOR, Ie:.....1.0
3) SOIL SITE CLASSIFICATION:.....C
4) 0.2 SEC. MAPPED SPECTRAL ACCELERATION, Ss:.....0.273
5) 1.0 SEC. MAPPED SPECTRAL ACCELERATION, S1:.....0.079
6) SITE COEFFICIENT, 0.2 SEC. PERIOD, Fa:.....1.20
7) SITE COEFFICIENT, 1.0 SEC. PERIOD, Fv:.....1.70
8) 0.2 SEC. DESIGN SPECTRAL ACCELERATION, Sds:.....0.219
9) 1.0 SEC. DESIGN SPECTRAL ACCELERATION, Sd1:.....0.089
10) SEISMIC DESIGN CATEGORY:.....B
11) SEISMIC PARAMETERS FOR WALLS:
A) SEISMIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS
B) RESPONSE MODIFICATION COEFFICIENT, R:.....2.00
C) SYSTEM OVERSTRENGTH FACTOR, O:.....2.50
D) DEFLECTION AMPLIFICATION FACTOR, Cd:.....1.75
E) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD.
F) SEISMIC RESPONSE COEFFICIENT, Cs:.....0.118
12) SEISMIC PARAMETERS FOR CANOPY:
G) SEISMIC FORCE RESISTING SYSTEM: STEEL ORDINARY CANTILEVER COLUMN SYSTEMS
H) RESPONSE MODIFICATION COEFFICIENT, R:.....1.25
I) SYSTEM OVERSTRENGTH FACTOR, O:.....1.25
J) DEFLECTION AMPLIFICATION FACTOR, Cd:.....1.25
K) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD.
L) SEISMIC RESPONSE COEFFICIENT, Cs:.....0.189
M) TOTAL LATERAL BASE SHEAR, V:.....1 KIP

3) MATERIAL DESIGN VALUES

A. CONCRETE (MIN. COMPRESS



- 4) CUTS, HOLES, COPING, ETC. REQUIRED FOR WORK OF OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE IN THE SHOP. CUTS OR BURNING OF HOLES IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.
- 5) THE FABRICATOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS. ANY SUCH ERECTION AIDS SHALL BE REMOVED FROM THE COMPLETED STRUCTURE IF DIRECTED BY THE OWNER'S REPRESENTATIVE.
- 6) ALL EXTENSION BARS, RUN-OFF PLATES, AND BACKING BARS USED IN WELDED CONNECTIONS SHALL BE REMOVED AND THE JOINTS SHALL BE GROUNDED SMOOTH WHERE SUCH CONNECTION IS PERMANENTLY EXPOSED TO VIEW OR IS DESIGNATED AS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.
- 7) SHOP PRIMER
A) ALL STEEL EXPOSED TO EXTERIOR WEATHER OR AN UNCONTROLLED ENVIRONMENT SHALL BE BLAST CLEANED AND PRIMED WITH A SUBMITTED AND APPROVED ZINC-RICH PRIMER.
B) SHOP PRIMER SHALL NOT BE APPLIED TO THE FOLLOWING AREAS:
1) SURFACES TO BE FIELD WELDED.
1) GALVANIZED SURFACES.

D. STEEL MISCELLANEOUS:

- 1) ALL EDGE ANGLES SUPPORTING ROOF OR FLOOR DECK SHALL BE CONTINUOUS BUTT-SPlice WELDED OVER SUPPORTS.
- 2) SUBSTITUTION OF POST-INSTALLED ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
- 3) GALVANIZED LOOSE LEDGE ANGLES SHALL BE PROVIDED OVER ALL MASONRY VENEER OPENINGS OR RECESSES DEEPER THAN 1". LINTELS SHALL HAVE 1" OF BEARING AT EACH END FOR EVERY FOOT OF SPAN, WITH A MINIMUM OF 4" AND SIZED AS FOLLOWS UNLESS SHOWN OTHERWISE IN THE DRAWINGS.
A) UP TO 4'-0"L3-1/2 x 3-1/2 x 3/8
B) 4'-1" TO 5'-0"L4 x 3-1/2 x 3/8 (LLV)
C) 5'-1" TO 6'-6"L5 x 3-1/2 x 3/8 (LLV)
D) 6'-7" TO 8'-0"L6 x 3-1/2 x 3/8 (LLV)

10) METAL DECK NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL STEEL DECK AND ASSOCIATED MATERIALS SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STEEL DECK INSTITUTE (SDI) STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) ANSI/NC1.0-10 "STANDARD FOR NONCOMPOSITE STEEL FLOOR DECK"
2) ANSI/RD1.0-10 "STANDARD FOR STEEL ROOF DECK"
3) SDI-C-2011 "STANDARD FOR COMPOSITE STEEL FLOOR DECK SLABS"
4) SDI-0A/QC-2011 "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK"
- B. ROOF DECK:

- 1) BASIS OF DESIGN: NEW MILLENIUM TYPE 1.5F INTERMEDIATE RIB DECK WITH THE CHARACTERISTICS AND STRUCTURAL PROPERTIES OUTLINED BELOW. INTERMEDIATE RIB DECKS OF OTHER MANUFACTURERS ARE ACCEPTABLE IF THEY PROVIDE SIMILAR LOAD-CARRYING CAPACITY FOR THE DECK SPANS APPLICABLE TO THIS PROJECT.
A) SDI DECK TYPE: INTERMEDIATE RIB (F)
B) DEPTH: 1-1/2 IN.
C) THICKNESS: 18 GAGE
D) FINISH: GALVANIZED
E) Ip = 0.203 IN4/FT
F) In = 0.205 IN4/FT
G) Sp = 0.183 IN3/FT
H) Sn = 0.192 IN3/FT
I) Fy = 50 KSI
J) SIDE LAPS: NESTED
- 2) SUPPORT FASTENERS: ROOF DECK SHALL BE CONNECTED TO SUPPORTS WITH (1)-5/8" DIAMETER RIDGE WELDS AT 6" O.C. (36/7 PATTERN).
A) WELDS SHALL PENETRATE ALL PLIES OF DECKING INTO SUPPORTING SUBSTRATE.
- 3) SIDE LAP FASTENERS: ROOF DECK SIDE LAPS SHALL BE FASTENED TOGETHER WITH WELDS AT 12" ON CENTER.
- 4) MINIMUM BEARING LENGTH AND LAP LENGTH: MINIMUM BEARING LENGTH ON SUPPORTS AT DISCONTINUOUS ENDS OF ROOF DECK IS 2-INCHES. MINIMUM BEARING LENGTH AND LAP LENGTH OF CONTINUOUS ROOF DECK OVER INTERIOR SUPPORTS IS 3-INCHES.

- C. SUBSTITUTION OF MECHANICAL SCREW ANCHORS FOR WELDING WILL NOT BE PERMITTED.
- D. SUPPORTS FOR DECKING ARE DEFINED AS MEMBERS PROVIDING DIRECT TRANSVERSE SUPPORT AS WELL AS CONTINUOUS PARALLEL EDGE SUPPORT.
- E. ALL DECKING SHALL BE PLACED WITH RIBS PERPENDICULAR TO SUPPORTING ROOF OR FLOOR MEMBERS AND SHALL SPAN A MINIMUM OF 3 SPANS UNLESS SHOWN OTHERWISE IN STRUCTURAL DRAWINGS.
- F. METAL DECKING SHALL NOT BE USED TO SUPPORT ANY HANGING LOADS INCLUDING, BUT NOT LIMITED TO, SUSPENDED MECHANICAL, ELECTRICAL, OR PLUMBING EQUIPMENT, CABLE TRAYS OR RACEWAYS, CEILING FINISHES OR CEILING FRAMING.

- 3) FOUNDATION DOWELS:
A) THERE SHALL BE A FOUNDATION DOWEL FOR EACH VERTICAL WALL REINFORCING BAR.
B) THE MINIMUM REQUIRED EMBEDMENT OF DOWELS IN CONCRETE FOUNDATIONS SHALL BE AS REQUIRED FOR A CLASS B SPLICE FOR THE SPECIFIED COMPRESSIVE STRENGTH FOR THE FOUNDATION. REFER TO CONCRETE LAP LENGTH SCHEDULES FOR TYPICAL LAP REQUIREMENTS. ALTERNATIVELY, THE FOUNDATION DOWELS MAY BE DEVELOPED WITH A STANDARD ACI 90 DEGREE HOOK INTO THE FOUNDATION.
C) MASONRY DOWELS SHOWN CAST-IN-PLACE IN DOCUMENTS SHALL BE TIED IN PLACE TO FOUNDATION REINFORCING. WET STICKING OF MASONRY DOWELS IS NOT PERMITTED. MASONRY CONTRACTOR SHALL VERIFY PLACEMENT AND LOCATION OF DOWELS PRIOR TO CONCRETE PLACEMENT. EPOXY EMBEDDING DOWELS SHALL NOT BE PERMITTED WITHOUT APPROVAL BY THE OWNER'S REPRESENTATIVE.
D) FOUNDATION DOWELS SHALL EXTEND UP INTO THE GROUDED CELLS TO PROVIDE THE MINIMUM LAP SPLICE LENGTH SHOWN IN THE CMU REINFORCING LAP SCHEDULE.
E) FOUNDATION DOWELS THAT INTERFERE WITH UNIT WEBS ARE PERMITTED TO BE BENT A MAXIMUM OF 1 IN. HORIZONTALLY FOR EVERY 6 IN. OF VERTICAL HEIGHT. REFER TYPICAL DETAIL FOR PERMITTED BENDING OF FOUNDATION DOWELS.
- 4) NORMAL VERTICAL WALL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE TOP OF FOUNDATION TO EMBED WITH A STANDARD HOOK INTO THE TOP BOND BEAM.
- 5) BOND BEAM REINFORCING STEEL FOR EXTERIOR WALLS SHALL BE CONTINUOUS THROUGHOUT, EXCEPT AT CONTROL JOINTS. AT CONTROL JOINTS, INTERMEDIATE BOND BEAM REINFORCING SHALL BE CUT, BUT SHALL BE CONTINUOUS AT DIAPHRAGM BOND BEAMS. EXTEND REINFORCING BARS NOT LESS THAN THAT SPECIFIED ON LAP SCHEDULE. REFER TO TYPICAL DETAILS AND LAP SCHEDULE FOR ADDITIONAL INFORMATION.

J. GROUT PLACEMENT:

- 1) GROUT PLACING TIME: PLACE GROUT WITHIN 1-1/2 HOURS FROM INTRODUCING WATER IN THE MIXTURE AND PRIOR TO INITIAL SET.
- 2) GROUT POUR HEIGHT: DO NOT EXCEED THE MAXIMUM GROUT POUR HEIGHT GIVEN IN THE TABLE BELOW. THE GROUT POUR HEIGHT IS DEFINED AS THE TOTAL HEIGHT OF MASONRY TO BE GROUDED PRIOR TO ERECTION OF ADDITIONAL MASONRY. A GROUT POUR CONSISTS OF ONE OR MORE GROUT LIFTS.

GROUT SPACE REQUIREMENTS PER TMS 602-16 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, TABLE 3.2.1			
GROUT TYPE1	MAXIMUM GROUT POUR HEIGHT, FT.	MINIMUM CLEAR WIDTH OF GROUT SPACE, 2,3 IN.	MINIMUM CLEAR GROUT SPACE DIMENSIONS FOR GROUING CELLS OF HOLLOW UNITS, 3,4 IN. X IN.
FINE	1	3/4	1-1/2 X 2
FINE	5.33	2	2 X 3
FINE	12.67	2-1/2	2-1/2 X 3
FINE	24	3	3 X 3
COARSE	1	1-1/2	1-1/2 X 3
COARSE	5.33	2	2-1/2 X 3
COARSE	12.67	2-1/2	3 X 3
COARSE	24	3	3 X 4

FOOTNOTES:
1. FINE AND COARSE GROUTS ARE DEFINED IN ASTM C476.
2. FOR GROUING BETWEEN MASONRY WYTHES.
3. MINIMUM CLEAR WIDTH OF GROUT SPACE AND MINIMUM CLEAR GROUT SPACE DIMENSION ARE THE NET DIMENSION OF THE SPACE DETERMINED BY SUBTRACTING MASONRY PROTRUSIONS AND THE DIAMETERS OF HORIZONTAL BARS FROM THE AS-BUILT CROSS-SECTION OF THE GROUT SPACE. SELECT THE GROUT TYPE AND MAXIMUM GROUT POUR HEIGHT BASED ON THE MINIMUM CLEAR SPACE.

- 3) GROUT LIFT HEIGHT: PLACE GROUT IN LIFTS NOT EXCEEDING 5 FT. 4 IN. A GROUT LIFT IS DEFINED AS AN INCREMENT OF GROUT HEIGHT WITHIN A TOTAL GROUT POUR.
- 4) GROUT CONSOLIDATION: CONSOLIDATE GROUT POURS BY MECHANICAL VIBRATION, AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
- 5) GROUT KEY: WHEN GROUING, FORM GROUT KEYS BETWEEN GROUT POURS. FORM GROUT KEYS BETWEEN GROUT LIFTS WHEN THE FIRST LIFT IS PERMITTED TO SET PRIOR TO PLACEMENT OF THE SUBSEQUENT LIFT.
A) FORM A GROUT KEY BY TERMINATING THE GROUT A MINIMUM OF 1-1/2 IN. BELOW A MORTAR JOINT.
B) DO NOT FORM GROUT KEYS WITHIN BOND BEAMS.
C) AT BOND BEAMS OR LINTELS LAID WITH CLOSED BOTTOM UNITS, TERMINATE THE GROUT POUR AT THE BOTTOM OF THE BEAM OR LINTEL WITHOUT FORMING A GROUT KEY.

9) STEEL CONSTRUCTION NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) AISC 303-10 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
2) AISC 341-10 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"
3) AISC 360-10 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
4) AWS D1.1-2010 "STRUCTURAL WELDING CODE - STEEL"
5) RSCC-2009 "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS"

B. ANCHOR RODS & BASE PLATES:

- 1) UNLESS OTHERWISE INDICATED IN THE DRAWINGS, ALL ANCHOR RODS SHALL CONFORM TO THE SPECIFIED MATERIAL GRADE SHALL BE A MINIMUM 3/4 INCH DIAMETER WITH A MINIMUM FOUNDATION EMBEDMENT AS INDICATED IN STRUCTURAL DETAILS. THE EMBEDDED END SHALL HAVE EITHER A STANDARD BOLT HEAD, A HEAVY HEX NUT WITH THE THREADS SPOILED ABOVE AND BELOW THE NUT, OR JAMMED DOUBLE NUTS.
- 2) PRIOR TO PLACING CONCRETE, STEEL PLATE TEMPLATES SHALL BE PROVIDED TO FACILITATE PLACEMENT OF ANCHOR RODS IN DETAILED PLAN POSITIONS AND ELEVATIONS.
- 3) BASE PLATES SHALL BE LEVELED WITH LEVELING NUTS AND OVERSIZED WASHER PLATES OR WITH SHIM PACKS AT THE ERECTOR'S OPTION.
- 4) AFTER FINAL BASE PLATE POSITIONING, ANCHOR ROD NUTS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION AND WASHER PLATES SHALL BE FIELD WELDED AS INDICATED IN THE CONSTRUCTION DOCUMENTS.

C. STEEL FABRICATION & FINISH:

- 1) SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING FABRICATION. ANY FABRICATION INITIATED PRIOR TO APPROVAL OF SHOP DRAWINGS WILL BE AT THE SOLE RISK OF THE FABRICATOR.
- 2) ALL SHOP AND FIELD WELDS SHALL BE MADE IN ACCORDANCE WITH AWS D1.1. ALL WELDING SHALL USE LOW HYDROGEN PROCESSES.
- 3) ALL BEAMS THAT ARE REQUIRED TO HAVE CAMBER SHALL BE FABRICATED WITH CAMBER UPWARD. BEAMS WITHOUT SPECIFIED CAMBER SHALL BE FABRICATED SUCH THAT AFTER ERECTION, ANY NATURAL CAMBER DUE TO ROLLING OR SHOP FABRICATION IS UPWARD.

- 4) GROUT SLUMP: SITE-MIX GROUT TO A CONSISTENCY THAT HAS A SLUMP BETWEEN 8 AND 11 INCHES. DISCARD GROUT THAT DOES NOT MEET THE SPECIFIED SLUMP WITHOUT ADDING WATER AFTER INITIAL MIXING.
- 5) GROUT QUALITY ASSURANCE: TESTING AGENCY SHALL PERIODICALLY OBSERVE AND CONFIRM THAT THE PROPORTIONS AND SLUMP OF SITE-PREPARED GROUT COMPLY WITH THE REQUIREMENTS OUTLINED ABOVE.

F. INSPECTION: PRIOR TO THE START OF MASONRY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE FOLLOWING:

- 1) VERIFY FOUNDATIONS ARE CONSTRUCTED WITHIN A LEVEL ALIGNMENT TOLERANCE OF PLUS OR MINUS 1/2 IN.
- 2) VERIFY REINFORCING DOWELS ARE POSITIONED IN ACCORDANCE WITH THE PROJECT DRAWINGS.
- 3) IF STATED CONDITIONS ARE NOT MET, NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.

G. PREPARATION:

- 1) CLEANING:
A) CLEAN REINFORCEMENT AND SHANKS OF ANCHOR BOLTS BY REMOVING MUD, OIL, OR OTHER MATERIALS THAT WILL ADVERSELY AFFECT OR REDUCE BOND AT THE TIME MORTAR OUR GROUT IS PLACED.
B) PRIOR TO PLACING MASONRY, REMOVE LAITANCE, LOOSE AGGREGATE, AND ANYTHING ELSE THAT WOULD PREVENT MORTAR FROM BONDING TO THE FOUNDATION.
- 2) WETTING: DO NOT WET CONCRETE MASONRY UNITS BEFORE LAYING. WET CUTTING IS PERMITTED.
- 3) DEBRIS: CONSTRUCT GROUT SPACES FREE OF MORTAR DROPPING, DEBRIS, LOOSE AGGREGATES, AND ANY MATERIAL DELETERIOUS TO MASONRY GROUT.
- 4) REINFORCEMENT: PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUING.
- 5) CLEANOUTS: PROVIDE CLEANOUTS IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR WHEN THE GROUT POUR HEIGHT EXCEEDS 5 FT 4 IN.
A) CONSTRUCT CLEANOUTS SO THAT THE SPACE TO BE GROUDED CAN BE CLEANED AND INSPECTED, IN SOLID GROUDED MASONRY, SPACE CLEANOUTS HORIZONTALLY A MAXIMUM OF 32 IN. ON CENTER.
B) CONSTRUCT CLEANOUTS WITH AN OPENING OF SUFFICIENT SIZE TO PERMIT REMOVAL OF DEBRIS. THE MINIMUM OPENING DIMENSION SHALL BE 3 IN.
C) AFTER CLEANING, CLOSE CLEANOUTS WITH CLOSURES BRACED TO RESIST GROUT PRESSURE.

H. MASONRY ERECTION:

- 1) BOND PATTERN: UNLESS OTHERWISE INDICATED, LAY MASONRY IN RUNNING BOND.
- 2) PLACING MORTAR UNITS: COMPLY WITH ARTICLE 3.3 B OF TMS 602, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
A) BED JOINTS AT FOUNDATIONS: IN THE STARTING COURSE ON FOUNDATIONS AND OTHER SUPPORTING MEMBERS, CONSTRUCT BED JOINTS SO THAT THE BED JOINT THICKNESS IS AT LEAST 1/4 IN. AND NOT MORE THAN:
(i) 3/4 IN. WHEN THE MASONRY IS UNGROUTED OR PARTIALLY GROUDED
(ii) 1-1/4 IN. WHEN THE FIRST COURSE OF MASONRY IS SOLID GROUDED AND SUPPORTED BY A CONCRETE FOUNDATION.
B) OPENINGS IN TROUGH BLOCKS: AT ALL VERTICAL REINFORCING LOCATIONS, THE BOTTOM OF TROUGH BLOCKS SHALL BE CUT TO PROVIDE A MINIMUM 2-INCH DIAMETER HOLE TO ALLOW PLACEMENT OF VERTICAL REINFORCING AND PLACEMENT OF GROUT THROUGH THE HOLE.
- 3) EMBEDDED ITEMS AND ACCESSORIES: COMPLY WITH ARTICLE 3.3 D OF TMS 602.
- 4) TEMPORARY BRACING OF MASONRY: DESIGN, PROVIDE, AND INSTALL TEMPORARY BRACING THAT WILL ASSURE STABILITY OF MASONRY DURING CONSTRUCTION.
- 5) SITE TOLERANCES: ERECT MASONRY WITHIN THE TOLERANCES DEFINED IN ARTICLE 3.3 F OF TMS 602.
- 6) PLACING REINFORCING: COMPLY WITH ALL PROVISIONS OF ARTICLE 3.4 OF TMS 602. MAINTAIN CLEAR DISTANCE BETWEEN REINFORCING BARS AND ANY FACE OF MASONRY UNIT OR FORMED SURFACE, BUT NOT LESS THAN 1/4-IN FOR FINE GROUT OR 1/2-IN. FOR COARSE GROUT.
- 7) CONTROL JOINTS: LOCATION AND DETAILS OF CONTROL JOINTS SHALL BE AS DEFINED ON ARCHITECTURAL DRAWINGS. IF NOT SHOWN ON THE ARCHITECTURAL DRAWINGS, THE LOCATION OF CONTROL JOINTS SHALL BE DETAILED BY THE MASONRY CONTRACTOR AND SUBMITTED FOR REVIEW AND APPROVAL BY THE ARCHITECT AND ENGINEER. THE DISTANCE BETWEEN CONTROL JOINTS SHOULD NOT EXCEED THE LESSER OF 1.5 TIMES THE WALL HEIGHT OR 25 FT. IN ADDITION, CONTROL JOINTS SHOULD TYPICALLY BE PROVIDED AT THE FOLLOWING LOCATIONS:
A) AT CHANGES IN WALL HEIGHT.
B) AT PILASTERS AND CHANGES IN WALL THICKNESS.
C) DIRECTLY OVER EXPANSION JOINTS IN SUPPORTING FOUNDATIONS.
D) AT EXPANSION JOINTS IN ROOFS AND FLOORS THAT BEAR ON THE WALL.
E) NEAR ONE SIDE OF OPENINGS LESS THAN 6 FT. WIDE. REFER TYPICAL MASONRY OPENING DETAILS.
F) NEAR BOTH SIDES OF OPENINGS GREATER THAN 6 FT. WIDE.
G) AT INTERSECTING WALLS.
H) AT MAXIMUM OF ONE-HALF THE TYPICAL CONTROL JOINTS SPACING FROM CORNERS.
- 8) LINTELS: LINTELS SHALL BE PROVIDED WHERE REQUIRED ACCORDING TO TYPICAL LINTEL DETAILS AND SCHEDULE OR AS INDICATED ON PLAN SHEETS. SOLID BOTTOM TROUGH BLOCKS SHALL BE USED AT THE HEADS OF ALL OPENINGS.

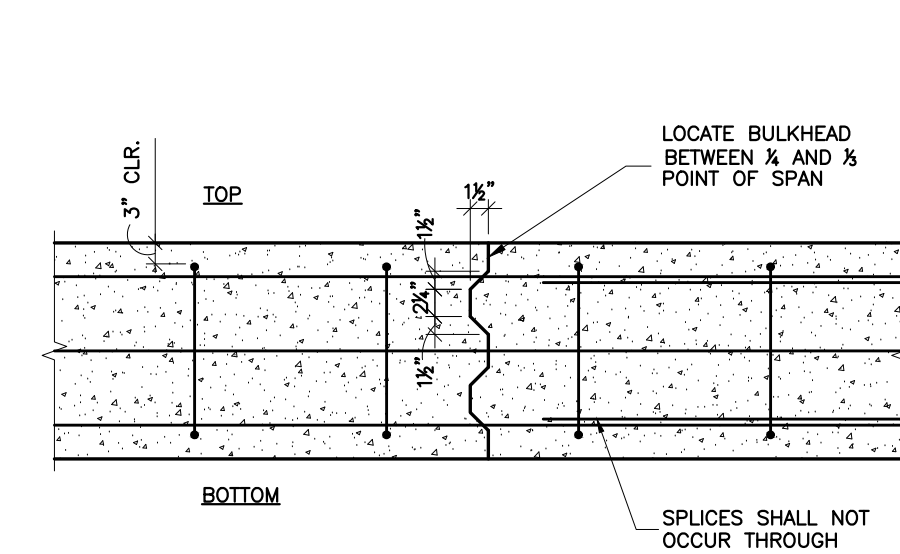
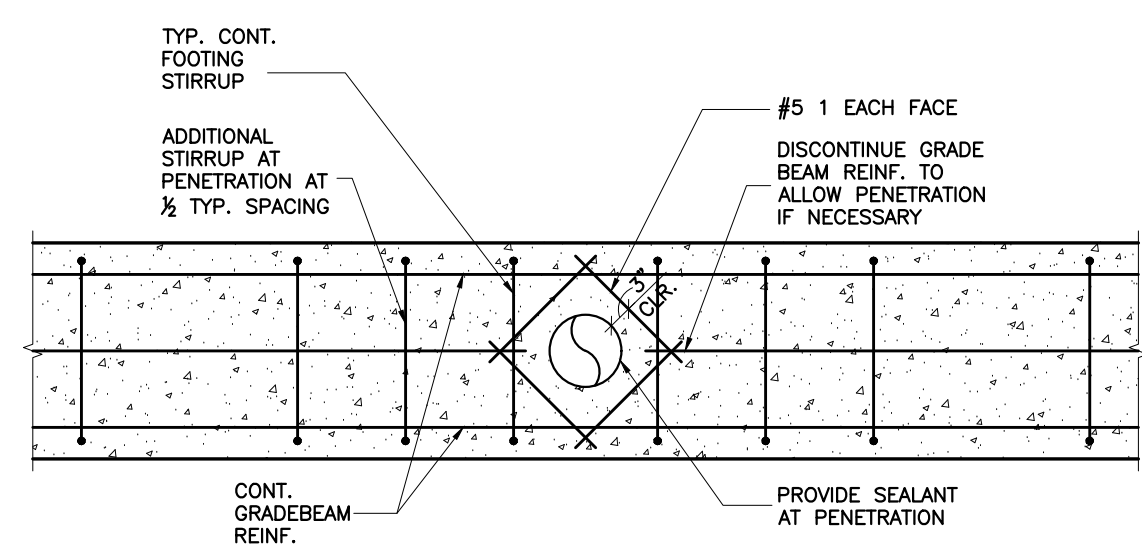
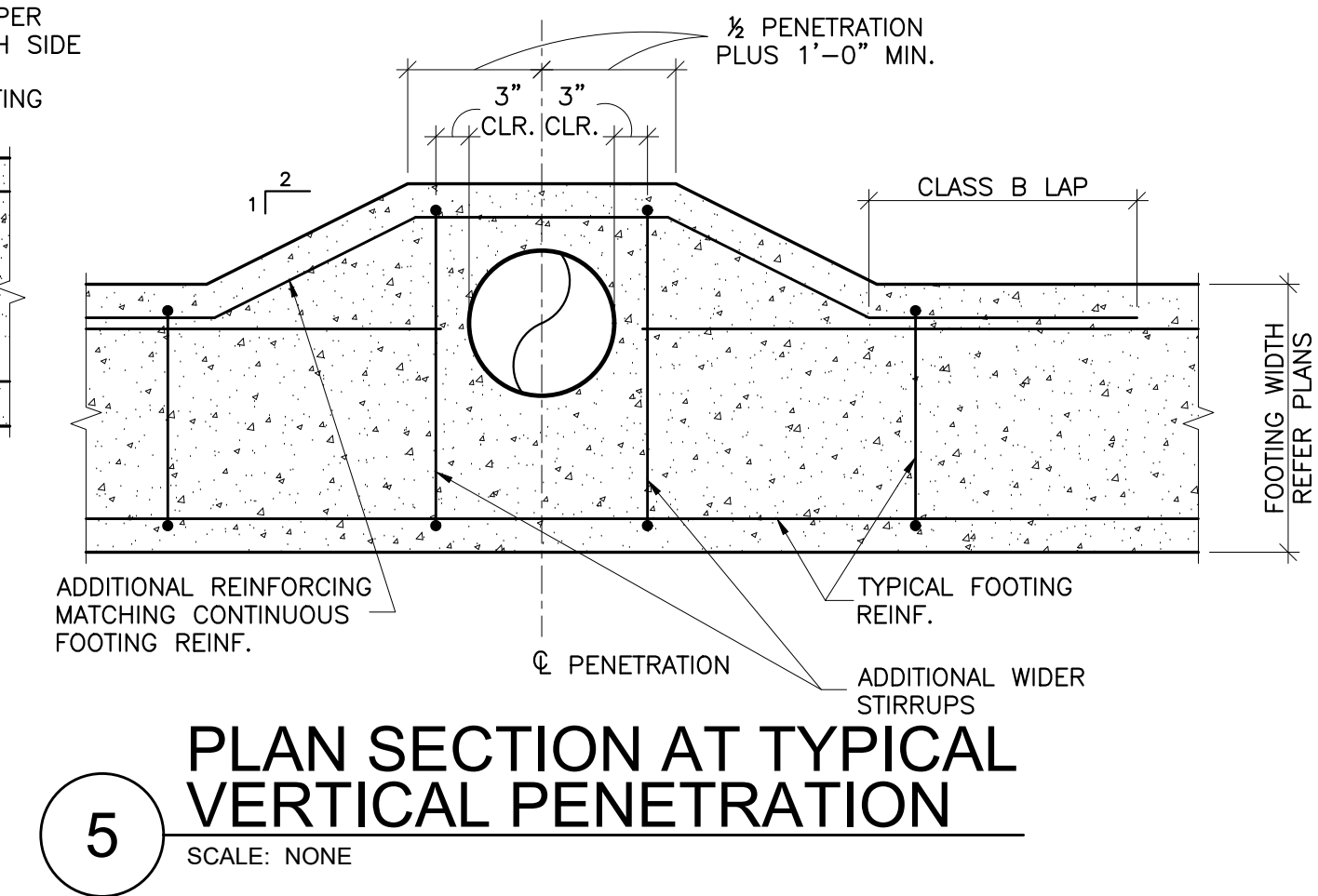
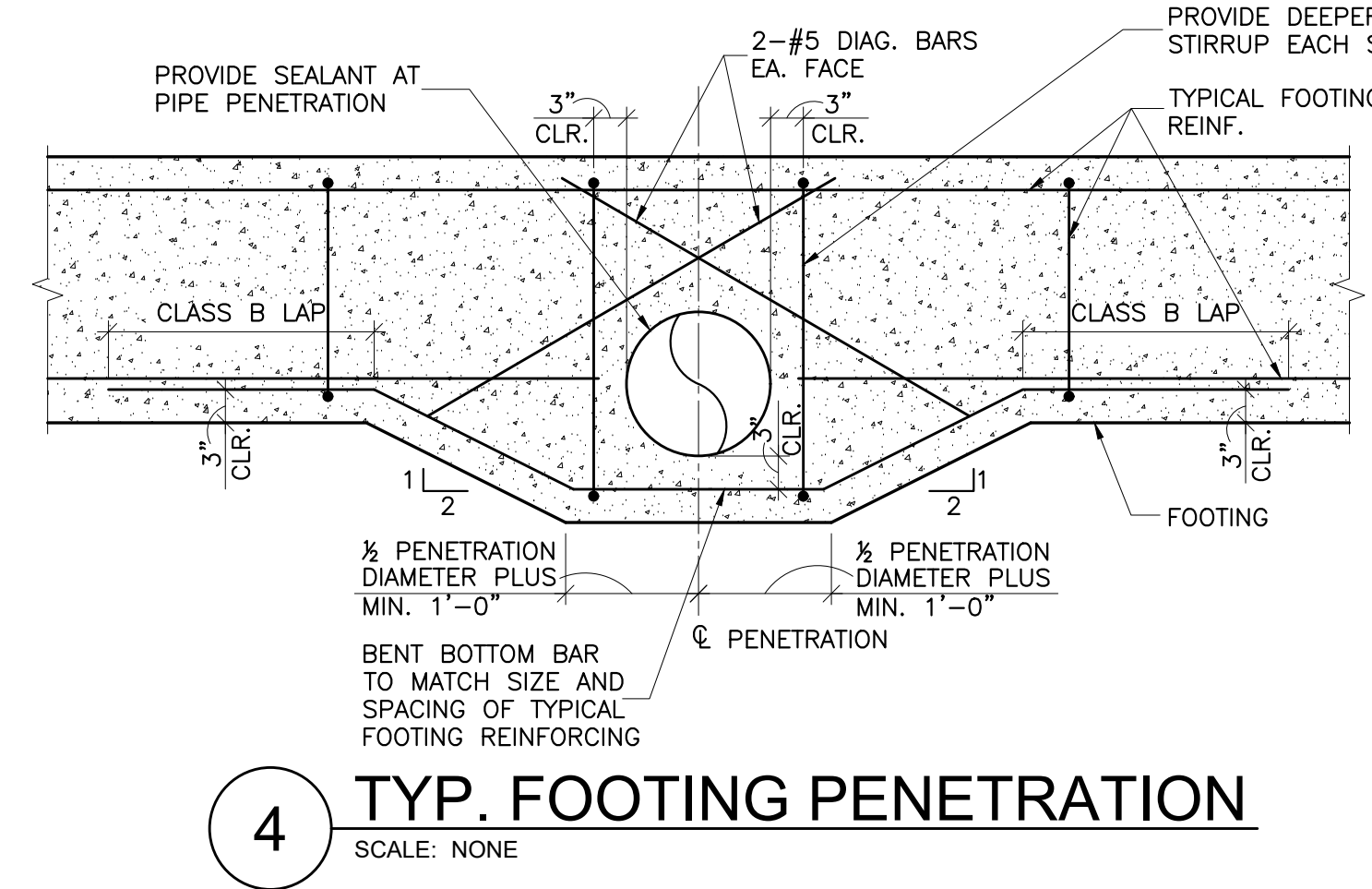
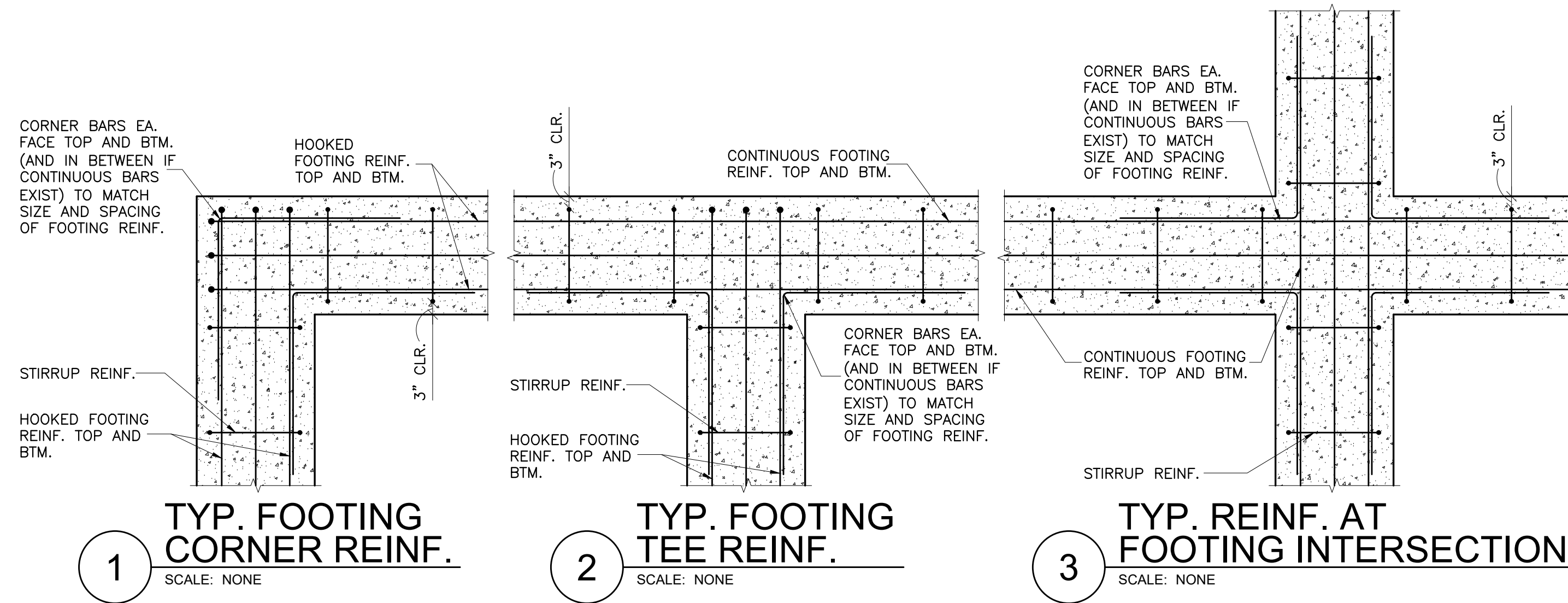
I. CONCRETE MASONRY REINFORCING:

- 1) MINIMUM HORIZONTAL AND VERTICAL REINFORCING IN CMU WALLS SHALL BE PROVIDED AS FOLLOWS:

MINIMUM REINFORCING IN CMU WALLS					
WALL TYPE	CMU TYPE	GROUTED VERTICAL REINFORCING CELL		HORIZONTAL BOND BEAM REINFORCING	
		BARs	SPACING OF GROUDED CELLS	BARs	SPACING OF BOND BEAMS
EXTERIOR	8"	(1)#5	32" O.C.	(2)#4	48" O.C.

NOTES:
1. ALL SINGLE BAR REINFORCING IN VERTICAL CELLS SHALL BE CENTERED IN CELL UNLESS NOTED OTHERWISE.
2. AN ADDITIONAL VERTICAL BAR OF THE SAME SIZE AND LENGTH AS THE NORMAL REINFORCING BAR SHALL BE PLACED IN GROUDED CELLS:
a. IN FIRST TWO JAMB CELLS ON EACH SIDE OF WALL OPENINGS.
b. IN CELLS ON EACH SIDE OF CONTROL JOINTS OR EXPANSION JOINTS.
c. IN CELL AT ALL WALL INTERSECTIONS AND FIRST ADJACENT CELL IN EACH DIRECTION.
4. ADDITIONAL BOND BEAMS SHALL BE PROVIDED FOR ALL MASONRY LINTELS AND WALL OPENINGS AS SHOWN IN TYPICAL DETAILS.

- 2) THE MINIMUM LENGTH OF LAP SPLICES OF REINFORCING STEEL IN MASONRY SHALL BE AS SHOWN IN THE CMU REINFORCING LAP SCHEDULE.



CONCRETE EXPOSURE	MEMBER	REINFORCEMENTS	SPECIFIED COVER, IN.
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	NO. 6 THROUGH NO. 18 BAR	2
		NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1-1/2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLAB, JOISTS, AND WALLS	NO. 14 AND NO. 18 AND SMALLER	1-1/2
	BEAMS, COLUMNS, PEDESTALS, AND TENSION TIES	NO. 11 BAR AND SMALLER PRIMARY REINFORCEMENT, STIRRUPS, TIES, SPIRALS, AND HOOPS	3/4 1-1/2

8 TYP. MIN. CONCRETE COVER
SCALE: NONE

TENSION DEVELOPMENT AND LAP-SPLICE LENGTHS FOR UNCOATED REINFORCING BARS

BAR SIZE	LAP CLASS	LAP LENGTH (IN.) PER SPACING AND COVER CASE			
		f'c=3500 psi (NORMAL WEIGHT)			
		TOP BARS		OTHER BARS	
#3	A	22	32	17	25
	B	28	42	22	32
#4	A	29	43	22	33
	B	37	56	29	43
#5	A	36	54	28	41
	B	47	70	36	54
#6	A	43	64	33	50
	B	56	84	43	64
#7	A	63	94	48	72
	B	81	122	63	94
#8	A	72	107	55	82
	B	93	139	72	107
#9	A	81	121	62	93
	B	105	157	81	121
#10	A	91	136	70	105
	B	118	177	91	136
#11	A	101	151	78	116
	B	131	196	101	151
#14	N/A	121	181	93	139
#18	N/A	161	241	124	186

9 REINFORCING LAP LENGTHS
SCALE: NONE

NOTES: 1 in.=25.4 mm.
1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP-SPLICE LENGTHS ARE CALCULATED PER ACI 318, SECTIONS 25.4 AND 25.5, RESPECTIVELY. TABULATED VALUES FOR BEAMS OR COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MINIMUM CODE REQUIREMENTS.
3. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL ELEMENT, CONCRETE COVER, AND CENTER-TO-CENTER SPACING OF THE BARS, ARE DEFINED AS: BEAMS OR COLUMNS: CASE 1-COVER AT LEAST 1.0d_c AND CENTER-TO-CENTER SPACING AT LEAST 2.0d_c AND CASE 2-COVER LESS THAN 1.0d_c OR CENTER-TO-CENTER SPACING LESS THAN 2.0d_c. ALL OTHERS: CASE 1-COVER AT LEAST 1.0d_c AND CENTER-TO-CENTER SPACING AT LEAST 3.0d_c. CASE 2-COVER LESS THAN 1.0d_c OR CENTER-TO-CENTER SPACING LESS THAN 3.0d_c.
4. LAP SPLICE LENGTHS ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS; CLASS A=1.0d_c AND CLASS B=1.3d_c (ACI 318, SECTION 25.5.2).
5. ACI 318 DOES NOT ALLOW TENSION LAP SPLICES OF #14 OR #18 BARS. THE TABULATED VALUES FOR THOSE BAR SIZES ARE THE TENSION DEVELOPMENT LENGTHS.
6. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 in. OF CONCRETE CAST BELOW THE BARS.
7. FOR LIGHTWEIGHT-AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.



CG
drawn by
MA
checked by
JANUARY 2024
date
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



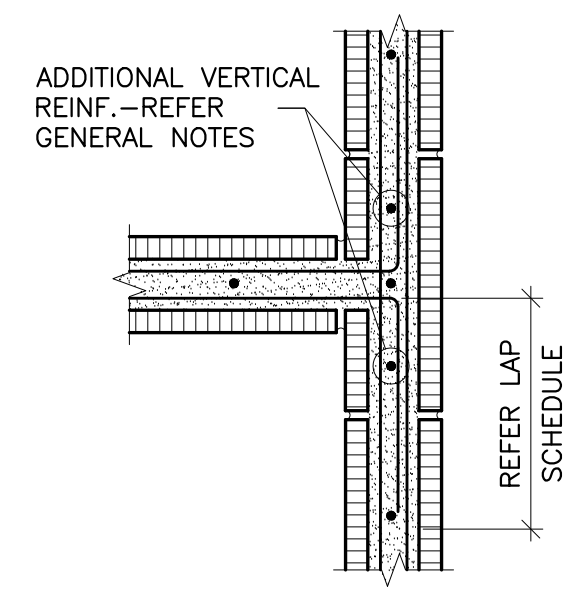
SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

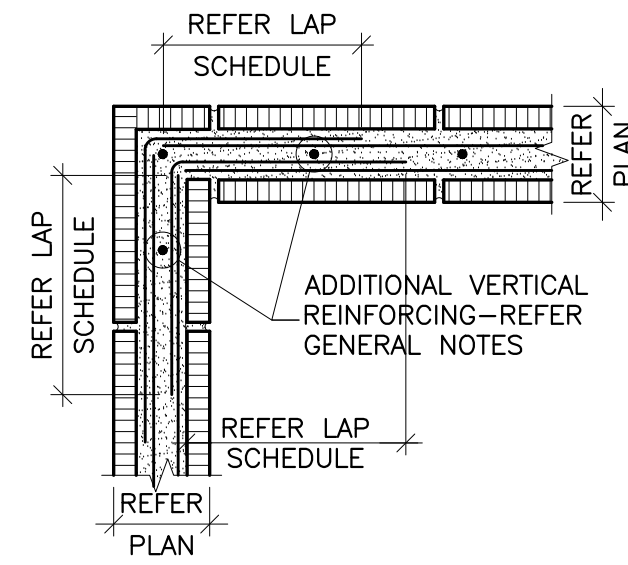
S102

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.

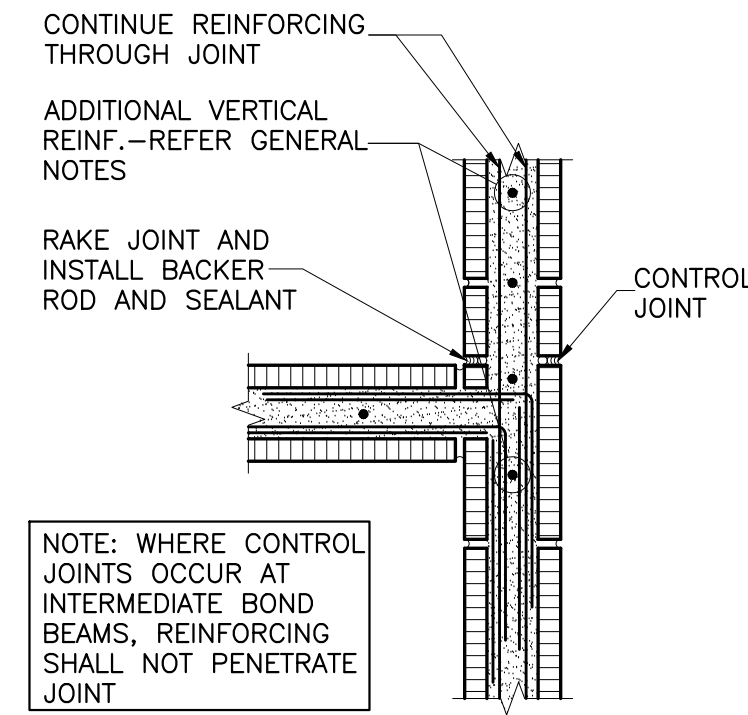




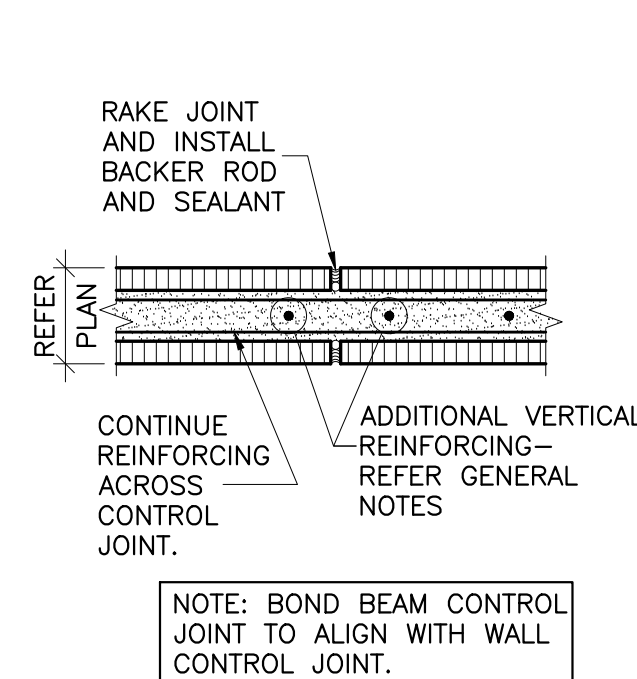
1 DETAIL AT BOND BEAM CORNER W/ NO CONTROL JT
SCALE: NONE



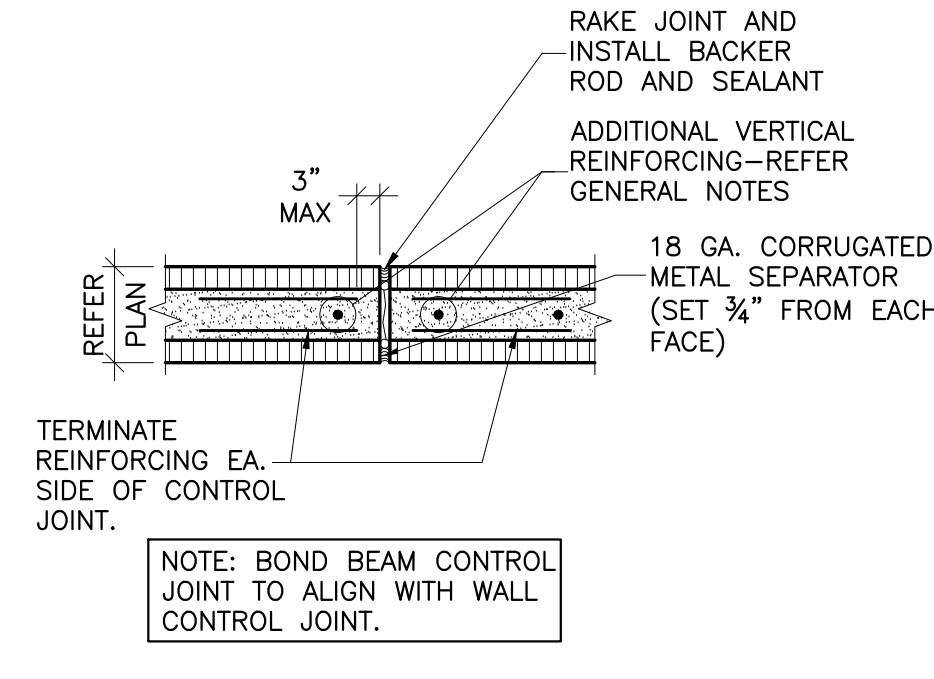
2 DETAIL AT FLOOR/ROOF BOND BEAM CORNER W/ CONTROL JT
SCALE: NONE



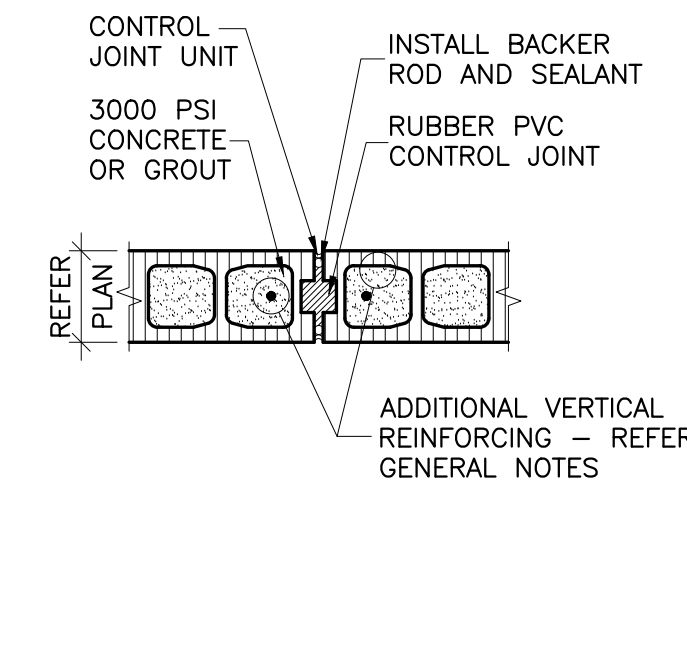
3 CORNER BOND BEAM WITH NO CONTROL JT
SCALE: NONE



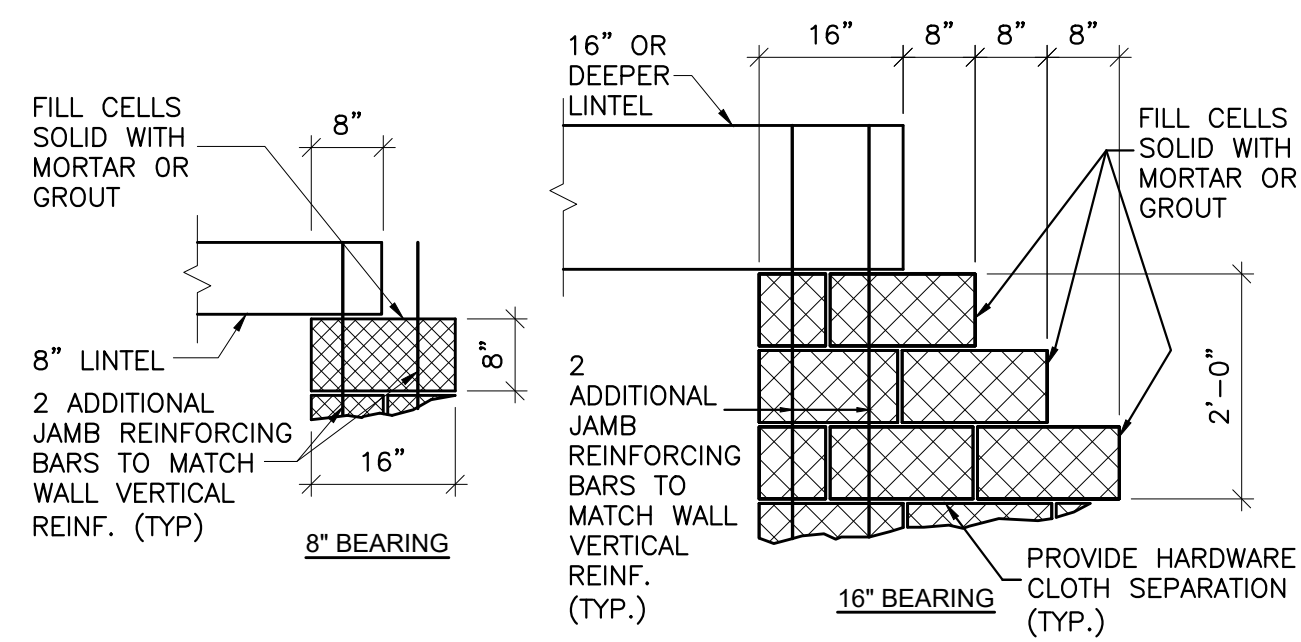
4 CONTROL JT AT FLOOR/ROOF BOND BEAM
SCALE: NONE



5 CONTROL JT AT INTERMEDIATE BOND BEAM
SCALE: NONE



6 CONTROL JT BETWEEN BOND BEAMS
SCALE: NONE

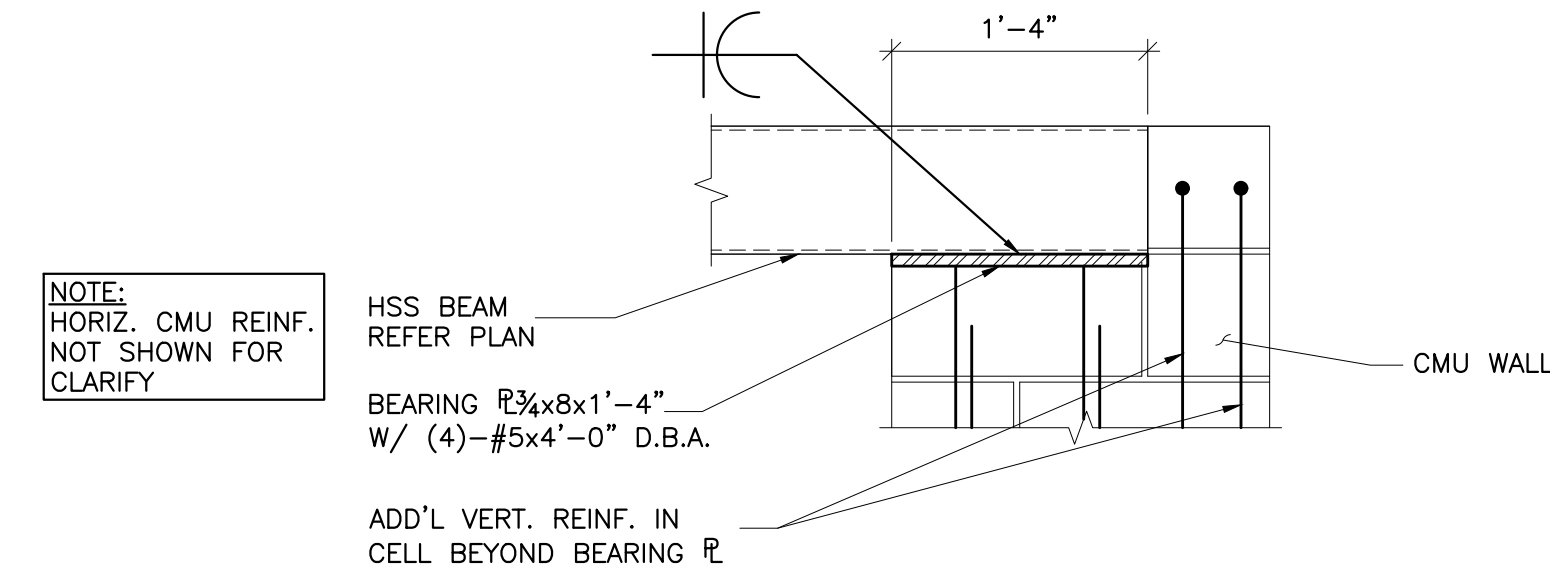


7 BEARING DETAILS TYP. LINTEL TYPES
SCALE: NONE

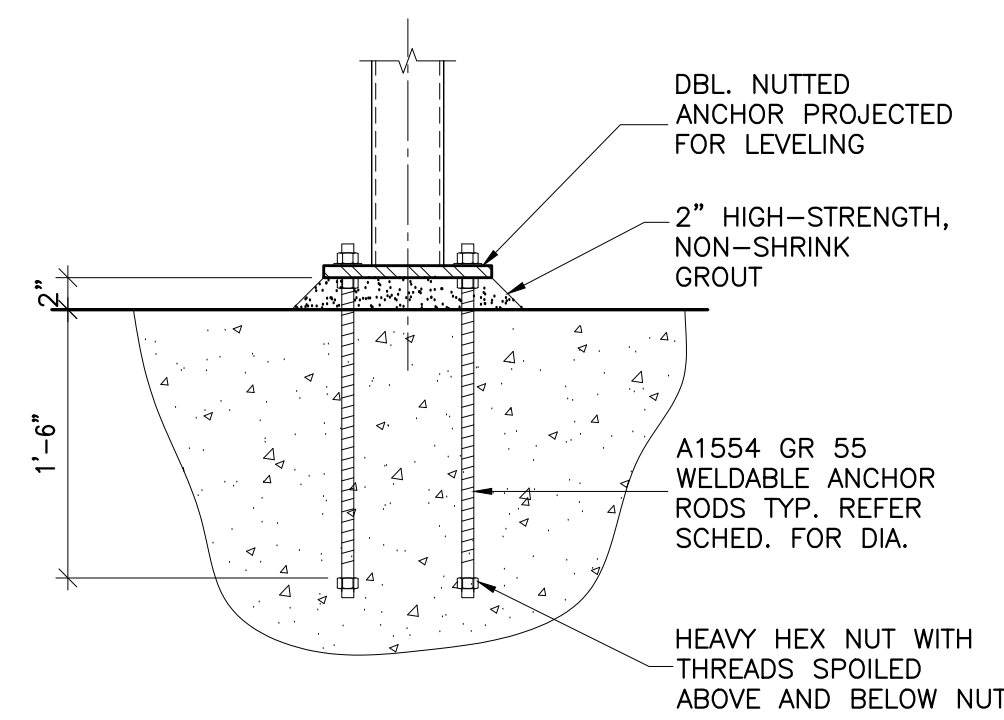
BAR SIZE	LENGTH (in.)			
	CENTER			EDGE (2 IN CLEAR COVER)
	6" CMU	8" CMU	12" CMU	6", 8", 12" CMU
3	1'-0"	1'-0"	1'-0"	1'-6"
4	1'-6"	1'-6"	1'-0"	2'-0"
5	2'-6"	2'-0"	1'-6"	3'-0"
6	**	3'-6"	2'-0"	**
7	**	**	3'-0"	**
8	**	**	**	**

8 CMU REINFORCING LAP SCHEDULE
SCALE: NONE

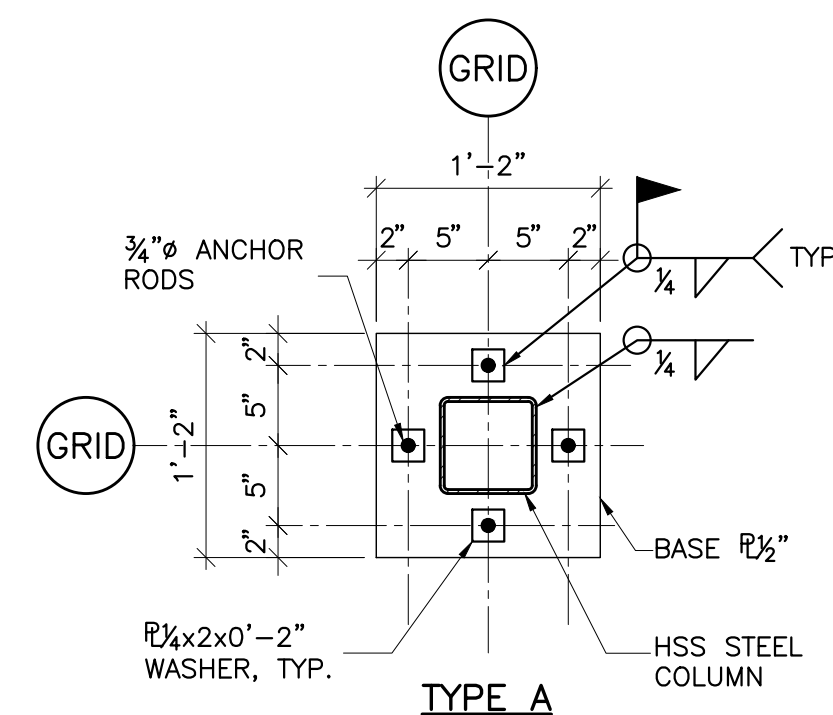
NOTES:
1. f'm = 2000 psi
2. fy = 60,000 psi
*SCHEDULE ALSO APPLIES TO EMBEDMENT LENGTHS
**MECHANICAL SPLICES SHALL BE USED



9 TYP. BEAM BEARING PLATE DETAILS
SCALE: NONE



10 BASE PLATE DETAIL
SCALE: NONE



CG
drawn by
MA
checked by
JANUARY 2024
date
revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

S103

OWNERSHIP USE OF DOCUMENTS:

AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.



REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION			
VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION		REFERENCED STANDARD
	CONTINUOUS (inspect each joint/member)	PERIODIC (inspect random joint/members)	
1. Material verification of structural steel and cold-formed steel deck U.N.O.:			
a. For structural steel, identification markings to conform to AISC 360.	-	QC and QA	AISC 360, Section M1
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	-	QC and QA	Applicable ASTM material standards
2. Inspection prior to welding:			
a. Verify identification markings of weld filler materials conform to AWS specification in the approved construction documents.	-	QC and QA	AISC 360, Section A3.5 and applicable AWS AS documents
b. Welding procedure specifications are available.	QC and QA	-	AISC 360, Table N5.4-1
c. Manufacturer certifications for welding consumables available.	QC and QA	-	
d. Material identification (type/grade) and welded identification system.	-	QC and QA	
e. Fit-up of welds including but not limited to joint preparation, dimensions, cleanliness, tacking, and backing type/fit as applicable.	-	QC and QA	
f. Configuration and finish of access holes	-	QC and QA	
g. Check welding equipment.	-	QC	
3. Inspection of welding:			
a. AISC 360 requirements for welding structural steel			
1) Use of qualified welders	-	QC and QA	AISC 360, Table N5.4-2 During Welding
2) Packaging and exposure control and handling of welding consumables.	-	QC and QA	
3) No welding over cracked tack welds	-	QC and QA	
4) Environmental conditions including but not limited to precipitation, temperature and wind.	-	QC and QA	
5) Verify settings on equipment, travel speeds, selected materials, shielding gas type/flow rate, preheating interpass temperatures and proper position meets WPS standards.	-	QC and QA	
6) Verify welding techniques for interpass, final cleaning, profile limitations, and quality requirements.	-	QC and QA	
7) Welds are cleaned and painted where required.	-	QC and QA	
8) Verify size, length and locations of welds.	QC and QA	-	
9) Visually verify welds for crack prohibition, weld/base-metal fusion, crater cross section, weld profiles, weld size, undercutting, and porosity.	QC and QA	-	
10) Arc strikes, k-area cracks within 3" of weld, removal of backing, and repair activities as applicable.	QC and QA	-	
11) Documentation of acceptance or rejection of welded joint or member.	QC and QA	-	
b. American Welding Society requirements for structural steel and cold-formed steel deck:			
1) Complete and partial joint penetration groove welds.	QC and QA	-	AWS D1.1
2) Multipass fillet welds.	QC and QA	-	
3) Single-pass fillet welds > 5/16"	QC and QA	-	
4) Plug and slot welds.	QC and QA	-	
5) Single-pass fillet welds ≤ 5/16"	-	QC and QA	
6) Floor and roof deck welds.	-	QC and QA	AWS D1.3
7) Welded studs & deformed bar anchors (DBAs).	-	QC and QA	AWS D1.1
8) Welded sheet steel for cold-formed steel members	-	QC and QA	AWS D1.3
9) Welding of stairs & railing systems	-	QC and QA	AWS D1.1
c. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	QC and QA	AWS D1.4, ACI 318: Section 3.5.2
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	QC and QA	-	
3) Shear reinforcement.	QC and QA	-	
4) Other reinforcing steel.	-	QC and QA	

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1) Inspect reinforcement, including prestressing tendon, and verify placement.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2) Inspect anchors cast in concrete.	-	X	ACI 318:17.8.2	-
3) Verify use of required design mix.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
4) Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12	1908.10
5) Inspect concrete and shotcrete placement for proper application techniques.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
6) Verify maintenance of specified curing temperature and techniques.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
7) Inspect formwork for shape, location and dimensions of the concrete member being formed.	-	X	ACI 318: 26.11.1,2(b)	-

TABLE 3.1.2 – QUALITY ASSURANCE REQUIRED INSPECTIONS AND TESTS OF MASONRY CONSTRUCTION				
MINIMUM TESTS				
Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5B.1.b.3 for self-consolidation grout				
Verification of f_m and $f_{m,c}$ in accordance with Specification Article 1.4 B prior to construction, except where specifically exempted. At shelter walls, prisms created in the field shall be tested to verify f_m .				
MINIMUM SPECIAL INSPECTIONS				
INSPECTION TASK	FREQUENCY (NON-SHELTER)		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	TMS 402/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. Verify compliance with the approved submittals.	-	X	-	Art. 1.5
2. As masonry construction begins, verify that the following are in compliance:				
a. Proportions of site-prepare mortar	-	X	-	-
b. Construction of mortar joints	-	X	-	Art. 2.1, 2.6 A
c. Location of reinforcement, connectors, and prestressing tendons and anchorages	-	X	-	Art. 3.4, 3.6 A
3. Prior to grouting, verify that the following are in compliance:				
a. Grout space	-	X	-	Art. 3.2 D, 3.2 F
b. Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	-	X	Sec. 6.1	Art. 2.4, 3.4
c. Placement of reinforcement, connectors, and prestressing tendons and anchorages	-	X	Sec. 6.1, 6.2.1, 6.2.6, 6.2.7	Art. 3.2 E, 3.4, 3.6A
d. Proportions of site-prepared grout and prestressing grout for bonded tendons	-	X	-	Art. 2.6 B, 2.4 G.1.b
e. Construction of mortar joints	-	X	-	Art. 3.3 B
4. Verify during construction:				
a. Size and location of structural elements.	-	X	-	Art. 3.3 F
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	-	X	Sec. 1.2.1 (e), 6.1.4.3, 6.2.1	-
c. Preparation, construction and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	-	X	-	Art. 1.8 C, 1.8 D
5. Observe preparation of grout specimens, mortar specimens, and/or prisms	-	X	-	Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4
a. Required for the first 5000 square feet of AAC masonry. b. Required after the first 5000 square feet of AAC masonry.				

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS			
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X	
2. Verify excavations are extended to proper depth and have reached proper material.	-	X	
3. Perform classification and testing of compacted fill materials.	-	X	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	-	
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	-	X	

- A) QUALITY CONTROL (QC) AS SPECIFIED IN AISC 360 CHAPTER N AND SUMMARIZED HEREIN SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.
- B) QUALITY ASSURANCE (QA) AS SPECIFIED IN AISC 360 CHAPTER N AND SUMMARIZED HEREIN SHALL BE PROVIDED BY AN INDEPENDENT INSPECTOR.
- C) NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE (QA).
- D) COORDINATED INSPECTION: WHERE A TASK IS NOTED TO BE PERFORMED BY BOTH QC AND QA, IT IS PERMITTED TO COORDINATE THE INSPECTION FUNCTION BETWEEN THE QUALITY CONTROL INSPECTOR (QCI) AND QUALITY ASSURANCE INSPECTOR (QAI) SO THAT THE INSPECTION FUNCTIONS ARE PERFORMED BY ONE PARTY. THE QAI SHALL PERFORM COORDINATED INSPECTION UNLESS OTHERWISE AUTHORIZED BY THE EOR AND AHJ.
- 2) STEEL QUALITY INSPECTOR QUALIFICATIONS
- A) QUALITY CONTROL INSPECTOR (QAC) OF ERECTOR/FABRICATOR SHALL BE QUALIFIED TO THE SATISFACTION OF THE ERECTOR/ FABRICATOR'S QC PROGRAM AND AISC 360 SECTION N.4.1 REQUIREMENTS.
- B) QUALITY ASSURANCE INSPECTOR (QAI) SHALL BE QUALIFIED BY A QA AGENCY AND AISC 360 SECTION N.4.2 REQUIREMENTS.
- C) NON-DESTRUCTIVE TESTING PERSONNEL, OR OTHER THAN VISUAL, SHALL BE QUALIFIED IN ACCORDANCE WITH EMPLOYER'S WRITTEN PRACTICE MEETING OR EXCEEDING REQUIREMENTS OF AWS D1.1/D1.1M AND EITHER ANST SNT-TC-1A OR ANST CP-189 REQUIREMENTS.
- 3) INSPECTION/APPROVAL OF STEEL FABRICATORS: WHERE FABRICATION OF STRUCTURAL STEEL LOADBEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A STEEL FABRICATOR'S SHOP, REFER TO PARAGRAPH 1.L ABOVE.
- 4) REFER ATTACHED TABLES FOR SPECIAL INSPECTIONS AND TESTING FOR STEEL CONSTRUCTION.

C. CONCRETE CONSTRUCTION

- 1) SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ITEMS IDENTIFIED IN IBC TABLE 1705.3.
- 2) IBC SECTION 1705.3, EXCEPTION 1 DOES NOT REQUIRE SPECIAL INSPECTIONS FOR ISOLATED FOOTINGS OF BUILDINGS LESS THAN THREE STORIES IN HEIGHT THAT ARE FULLY SUPPORTED ON EARTH OR ROCK. NOTE THAT ALL ISOLATED FOOTINGS SUPPORTING COLUMNS AND/OR DIAGONALS ASSOCIATED WITH THE LATERAL BRACING SYSTEM SHALL BE SPECIALLY INSPECTED AND TESTED.
- 3) IBC SECTION 1705.3, EXCEPTION 2 REGARDING CONTINUOUS FOOTINGS SHALL NOT APPLY. NOTE THAT ALL CONTINUOUS FOOTINGS AND TIE BEAMS SHALL BE SPECIALLY INSPECTED AND TESTED.
- 4) ALL ELEVATED STRUCTURAL CONCRETE SHALL BE SPECIALLY INSPECTED AND TESTED.
- 5) ALL SLABS-ON-GRADE SHALL BE SPECIALLY INSPECTED AND TESTED.

D. MASONRY CONSTRUCTION

- 1) MASONRY SPECIAL INSPECTIONS AND TESTS SHALL BE AS REQUIRED BY TABLE 3.1.2 OF TMS 402-13/ACI 530-13/ASCE 5-13.
- 2) PERFORM PRISM TESTING PRIOR TO BEGINNING WORK.
- 3) PROVIDE SETS OF PRISMS FOR TESTING EVERY 5,000 SF OF CMU WALL OR AT LEAST ONE SET OF PRISMS DAILY.

E. SOILS

- 1) REQUIRED SPECIAL INSPECTIONS AND SOIL TESTS ARE AS SHOWN IN TABLE 1705.6 OF IBC.
- 2) RAMMED AGGREGATE PIERS ARE TO BE PERFORMANCE SPECIFIED. THE CONTRACTOR SHALL MAKE APPROVED SUBMITTALS AVAILABLE TO THE SPECIAL INSPECTOR. GRADATION VERIFICATION OF RAMMED EARTH IS REQUIRED. VERIFICATION OF PLACEMENT TECHNIQUES AND VIBRATORY EQUIPMENT IS REQUIRED FOR SPECIAL INSPECTION AS WELL.

1. STATEMENT OF SPECIAL INSPECTIONS NOTES:

- A. THIS STATEMENT OF SPECIAL INSPECTIONS IS INCLUDED AS REQUIRED BY SECTION 1704.3 OF CHAPTER 17 OF 2015 INTERNATIONAL BUILDING CODE.
- B. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2015 INTERNATIONAL BUILDING CODE, AISC 360, AND ACI 530 AS SUMMARIZED HEREIN. GENERAL REQUIREMENTS ARE LISTED BELOW AND IN THE ATTACHED INSPECTION TABLES.
- C. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL SPECIAL INSPECTION REQUIREMENTS. IF CONFLICTING REQUIREMENTS ARE FOUND BETWEEN STATEMENTS OF SPECIAL INSPECTIONS AND THE PROJECT SPECIFICATIONS, THE MORE STRINGENT PROVISION SHALL CONTROL UNLESS DIRECTED OTHERWISE IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
- D. THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS FOR THIS PROJECT. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL FOR THE INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- E. PRIOR TO THE START OF CONSTRUCTION, EACH SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING. EXPERIENCE OR TRAINING SHALL BE CONSIDERED RELEVANT WHEN THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES.
- F. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR THE SPECIAL INSPECTOR. THE CONSTRUCTION OR WORK WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTION OR TESTING.
- G. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING REASONABLE NOTICE TO THE SPECIAL INSPECTOR(S) REGARDING WHEN ELEMENTS OF THE PROJECT WILL BE READY FOR EFFICIENT IMPLEMENTATION OF SPECIAL INSPECTIONS.
- H. THE CONTRACTOR SHALL PROVIDE ACCESS TO THE LATEST VERSION OF ALL APPROVED PLANS AND SHOP DRAWINGS FOR THE SPECIAL INSPECTOR'S USE IN PERFORMING SPECIAL INSPECTIONS.
- I. CONTRACTOR SHALL GRANT ACCESS TO OWNER'S SPECIAL INSPECTOR AS IS REASONABLY NECESSARY FOR THE PROPER PERFORMANCE OF SPECIAL INSPECTIONS.
- J. SPECIAL INSPECTIONS DO NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND JOBSITE SAFETY ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
- K. APPROVED SPECIAL INSPECTORS SHALL KEEP RECORDS OF THEIR SPECIAL INSPECTIONS AND TESTS. THE SPECIAL INSPECTOR SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONALS IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF DISCREPANCIES SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.
- L. SPECIAL INSPECTION OF FABRICATED ITEMS: WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. THIS REQUIREMENT MAY BE WAIVED IF THE EXCEPTIONS OUTLINED BELOW ARE MET.
- 1) EXCEPTION 1: SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND IBC 2015. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING OFFICIAL.
- 2) EXCEPTION 2: SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1 OF IBC 2015.
- A) FABRICATOR APPROVAL: SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL AS SPECIFIED IN SECTION 1704.5 OF IBC 2015 STATING THAT THE WORK WAS APPROVED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- M. PER IBC SECTION 1704.3.2, THE SEISMIC FORCE RESISTING SYSTEMS FOR THIS FACILITY ARE DEFINED IN THE "DESIGN LOADS" SECTION OF THE GENERAL NOTES. NOTE THAT PER IBC SECTION 1705.12.1.1, THE EXCEPTION IS ENVOKED FOR STEEL SYSTEMS WITH AN R=3 AND A SEISMIC DESIGN CATEGORY C.
- Q. SUBMITTALS TO THE BUILDING OFFICIAL: IN ADDITION TO THE SUBMITTAL OF REPORTS OF SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH IBC SECTION 1704.2.4, REPORTS AND CERTIFICATES SHALL BE SUBMITTED BY THE OWNER OR OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL FOR EACH OF THE FOLLOWING:

- 1) CERTIFICATE OF COMPLIANCE FOR THE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD RESISTING MEMBERS OR ASSEMBLIES ON THE PREMISES OF A REGISTERED AND APPROVED FABRICATOR IN ACCORDANCE WITH IBC SECTION 1704.2.5.1.
- 2) CERTIFICATE OF COMPLIANCE FOR THE SEISMIC QUALIFICATION OF NONSTRUCTURAL COMPONENTS, SUPPORTS AND ATTACHMENTS IN ACCORDANCE WITH IBC SECTION 1705.13.2.
- 3) REPORTS OF PRECONSTRUCTION TESTS FOR SHOTCRETE IN ACCORDANCE WITH IBC SECTION 1908.5.
- 4) CERTIFICATE OF COMPLIANCE FOR OPEN WEB STEEL JOISTS IN ACCORDANCE WITH IBC SECTION 2207.5.

2. REQUIRED SPECIAL INSPECTIONS AND TESTS

- A. THE SPECIAL INSPECTOR SHALL PROVIDE CONTINUOUS OR PERIODIC INSPECTIONS AS SHOWN IN THE ATTACHED INSPECTION TABLES.

- 1) CONTINUOUS INSPECTION: THE SPECIAL INSPECTOR SHALL BE PRESENT AT ALL PROCEDURAL EVENTS.
- 2) PERIODIC INSPECTION: THE SPECIAL INSPECTOR SHALL BE PRESENT AT THE START OF THE WORK AND PERIODIC INSPECTION IS MADE TO VERIFY PROGRESS OF WORK IS IN COMPLIANCE.

B. STRUCTURAL STEEL AND DECKING

- 1) STEEL QUALITY CONTROL AND QUALITY ASSURANCE



CG

drawn by

MA

checked by

JANUARY 2024

date

revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



MOORE Public Schools
LEARNING FOR LIFE

SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

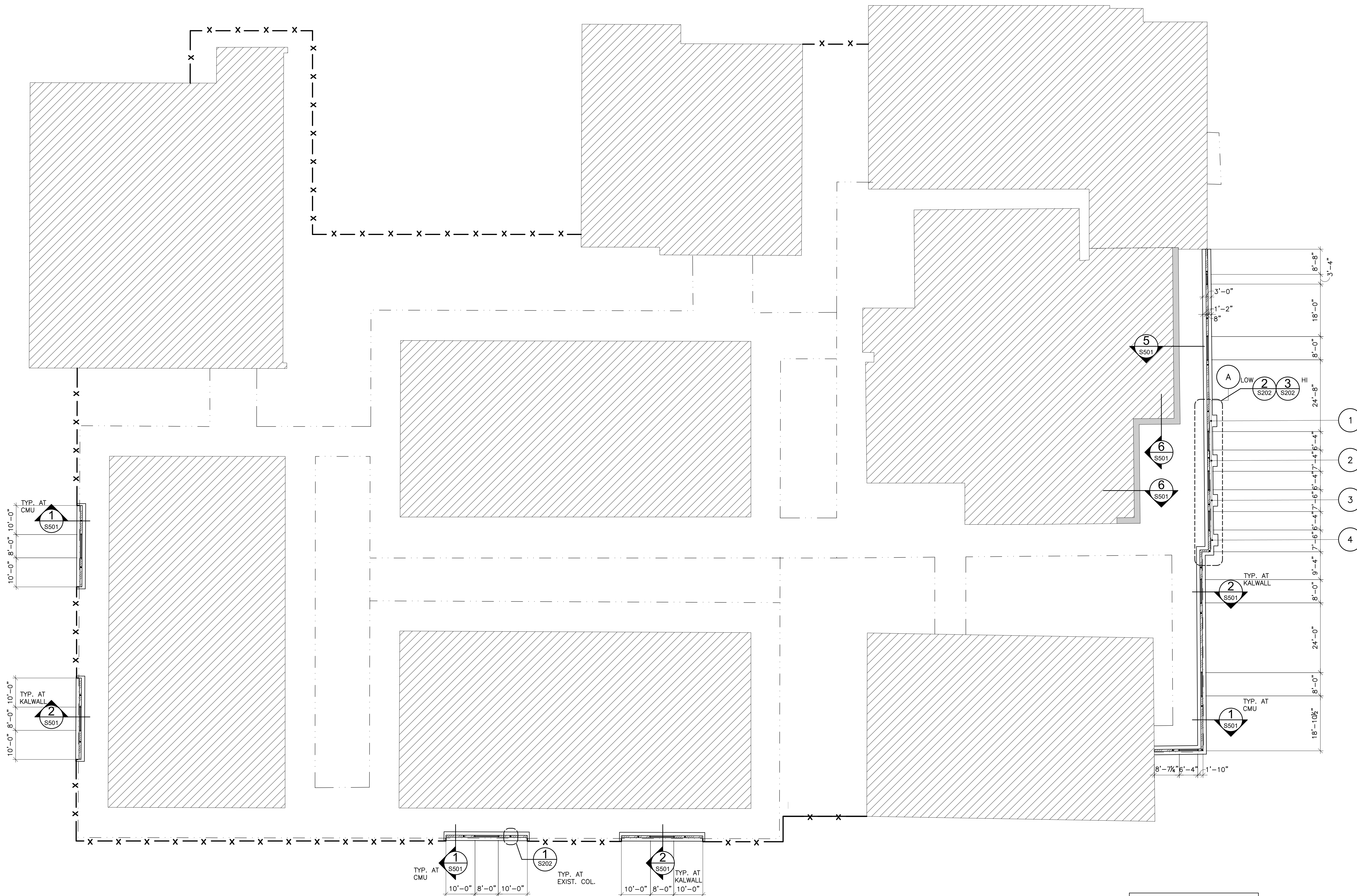
S201

OWNERSHIP USE OF DOCUMENTS:

AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED. PLANS
AND DRAWINGS ARE NOT TO BE
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



Kirkpatrick Forest Curtis PC
Structural Engineering
OK CA #3888, EXP. 08/30/25
255 Central Park Drive, Suite 202
Oklahoma City, OK 73105
405.528.4596 | kfcengr.com



LEGEND	
	CMU WALL
	EXIST. STRUCTURE TO REMAIN
	EXIST. CANOPY TO REMAIN
	NEW FENCE
	NEW SCREENWALL

1 SITE PLAN
S201 SCALE: 1/16"=1'-0"



CG	drawn by
MA	checked by
JANUARY 2024	date
	revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

S202

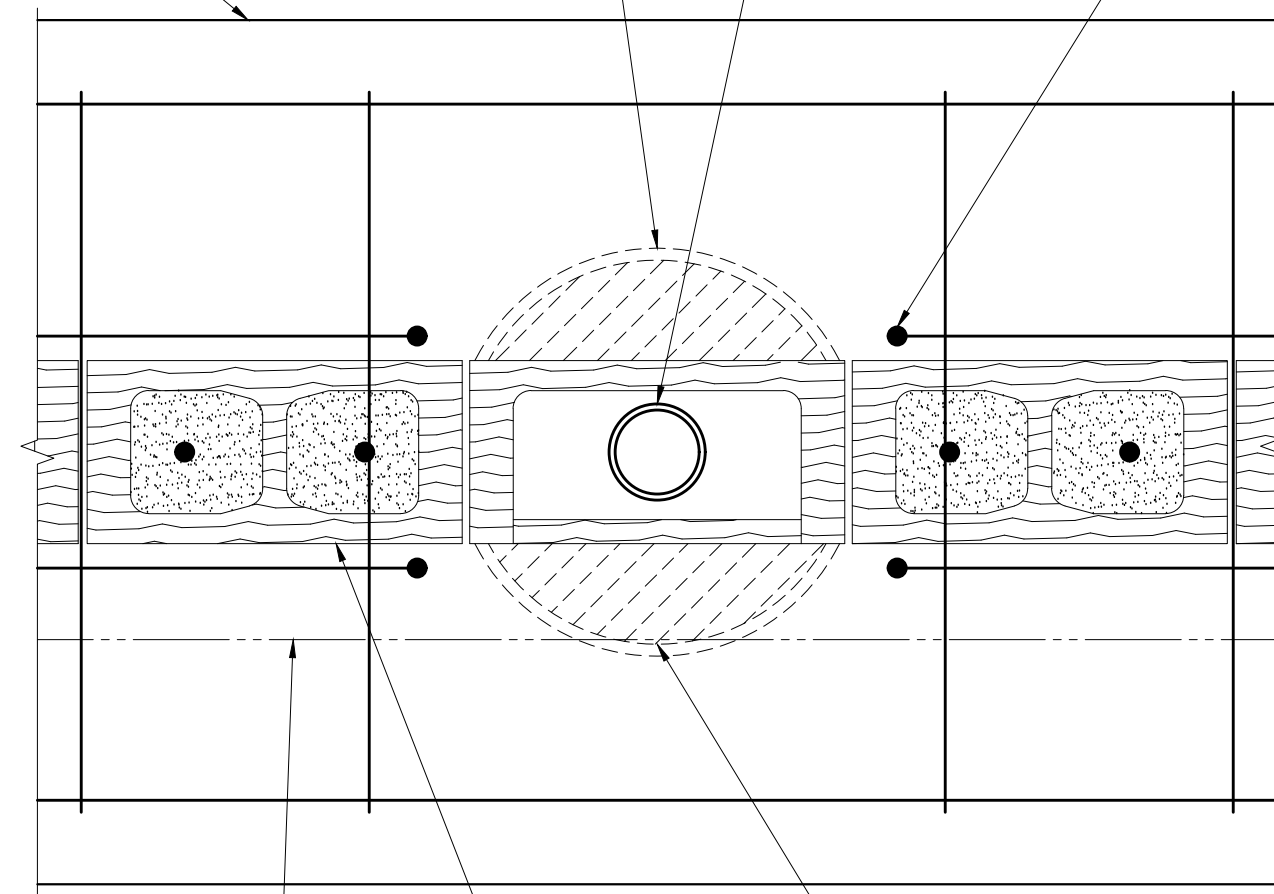
OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED. PLANS
AND DRAWINGS ARE NOT TO BE
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.

KFC engineering
Kirkpatrick Forest Curtis PC
Structural Engineering
OK CA #3888, EXP. 08/30/25
525 Central Park Drive, Suite 202
Oklahoma City, OK 73105
405.528.4596 | kfcengr.com

FOUNDATION PLAN NOTES:

- FOUNDATION AND SLAB SUBGRADE SHALL BE PREPARED AS OUTLINED IN THE STRUCTURAL GENERAL NOTES.
- REFERENCE ELEVATION OF 100'-0" EQUALS ACTUAL FINISHED FLOOR ELEVATION OF THE EXISTING BUILDING (FIELD VERIFY).

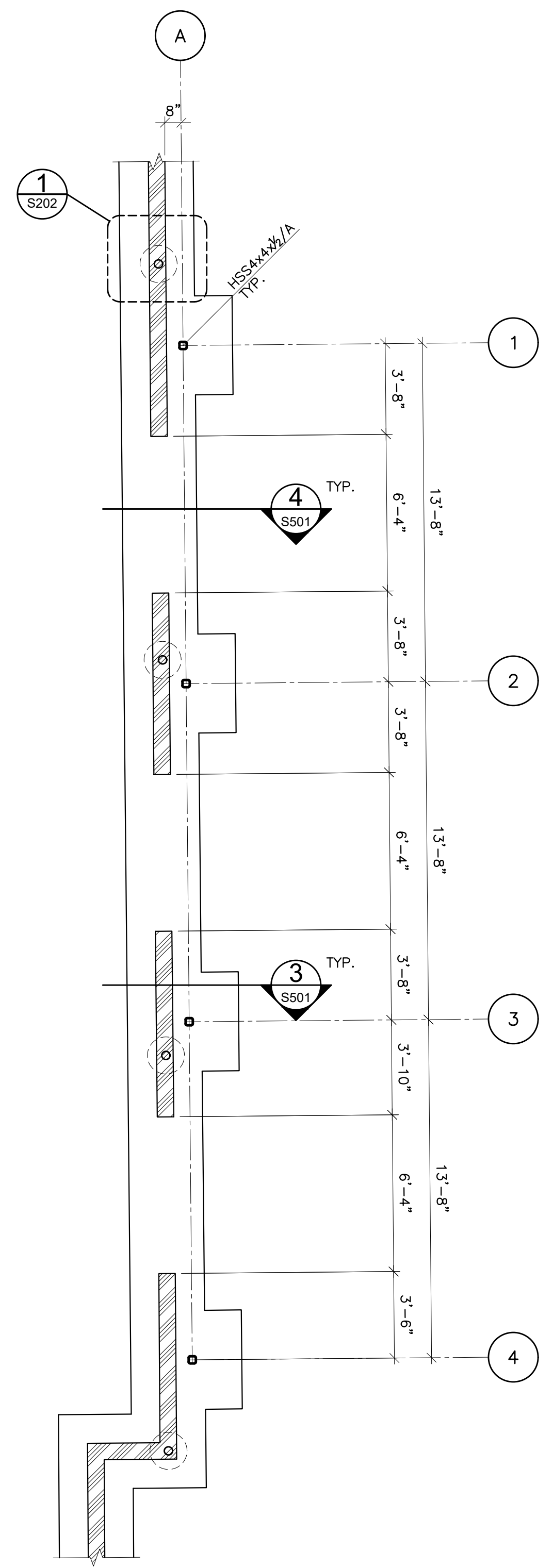
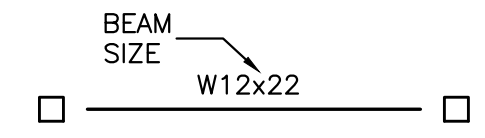
CONT. FOOTING BELOW. REFER 1/S501 FOR REINF. INFO
1/2" EXP. JT. MATERIAL
EXIST. CANOPY COLUMN TO REMAIN
HOOK ENDS OF INTERRUPTED BARS
BRICK VENEER REFER ARCH.
8" CMU WALL
EXIST. 16" Ø BELL PIER BELOW TO REMAIN (FIELD VERIFY)



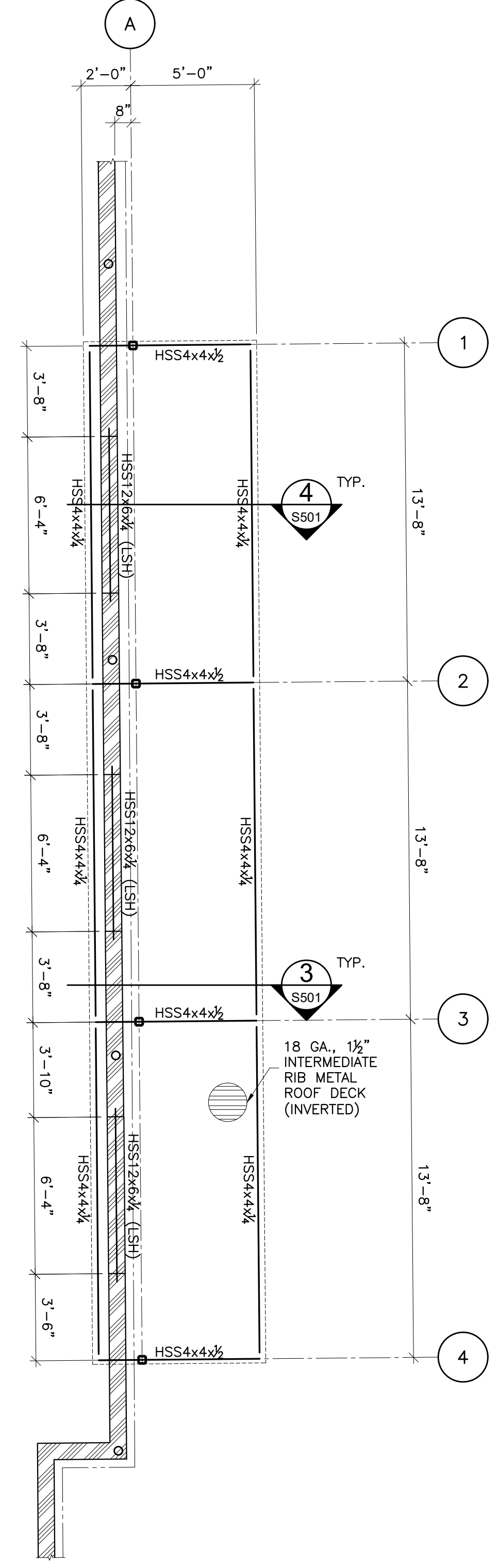
1 ENLARGED PLAN
S202 SCALE: 1 1/2"=1'-0"

ROOF FRAMING PLAN NOTES:

- ALL ELEVATIONS ARE REFERENCE FINISHED FLOOR DATUM OF 100'-0". REFER FOUNDATION PLAN NOTES FOR ACTUAL ELEVATION.
- REFER TO FOUNDATION PLAN FOR COLUMN SIZES.



2 ENLARGED FOUNDATION PLAN
S202 SCALE: 1/4"=1'-0"



3 ENLARGED FRAMING PLAN
S202 SCALE: 3/4"=1'-0"



CG	drawn by
MA	checked by
JANUARY 2024	date
	revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA

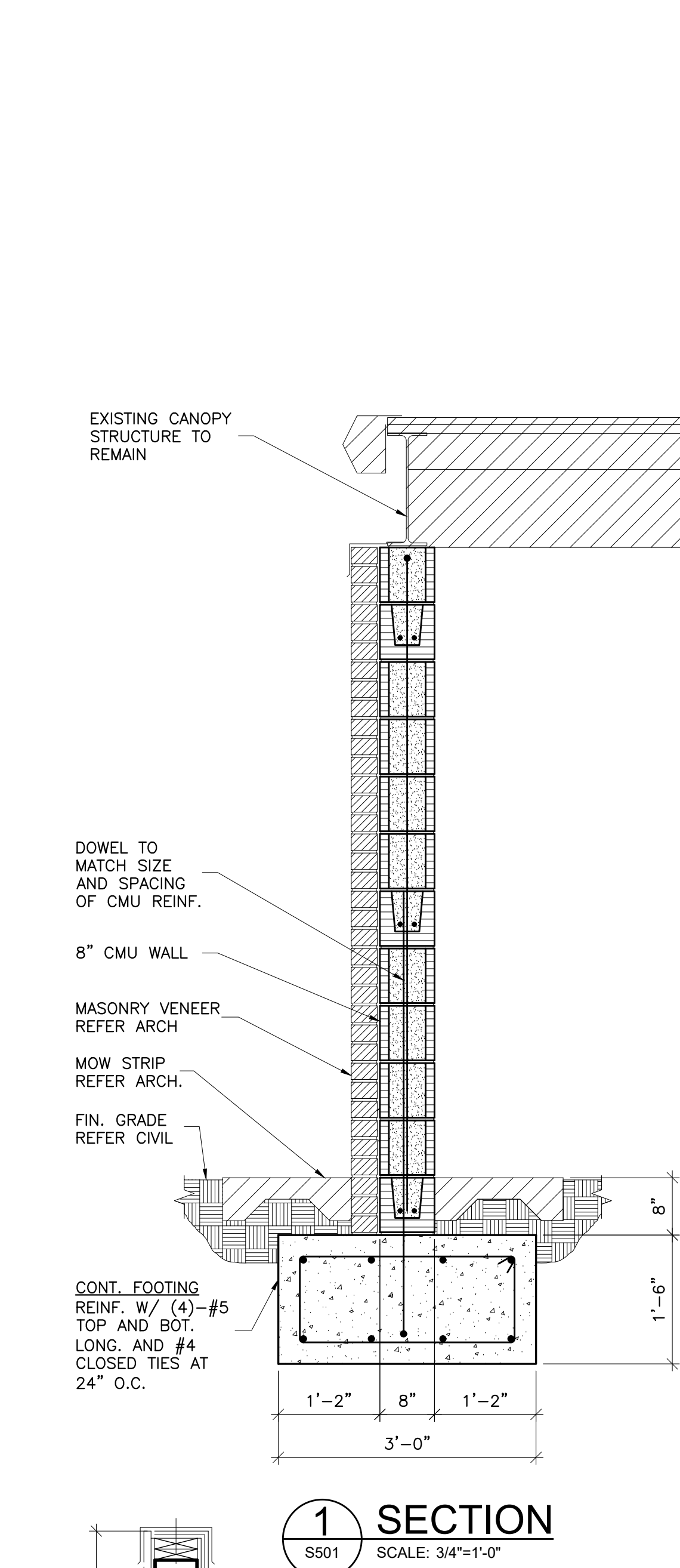
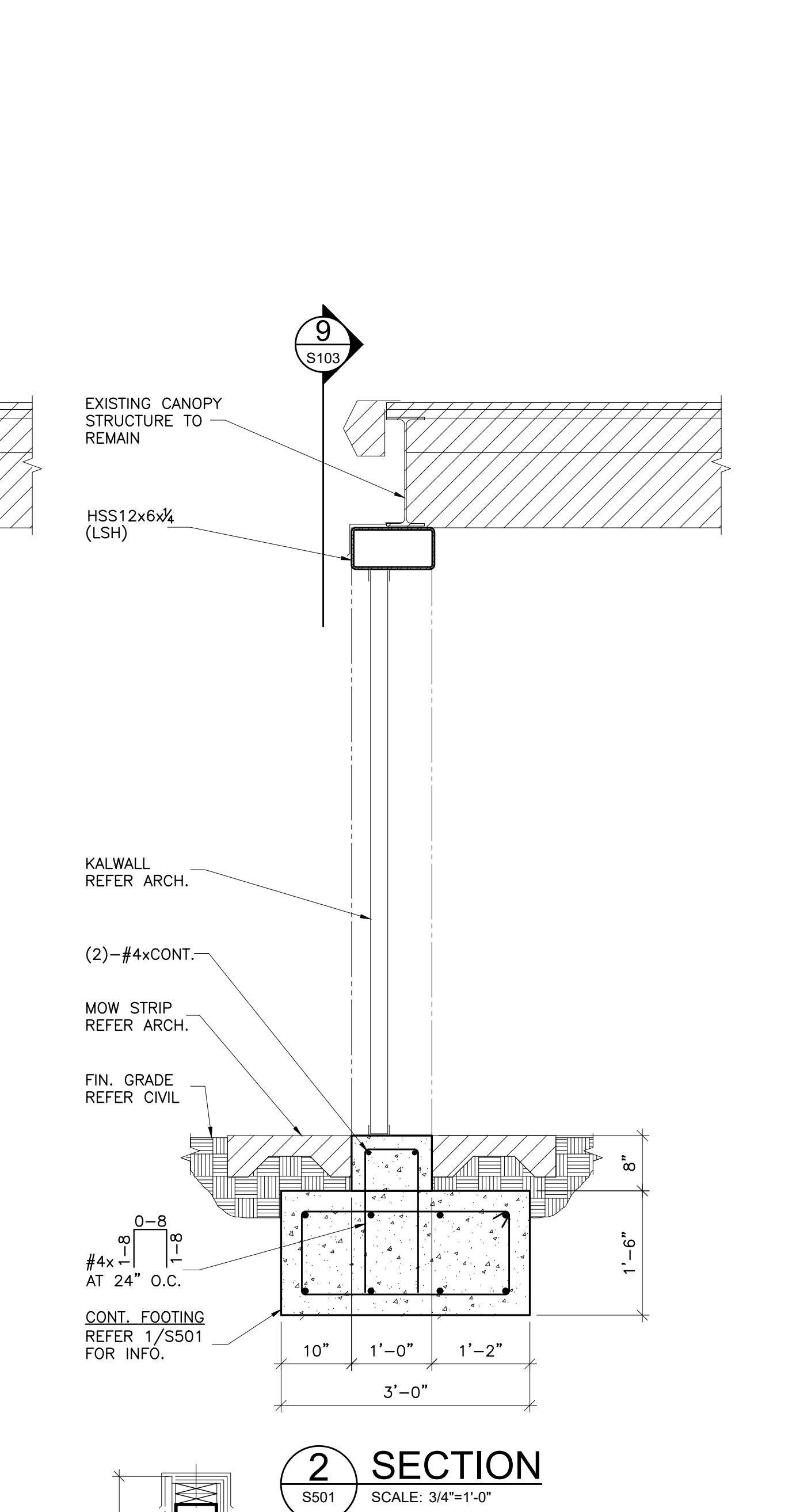
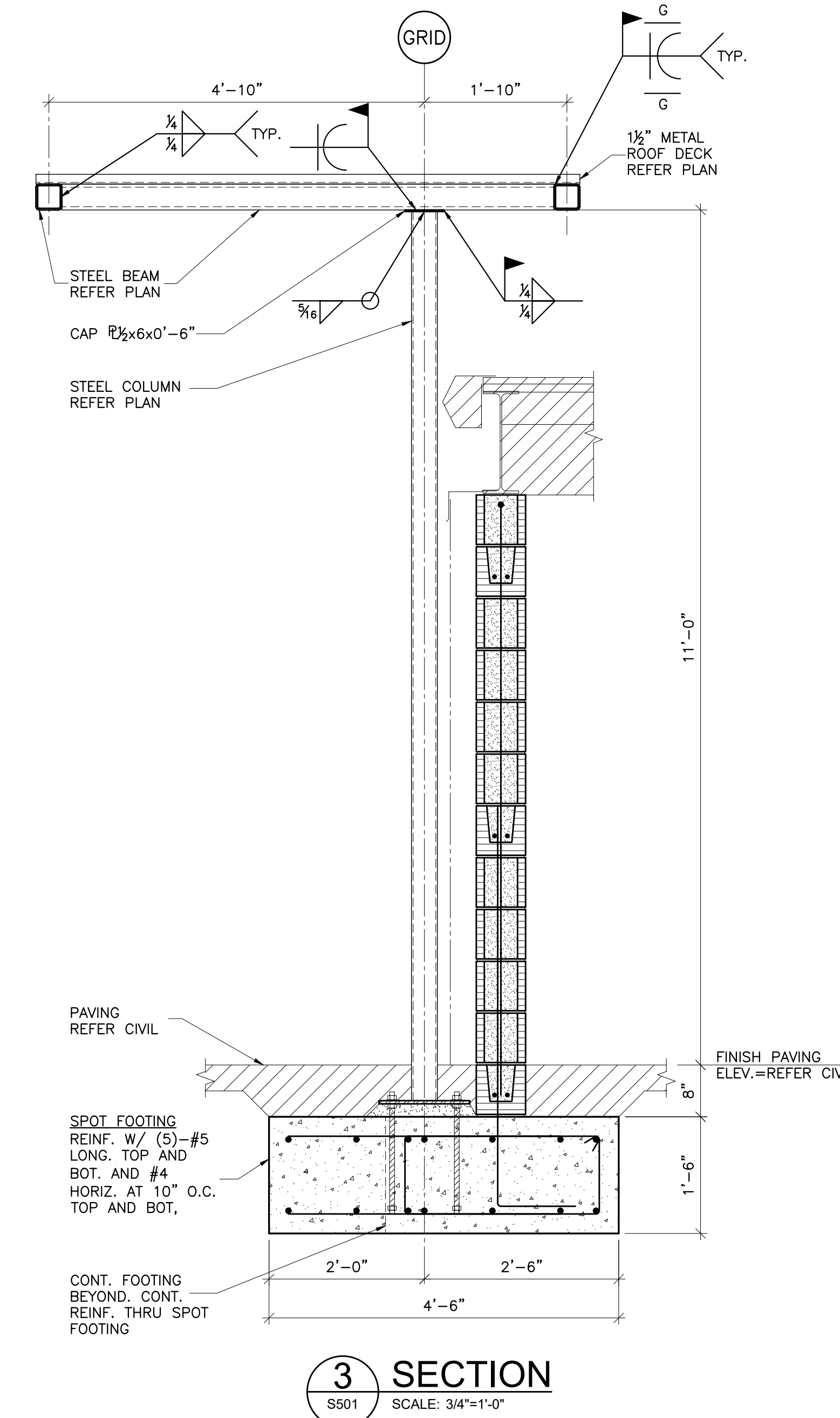
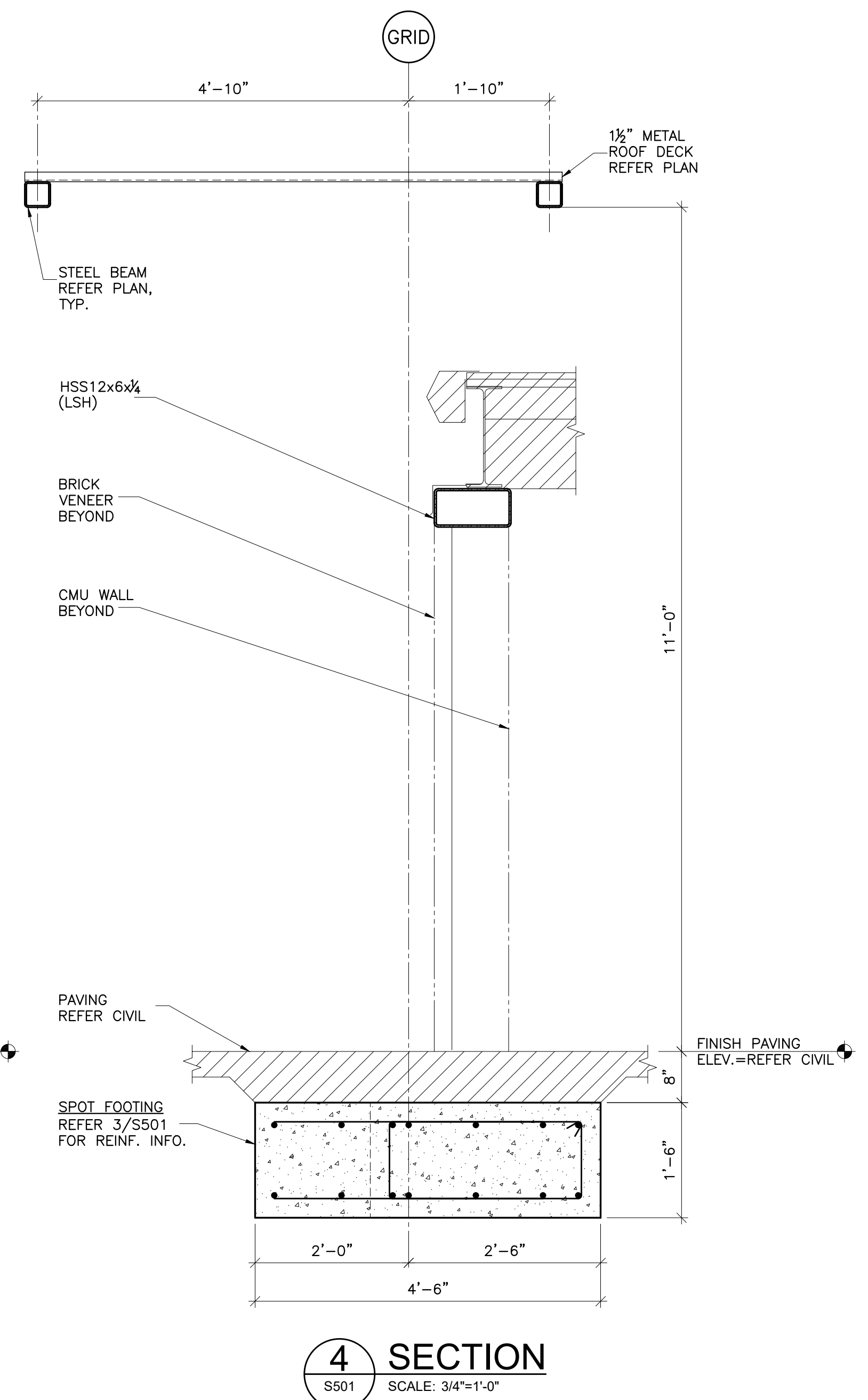


SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

S501

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED. PLANS
AND DRAWINGS ARE NOT TO BE
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.



1 SECTION
S501 SCALE: 3/4"=1'-0"

2 SECTION
S501 SCALE: 3/4"=1'-0"

3 SECTION
S501 SCALE: 3/4"=1'-0"

4 SECTION
S501 SCALE: 3/4"=1'-0"

5 SECTION
S501 SCALE: 3/4"=1'-0"

6 SECTION
S501 SCALE: 3/4"=1'-0"

7 SECTION
S501 SCALE: 3"=1'-0"

8 SECTION
S501 SCALE: 3"=1'-0"

TECHNOLOGY LEGEND	
'D#'	DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A NETWORK CONNECTION. THE '#' SHALL BE REPLACED WITH NUMERIC TEXT THAT IDENTIFIES THE TOTAL NUMBER OF CATEGORY 6 NETWORK CABLES THAT ARE TO BE INSTALLED AT THE TECHNOLOGY OUTLET LOCATION. CONTRACTOR TO PROVIDE AND INSTALL CATEGORY 6 NETWORK CABLES, CATEGORY 6 CONNECTORS, STAINLESS STEEL FACEPLATES WITH IDENTIFICATION WINDOWS, LABELS, BLANK INSERTS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED OUTLET LOCATION. ALL FACEPLATES PROVIDED SHALL CONTAIN A MINIMUM 4-PORTS AND SHALL BE APPROPRIATELY SIZED TO ACCOMMODATE THE NUMBER OF CIRCUITS BEING INSTALLED AT THIS TECHNOLOGY OUTLET LOCATION. MAXIMUM OF SIX(6) DATA CABLES PER OUTLET.
'W'	DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A WALL MOUNTED TELEPHONE CONNECTION. CONTRACTOR TO PROVIDE AND INSTALL (1) CATEGORY 6 NETWORK CABLE, (1) CATEGORY 6 CONNECTOR, STAINLESS STEEL WALL TELEPHONE FACEPLATE, LABELS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED CIRCUIT AT EACH LOCATION SHOWN. CONTRACTOR SHALL MOUNT THIS OUTLET AT ADA HEIGHT (MATCH LIGHT SWITCH HEIGHT) AND COORDINATE ALL FINAL LOCATIONS WITH OTHER TRADES ON THE PROJECT TO VERIFY THAT THE LOCATION OF THE OUTLET MAINTAINS 8" OF CLEARANCE ON ALL FOUR SIDES OF THE BACK BOX. OUTLETS SHALL REMAIN CLEAR OF ROOM DOORS, CABINET DOORS, APPLIANCE DOORS, AND SLIDING DRAWERS.
'AP'	DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A WIRELESS ACCESS POINT CONNECTION. CONTRACTOR TO PROVIDE AND INSTALL (2)CATEGORY 6 NETWORK CABLE, (2) CATEGORY 6 CONNECTOR, (2) CAT 6 BISCUIT JACK FACEPLATE WITH IDENTIFICATION WINDOWS, LABELS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED CIRCUIT AT EACH LOCATION SHOWN. REFERENCE SPECIFICATIONS FOR PATCH CABLE REQUIREMENTS.
'FF'	INDICATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR FURNITURE FEED. ALLOWING CABLING TO ROUTE INTO A MODULAR FURNITURE SYSTEM. CONDUIT SHALL BE SIZE TO ACCOMMODATE THE NUMBER CABLE ROUTING INTO TO THE FURNITURE SYSTEM.
'V#'	VOICE OUTLET WITH CABLE AND TERMINATION AS INDICATED.
NOTES: REFERENCE TECHNOLOGY GENERAL NOTES, PLAN KEYED NOTES, AND ALL OTHER SYSTEM LEGENDS/NOTES. THE STRUCTURED CABLING SYSTEM CONTRACTOR SHALL PROVIDE AND INSTALL CATEGORY 6/6A CABLE TO ALL SYSTEMS' EQUIPMENT REQUIRING NETWORK CONNECTIVITY.	

RACEWAY LEGEND	
	INDICATES THE LOCATION OF A FLOOR MOUNTED BOX AND RACEWAY FOR LOW VOLTAGE. CONTRACTOR TO PROVIDE AND INSTALL A FLOOR BOX. EACH FLOOR BOX SHALL HAVE ONE (1) SINGLE GANG PORT WITH ONE (1) 1" CONDUIT (PER EVERY SIX(6) CATEGORY 6 OR FOUR(4) CATEGORY 6A CABLES) AND ONE (1) DOUBLE GANG PORT WITH ONE (1) 1 1/2" CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUITS SHALL ROUTE FROM THE FLOOR BOX DIRECTLY TO THE WALL INDICATED AND STUB-UP INTO THE NEAREST ACCESSIBLE PLENUM CEILING.
	INDICATES THE LOCATION OF A CEILING MOUNTED OUTLET. CONTRACTOR SHALL MOUNT THIS OUTLET AT +12" ABOVE THE CEILING AND COORDINATE ALL FINAL LOCATIONS WITH OTHER TRADES ON THE PROJECT TO VERIFY THAT THE LOCATION OF THE OUTLET MAINTAINS 12" OF CLEARANCE FROM THE FRONT OF THE FACEPLATE FOR OWNER ACCESS.
	INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) DOUBLE GANG BACK BOX WITH A SINGLE GANG REDUCER ONE (1) 1" CONDUIT STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.
	INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) DOUBLE GANG BACK BOX WITH ONE (1) 1 1/2" CONDUITS STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.
	INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) SINGLE GANG BACK BOX WITH ONE (1) 3/4" CONDUITS STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.
NOTES: A. SYSTEM INSTALLER TO PROVIDE AND INSTALL A PLASTIC PROTECTIVE BUSHING ON ALL CONDUIT STUB-UP AND SLEEVES, PRIOR TO ROUTING CABLING IN CONDUIT, CUTTING BUSHING TO FIT ROUND INSTALLED CABLE WILL NOT BE ACCEPTED B. NO CONDUITS SHALL EXCEED FOR 40% MAXIMUM FILL RATIO. CONTRACTOR TO PROVIDE ADDITIONAL CONDUITS REQUIRED. C. ANY CONDUIT INSTALL FOR AUDIO /VIDEO SYSTEMS SHALL INCLUDE AT LEAST ONE (1) 1 1/4" CONDUIT.	

CONDUIT / CABLE FILL CHART						
CONDUIT SIZE (ID)	4-PR UTP CATEGORY 3	4-PR UTP CATEGORY 5/6E	4-PR UTP CATEGORY 6	4-PR UTP CATEGORY 6A	4-PR UTP CATEGORY 3/5	12-ST ARMORED FIBER OPTIC CABLE
1"	12	9	6	4	-	-
1-1/4"	21	15	12	8	-	-
1-1/2"	28	21	16	11	1	-
2"	47	35	27	19	3	1
3"	124	93	72	50	8	3
4"	208	155	120	83	12	6
A. CONDUIT SIZE FOR 25-PAIR COPPER AND FIBER OPTIC CABLES APPLY TO SLEEVE SIZES ONLY. CONDUIT SIZES SHALL BE SIZED BASED ON MAXIMUM FILL RATION AND ALLOWING INSTALLATION TO NOT EXCEED THE MAXIMUM ALLOWABLE PULL TENSION. B. CONDUIT FILL RATIO MAY VARY BY MANUFACTURER. THIS CHART SHALL STIPULATE A MINIMUM REQUIREMENT. CONTRACTOR SHALL REFERENCE MANUFACTURER SPECIFICATION AND DECREASE CABLE COUNT PER CONDUIT SIZE IF REQUIRED. C. SIZES SHOWN DEPICT THE INTERIOR DIAMETER OF THE CONDUIT.						

ACCESS CONTROL LEGEND	
SYMBOL	DESCRIPTION
	WALL OR MULLION MOUNTED ACCESS CONTROL PROXIMITY CARD READER.
	DOOR MOUNTED ACCESS CONTROL PROXIMITY CARD READER THAT IS INTEGRATED INTO THE DOOR HARDWARE.
	DOOR RELEASE BUTTON
	DESIGNATES THE LOCATION OF THE ACCESS CONTROL SYSTEM, CONTROL PANEL. ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER TO PANEL. PROVIDE NETWORK CABLE TO PANEL AND COORDINATE WITH THE OWNER'S TECHNOLOGY DEPARTMENT ON ACQUIRING AN IP ADDRESS.
	WALL OR MULLION MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION.
	DOOR MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION.
	2-WAY AUDIO/VIDEO INTERCOM MASTER STATION.
	ADA AUTO DOOR OPEN BUTTON. SHOWN FOR REFERENCE ONLY. BUTTON AND AUTO DOOR OPERATOR PROVIDED AND INSTALLED BY THE DOOR SYSTEM INSTALLER.
	DPDT MAGNETIC DOOR CONTACT/DOOR POSITION SENSOR. FLUSH MOUNTED IN DOOR FRAME, UNLESS NOTED OTHERWISE.
	LOCKDOWN BUTTON
NOTES: 1. REFERENCE ACCESS CONTROL, SCHEDULE, DETAILS, AND DIVISION 28 SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS	

SECURITY GENERAL NOTES	
1.	THE SECURITY SYSTEM INSTALLERS SHALL BE RESPONSIBLE FOR CONNECTING ALL APPLICABLE SYSTEM EQUIPMENT TO THE OWNER'S NETWORK.
2.	THE SYSTEM INSTALLER SHALL PROPERLY SUPPORT ALL INSTALLED SYSTEM CABLING FROM AN APPROVED CABLE SUPPORT SYSTEM AS DETAILED IN SPECIFICATIONS. NO CABLING SHALL BE ROUTED AND TIED DIRECTLY TO BUILDING STEEL, CEILING GRID SUPPORT, CONDUIT, PIPING, OR DUCTWORK. THE CABLE SUPPORT SYSTEM SHALL BE DIRECTLY CONNECTED TO THE BUILDING'S STEEL JOIST. AT LOCATIONS WHERE THE BOTTOM OF THE JOIST IS MORE THAN 5' ABOVE THE CEILING, THE SYSTEM INSTALLER SHALL PROVIDE AND INSTALL THREADED ROD AND ALL REQUIRED MATERIALS TO CONNECT THE THREADED ROD TO THE BUILDING STEEL AND THE CABLE SUPPORT SYSTEM TO THE THREADED ROD. CABLE PATHWAY SHALL NOT BE HIGHER THAN 5' ABOVE THE CEILING AT ANY LOCATIONS.
3.	SECURITY CAMERA SYSTEM INSTALLER SHALL PROVIDE A CEILING MOUNTED INSTALLATION KIT RECOMMENDED BY THE MANUFACTURER OF THE CAMERA. EACH CEILING MOUNTED CAMERA KIT SHALL HAVE A SUPPORT WIRE ATTACHED TO THE BUILDING'S STRUCTURE TO PREVENT THE CAMERA FROM DROPPING TO THE FLOOR AT ANY TIME. AT NO POINT SHALL THE WEIGHT OF THE CEILING MOUNTED SECURITY CAMERA BE SUPPORTED BY THE CEILING GRID SYSTEM OR CEILING TILES. ALL CEILING MOUNTED CAMERAS SHALL BE FLUSH MOUNTED.
4.	ALL EXTERIOR AND WALL MOUNTED CAMERA LOCATIONS AND MOUNTING HEIGHTS MUST BE COORDINATED WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATION MEETINGS SHALL BE SCHEDULED THROUGH THE ARCHITECT'S PROJECT MANAGER.
5.	PROVIDE AND INSTALL MAGNETIC DOOR CONTACT AT ALL ROOF HATCHES ON THE ENTIRE PROJECT. CONTACTS TO BE CONNECTED TO THE BUILDINGS INTRUSION DETECTION SYSTEM.
COORDINATE MONITORING REQUIREMENTS WITH THE INSTALLER FOR EACH SYSTEM AND THE OWNER PROGRAM SYSTEM TO ALERT THE OWNER DESIGNATED PERSONNEL UPON A MONITORED ALARM EVENT	

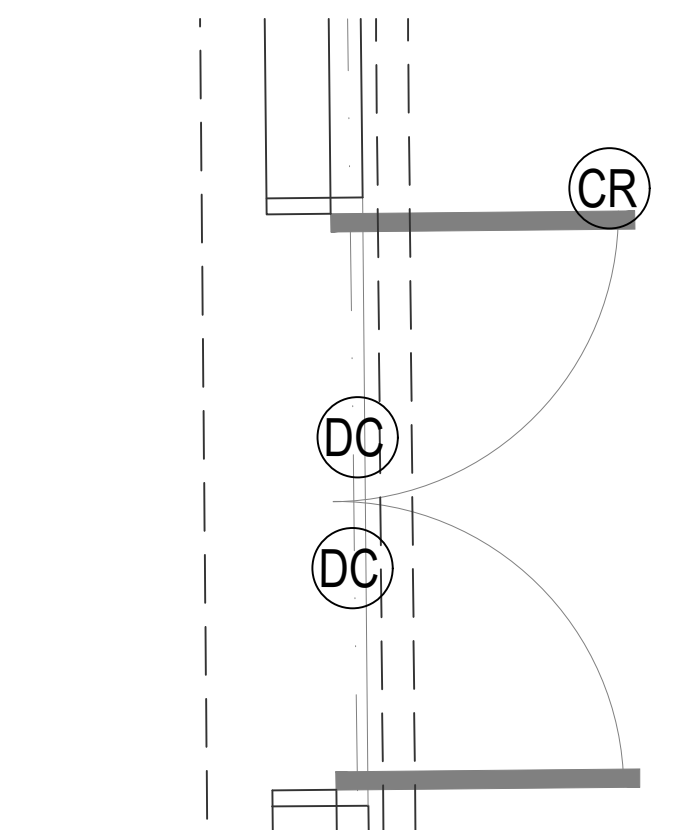
GENERAL NOTES	
1.	ALL 120V POWER REQUIRED FOR THE FUNCTIONALITY OF EACH SYSTEM SHALL BE A DEDICATED CIRCUIT AND ON EMERGENCY POWER WHEN AVAILABLE. PROJECTS ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER TO MAIN CONTROL PANELS, REMOTE POWER SUPPLIES AND ALL HEAD END EQUIPMENT. SYSTEM INSTALLERS SHALL COORDINATE LOCATIONS AND CONNECTIONS WITH THE PROJECTS ELECTRICAL CONTRACTOR.
2.	THE PROJECTS ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUITS, FLOOR BOX, BACK BOXES, JUNCTION BOXES, RACEWAYS, AND SLEEVES REQUIRED TO ESTABLISH CLEAR PATHWAYS FOR ALL SYSTEMS. ALL CONDUITS, SLEEVES, BOXES, AND RACEWAYS SHALL BE PROPERLY SIZED TO MAINTAIN A 40% MAXIMUM FILL RATIO. THE INSTALLER FOR EACH SYSTEM SHALL PROVIDE THE ELECTRICAL CONTRACTOR WITH SHOP DRAWINGS INDICATING LOCATIONS AND SIZES OF CONDUITS BEYOND THOSE SHOWN ON THE CONTRACT DOCUMENTS.
3.	ALL EXPOSED SYSTEMS WIRING OR WIRING ROUTING ACROSS NON-ACCESSIBLE CEILINGS SHALL BE ROUTED IN CONDUIT, PROVIDED AND INSTALLED BY THE PROJECTS ELECTRICAL CONTRACTOR. SIZE CONDUIT AS REQUIRED TO ROUTE SYSTEMS WITH 40% CABLE FILL RATIO. MINIMUM CONDUIT SIZE SHALL BE 3/4".
4.	EACH SYSTEM INSTALLER SHALL BE RESPONSIBLE FOR ENSURING ALL EXTERIOR WALL PENETRATIONS ARE PROPERLY SEALED TO PREVENT ANY MOISTURE FROM ENTERING BUILDING.
5.	NO CONDUITS SHALL BE INSTALLED ON THE EXTERIOR OF THE BUILDING. IF EXTERIOR CONDUITS ARE REQUIRED FOR A COMPLETE INSTALLATION, EACH SYSTEM CONTRACTOR SHALL COORDINATE WITH THE PROJECTS CONSULTANT PRIOR TO ANY ROUGH-IN.
6.	EACH SYSTEM INSTALLER SHALL PROVIDE AND INSTALL PROTECTIVE BUSHINGS ON ALL CONDUIT STUB OUTS AND SLEEVES TO PREVENT CABLE DAMAGE. BUSHING TO BE INSTALLED PRIOR TO CABLE INSTALLATION. CUTTING BUSHING AND INSTALLING AFTER CABLE IS INSTALLED WILL NOT BE ACCEPTED.
7.	ALL CABLE SHALL BE ROUTED DOWN CORRIDORS, PARALLEL AND PERPENDICULAR TO THE BUILDING WALLS AND STRUCTURE. CABLE TO EACH DEVICE SHALL BRANCH OFF OF A MAIN CORRIDOR TRUNK, ROUTING CABLES THROUGH CLASSROOMS, OFFICES, STORAGE ROOMS, RESTROOMS OR ANY TYPE OF ROOM OTHER THAN A CORRIDOR WILL NOT BE ACCEPTED. ENTER ALL ROOMS ABOVE THE ASSOCIATED ROOM DOORWAY.

TECHNOLOGY GENERAL NOTES	
1.	CONTRACTOR SHALL COORDINATE WITH THE SYSTEM ENGINEER PRIOR TO THE INSTALLATION OF RACKS AND RACK EQUIPMENT. NO RACKS SHALL BE PERMANENTLY INSTALLED WITHOUT WRITTEN APPROVAL OF THE PROPOSED LOCATIONS.
2.	THE SELECTED, INSTALLING CONTRACTOR MUST BE A CERTIFIED INTEGRATOR/INSTALLER AUTHORIZED BY THE SPECIFIED SYSTEM MANUFACTURER TO INSTALL THE CABLE PLANT AND CONNECTIVITY PRODUCTS. REFER TO SPECIFICATIONS FOR PRODUCT TYPE AND DESCRIPTION.
3.	SYSTEM WIRING AND EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AS ESTABLISHED BY ANSIE/EIA/TIA, BICSI, AND THE NEC.
4.	ALL WIRING SHALL MEET ALL STATE AND LOCAL ELECTRICAL CODES.
5.	ALL TELECOMMUNICATIONS SYSTEMS EQUIPMENT AND MOUNTING LOCATIONS SHALL BE IN COMPLIANCE WITH ADA ACCESSIBILITY STANDARDS.
6.	ALL INDUSTRY STANDARD CATEGORY 6 CABLING PRACTICES MUST BE FOLLOWED FOR ALL DATA CABLING.
7.	ALL CABLES/WIRING ARE TO BE INSTALLED WITH A MINIMUM OF 12 INCHES OF SEPARATION FROM AC POWER CABLES, INTERCOM, FIRE ALARM, SECURITY CABLES IN ANY PARALLEL OPEN WIRE RUN.
8.	ALWAYS CROSS OTHER SYSTEM CABLES AT A 90 DEGREE ANGLE.
9.	ALL CABLES AND TERMINATION COMPONENTS SHALL BE MACHINE LABELED AT BOTH ENDS. LABEL ALL CABLES PER TS DRAWINGS AND/OR SPECIFICATIONS. FINAL CABLE/OUTLET IDENTIFICATION LABELS SHALL BE COORDINATED WITH THE OWNER AND ENGINEER.
10.	CONTRACTOR TO PROVIDE LIGHTNING PROTECTION ON ALL COMMUNICATION CABLE BETWEEN BUILDINGS.
11.	ALL EXPOSED CABLING ROUTED IN PLENUM SHALL BE PLENUM-RATED. ALL NON PLENUM-RATED CABLING INSTALLED IN PLENUM SPACES SHALL BE INSTALLED IN CONDUIT.
12.	NO TERMINATION OR SPLICES SHALL BE INSTALLED IN OR ABOVE CEILINGS UNLESS NOTED OTHERWISE.
13.	CONTRACTOR SHALL MAINTAIN WALL RATING WITH PROPER FIRE BLOCKING METHODS.
14.	ALL CABLE INSTALLED SHALL ROUTE TO THE CENTER OF THE ROOM IN WHICH IT SERVES AND THEN TO THE OUTLET LOCATION IT IS INTENDED FOR. EACH CABLE SHALL HAVE A 10' SERVICE LOOP AT THE CENTER OF EACH ROOM AND A 3' SERVICE LOOP ABOVE EACH OUTLET LOCATION.
16.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO EACH VIDEO SURVEILLANCE CAMERA ON THE ENTIRE PROJECT. REFERENCE VIDEO SURVEILLANCE LEGEND, NOTES, FLOOR PLANS, DETAILS, AND SCHEDULE.
17.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO THE BUILDING'S ACCESS CONTROL HEAD END PANEL. TERMINATION OF THIS CABLE SHALL BE COORDINATED WITH THE SYSTEM INSTALLER.
18.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO THE BUILDING'S INTRUSION DETECTION PANEL. TERMINATION OF THIS CABLE SHALL BE COORDINATED WITH THE SYSTEM INSTALLER.
19.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO EACH LIGHTING CONTROL HUB ON THE ENTIRE PROJECT. COORDINATE EXACT QUANTITY AND LOCATIONS WITH THE LIGHTING CONTROL SYSTEM INSTALLER. CONTRACTOR TO ASSUME A MINIMUM OF TEN (10) PER PROJECT.
20.	PROVIDE AND INSTALL TWO (2) CATEGORY 6 DATA CIRCUITS TO EACH FSD (ALL VARIATIONS OF), CMP, WMP, AND DS ON THE ENTIRE PROJECT. COORDINATE ANY DISCREPANCIES WITH ENGINEER.
21.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 DATA CIRCUIT TO THE LOCAL AIR UNIT CONTROLLER IN EACH MDF AND IDF.
22.	PROVIDE AND INSTALL ONE (1) CATEGORY 6 DATA CIRCUIT TO EACH ACCESS CONTROL VIDEO DOOR STATION AND MASTER STATION ON THE ENTIRE PROJECT. COORDINATE EXACT LOCATION AND TERMINATION REQUIREMENTS WITH THE DOOR STATION INSTALLER, PRIOR TO INSTALLATION.

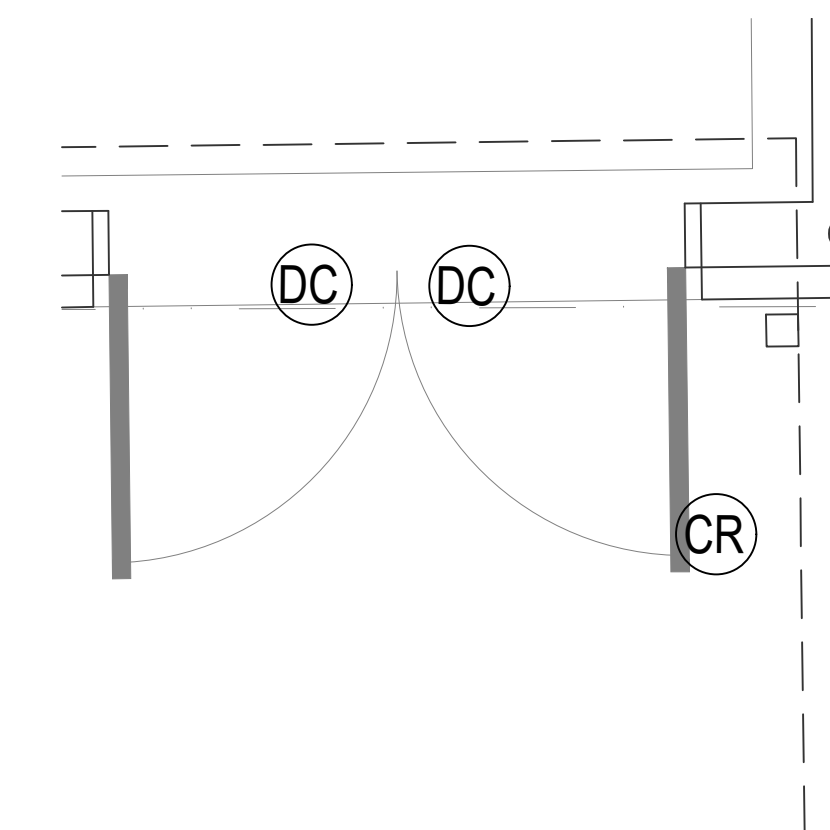
SUBSCRIPTS AND ABBREVIATIONS	
'WM'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE WALL MOUNTED AT SPECIFIED HEIGHT OR IN COMPLIANCE WITH CODE REQUIREMENTS. ALL WALL MOUNTED HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECTS ARCHITECT PRIOR TO ROUGH-IN.
'WP'	INDICATES THAT THE DESIGNATED DEVICE SHALL BE WEATHER PROOF AND RATED FOR EXTERIOR CONDITIONS INSTALLATION.
'AC'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE INSTALLED ABOVE THE COUNTERTOP. A NUMERIC VALUE SHALL REPLACE THE '#' SYMBOL AND SHALL DESIGNATE THE SPECIFIC HEIGHT ABOVE COUNTER. ALL HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECTS ARCHITECT PRIOR TO ROUGH-IN.
'AFF'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE INSTALLED ABOVE THE FINISHED FLOOR. A NUMERIC VALUE SHALL REPLACE THE '#' SYMBOL AND SHALL DESIGNATE THE SPECIFIC HEIGHT ABOVE FINISHED FLOOR. ALL HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECTS ARCHITECT PRIOR TO ROUGH-IN.
'UC'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE MOUNTED ON THE UNDERSIDE OF THE ELEVATED CANOPY.
'CM'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE CORNER MOUNTED AT SPECIFIED HEIGHT. ALL WALL MOUNTED HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECTS ARCHITECT PRIOR TO ROUGH-IN.
●	FIELD COORDINATE ELEVATION.

NOTES TO CONTRACTOR	
1.	EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS. REFER TO GENERAL ELECTRICAL NOTES FOR WALL-MOUNTED DEVICE MOUNTING HEIGHTS.
2.	REFERENCE SPECIFICATIONS FOR MATERIALS AND METHODS.
3.	COMPLETE INSTALLATION OF ALL PRODUCTS SHALL BE IN COMPLIANCE WITH ALL CODES, INDUSTRY STANDARDS, COMMON PRACTICES AND MANUFACTURER'S INSTRUCTIONS.
4.	ALL EXTERIOR AND WALL MOUNTED CAMERA LOCATIONS AND MOUNTING HEIGHTS MUST BE COORDINATED WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATION MEETINGS SHALL BE SCHEDULED THROUGH THE ARCHITECT'S PROJECT MANAGER.

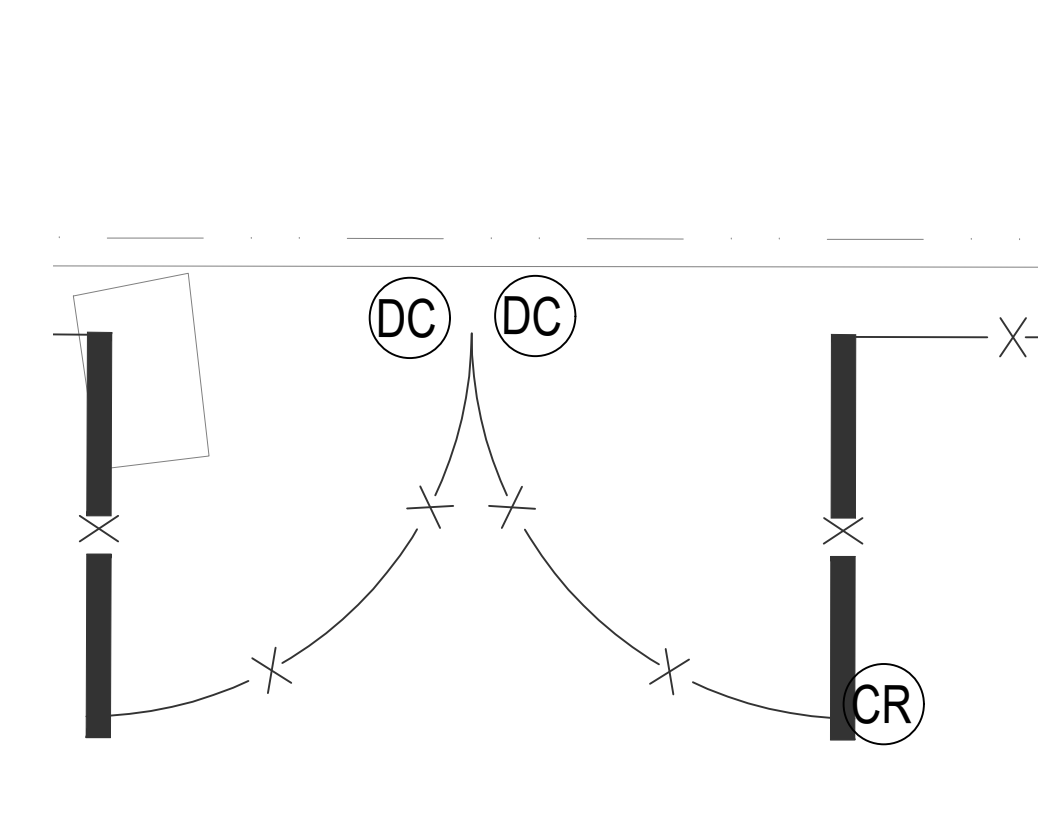
NY	drawn by
NY	checked by
JANUARY 2024	date
	revisions



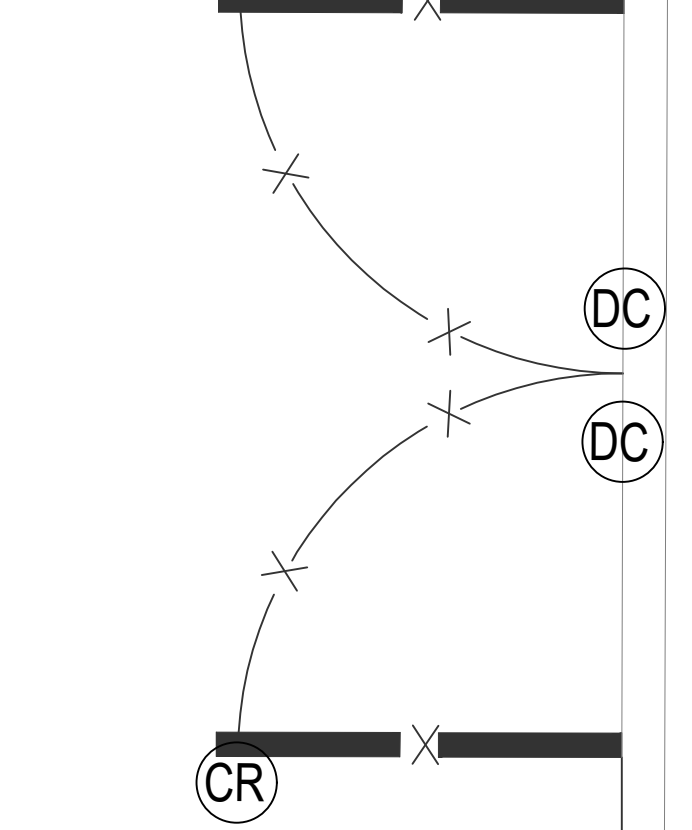
2 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



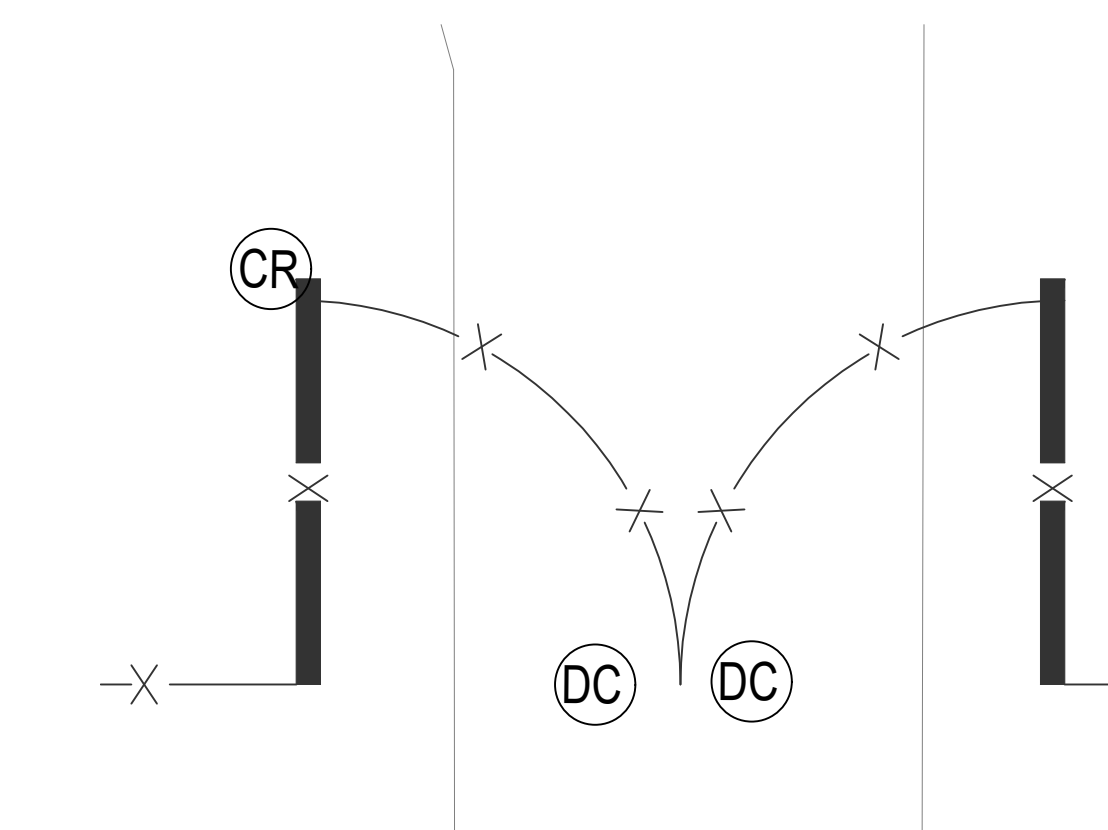
3 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



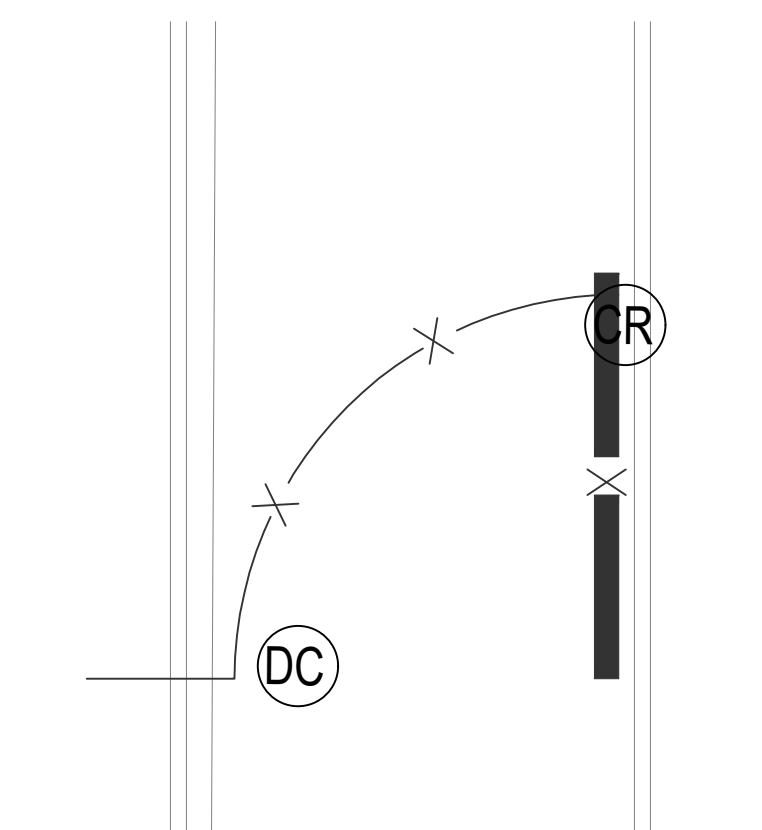
4 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



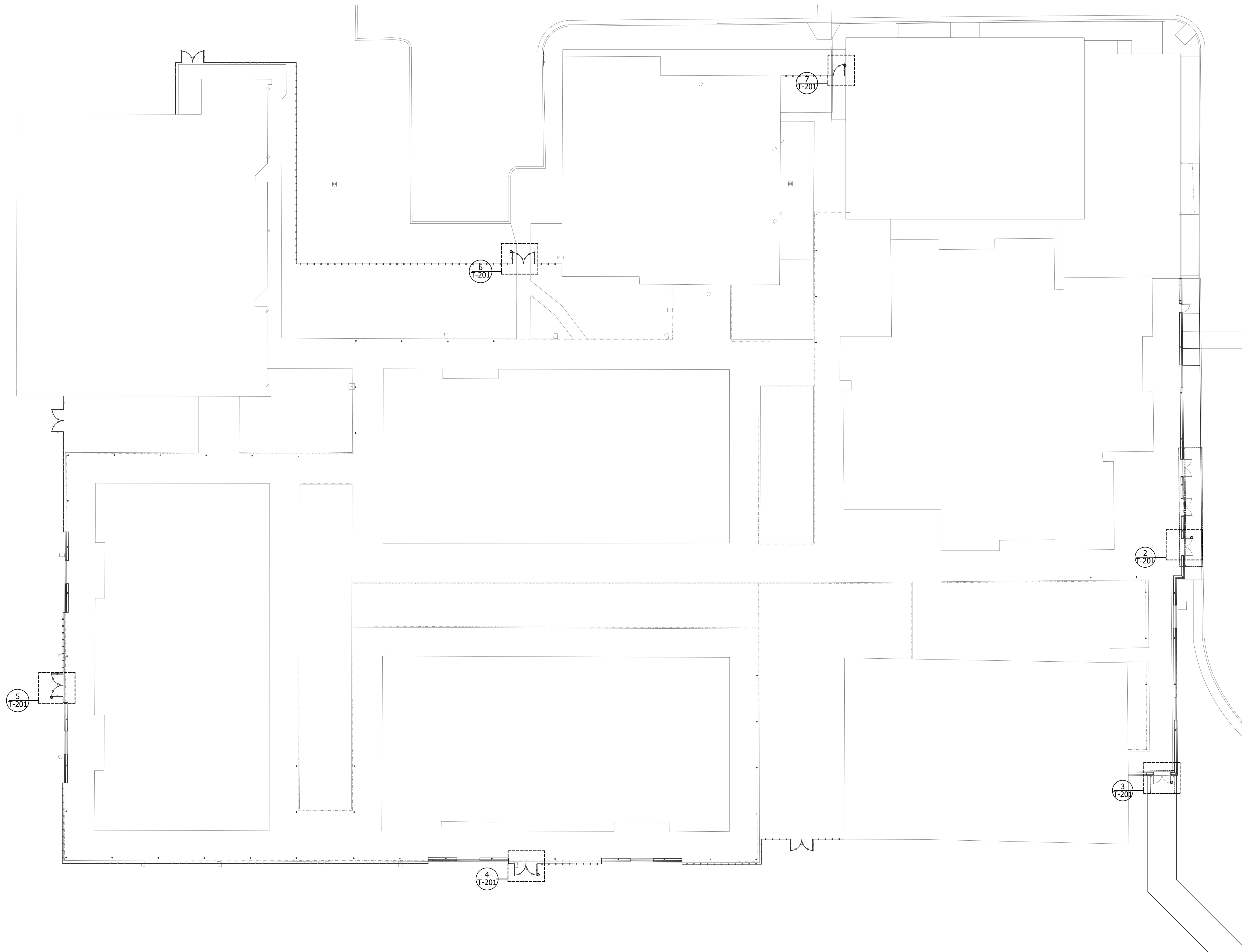
5 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



6 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



7 GATE ENLARGED 1
SCALE: 1'-0" - 1/2"



GENERAL NOTES

A. COORDINATE ALL FINAL MOUNTING HEIGHTS, FOR WALL MOUNTED DEVICES, PRIOR TO ROUGH-IN. COORDINATE WITH ARCHITECT, OWNER AND ENGINEER.

B. REFERENCE TECHNOLOGY PLANS, NOTES & LEGENDS AND ELECTRICAL PLANS FOR ADDITIONAL INFORMATION AND DEVICE/OUTLET LOCATIONS.

C. ALL ACCESS CONTROL AND INTRUSION DEVICES SHALL CONNECT TO THE NEAREST ACCESS CONTROL/INTRUSION DETECTION PANELS. CONTRACTOR TO PROVIDE ALL NECESSARY CONDUITS.

1 TECHNOLOGY PLAN
SCALE: 1'-0" - 20'-0"

NY
drawn by

NY
checked by

JANUARY 2024
date

revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

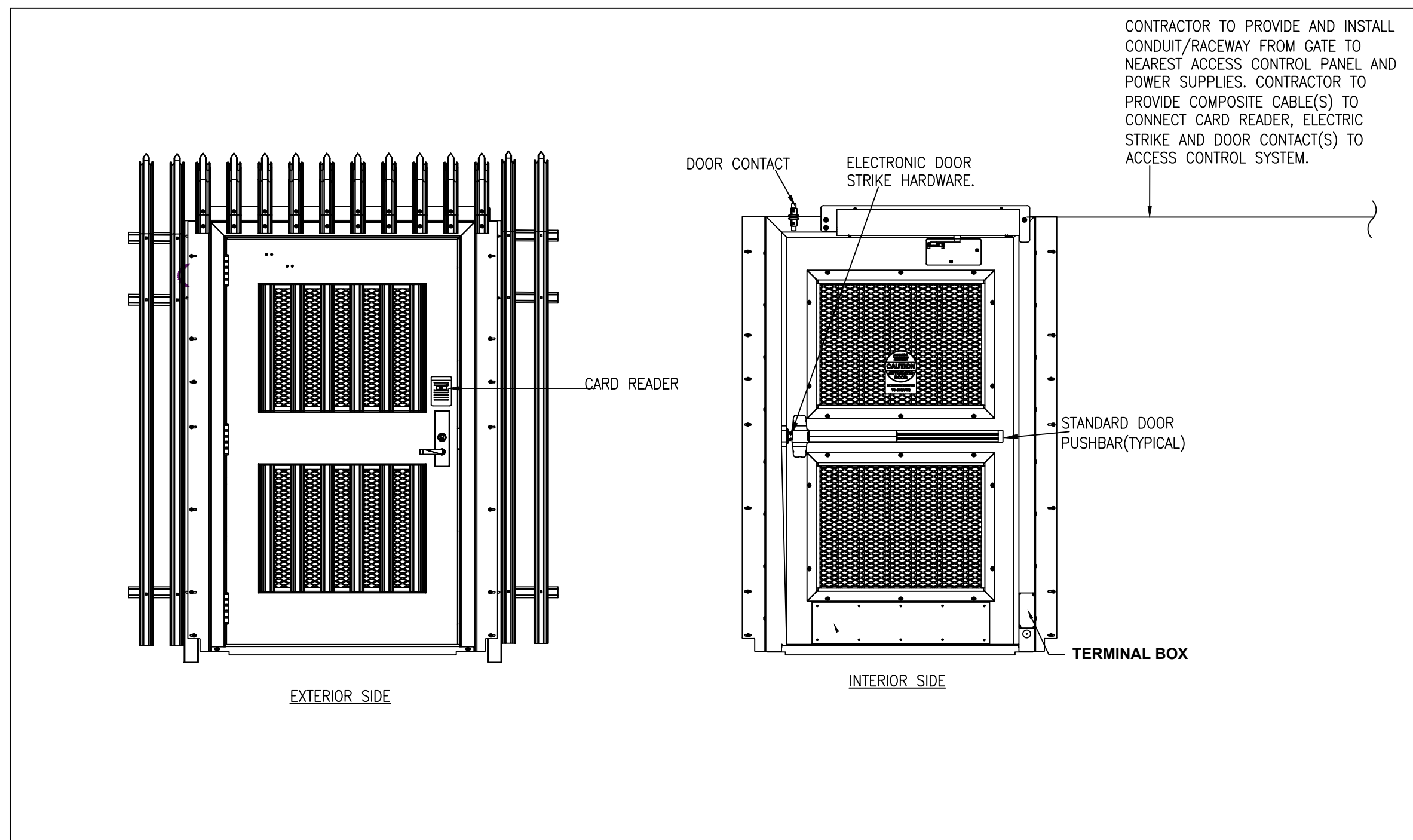
sheet no:

T-201

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.

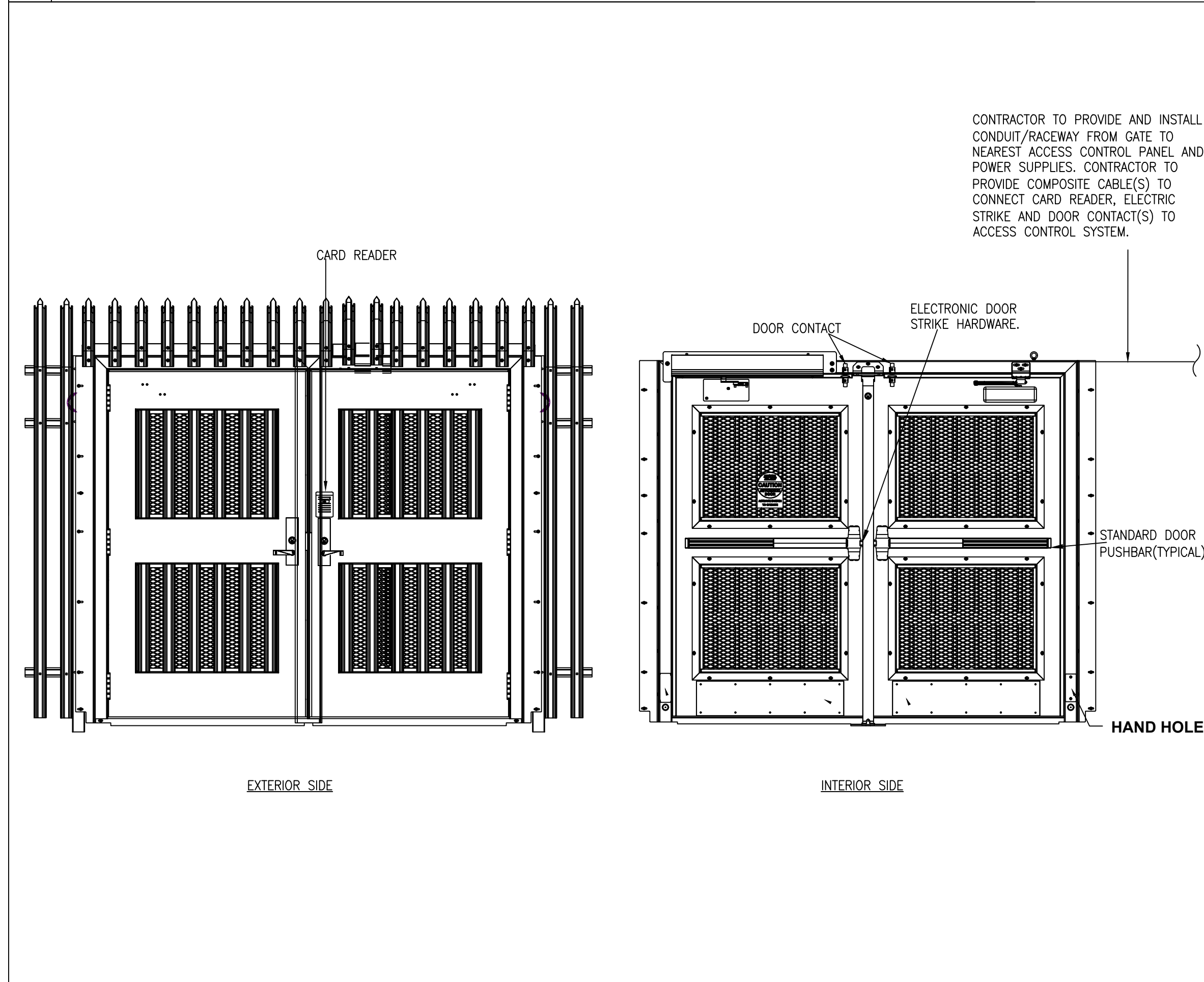
KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL



01 EGRESS GATE - SINGLE DOOR

NOT TO SCALE



02 EGRESS GATE - DOUBLE DOOR

NOT TO SCALE

NY
drawn by

NY
checked by

JANUARY 2024
date

revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

T-401

OWNERSHIP USE OF DOCUMENTS:
AGP EXPRESSLY RESERVES ITS
COPYRIGHT AND OTHER PROPERTY
RIGHTS OF ALL PLANS AND DRAWINGS
DESIGNED AND/OR PRODUCED. PLANS
AND DRAWINGS ARE NOT TO BE
REPRODUCED IN ANY FORM OR MANNER
WITHOUT THE EXPRESSED WRITTEN
CONSENT OF AGP.

SYSTEMS SPECIFICATIONS

Security System Specifications

Part 1 - General

- 2.01 Manufacturers
 - Security System Manufacturer shall be DSC or DMP. See plans for the specific manufacturer required (no substitutions)
 - Installer shall be certified by manufacturer to install and program the specified systems. (no substitutions)
 - Peripheral device Manufacturers shall be according to equipment list. (No Substitutions)
 - Cable Manufacturer shall be Genesis. (Or Equivalent)

Security Systems Equipment

- security alarm control shall be dsc model # pc4020 or dmp model # xr550n-g. (no substitutions)
- security alarm control communicator shall be dsc model # link1250. dmp n/a. (no substitutions)
- security alarm keypad shall be dsc model # lcd4501 or dmp model # 7873. (no substitutions)
- security alarm keypad for all kitchen locations shall be dsc model # lcd4501 or dmp model # 7073. (no substitutions)
- security alarm 8 zone hardware expander shall be dsc model # pc4108 or dmp model # 714-B. (no substitutions)
- security alarm 16 zone hardware expander shall be dsc model # pc4116 or dmp model # 714-16. (no substitutions)
- security alarm power supply shall be dsc model # pc4204 or dmp systems = altronix model # smp3pmctx. (no substitutions)
- security alarm power supply cabinet shall be dsc model # pc4051c. dmp n/a. (no substitutions)
- security alarm cabinet locks shall be dsc model # 11 or dmp model # 301. (no substitutions)
- security alarm 35'35" motion detector shall be honeywell model # dt-8035. (no substitutions)
- security alarm 50'60" motion detector shall be honeywell model # dt-8030. (no substitutions)
- security alarm window glass break sensor shall be honeywell model # lg-7300. (no substitutions)
- security alarm door contact shall be ge model # 10765-m. double pole double throw for all doors (no substitutions)
- each single door or double door shall be wired with 4 conductor wire.
- dmp systems shall be wired with 2 zones per single door or double door. one zone for security alarm and one zone for "door held open alert"
- security alarm c channel door magnets shall be gri model # mc180
- security alarm surface window contact shall be aleph model # ps-1541. (or equivalent approved by mps)
- security alarm overhead door & roof hatch contact shall be amesco model # odo-59a or rail mount applications interflogix ge2315al. (no substitutions)
- security alarm indoor siren shall be ademco model # wave2ex. (no substitutions)
- security alarm outdoor siren shall be atw model # ds301sat. (no substitutions)
- security alarm outdoor strobe shall be amesco model # s401c. (no substitutions)
- Contractor to provide and install a total of 5 wireless holdup buttons. 3 to be installed in administration area offices and 2 on the reception counters.

1.01 Systems Installation

- installer shall be certified by manufacturer to install & program the specified systems.
- installer shall perform all programming required to complete the installation. moore public schools shall not be required to assist in any part of the installation or programming.
- All alarm junctions and or splices shall be soldered and insulated.
- All circuits and wiring shall be labeled at all terminating ends.
- All devices shall be mounted according to the manufactures specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All zone expansion module shall be DMP 714-16 and Relay Output Module shall be DMP 860.
- All cabinets shall be labeled outside with their corresponding module and zone numbers and installed with lock.
- All cabinets shall be labeled inside with module number by the corresponding module and zone list definitions.
- if a new dsc main control panel is required, it shall have a T-LINKL250 installed
- all new dsc or dmp main control panels shall have a cat 6 cable ran back to the nearest idf for network connectivity.
- Each expansion cabinets shall have two non-shielded 16 gauge 4 conductor cables ran from the main control to the expansion cabinet.
- all keypads shall be wired individually back to new power supply.
- all sirens shall be wired individually and connected to new power supply.
- All devices such as motion detectors, glass break detectors, door contacts, Keypads etc. shall be labeled with their corresponding module and zone number. Label shall be visible from the floor.
- All motion detectors shall be sealed to prevent air and insects from entering.
- All steel doors shall have wide gap contacts installed.
- All door contacts shall be recessed and door magnets shall be glued in place.
- All devices such as door contact (double doors wire as one), motion detectors, glass break detectors, etc. shall be wired individually on separate zones with end of line resistors at the devices.
- All devices such as motion detectors, glass break detectors, door contacts, keypads, sirens, etc. shall be labeled with their corresponding module and or zone number. label shall be visible from the floor.
- All air conditioning condensers accessible from the outside and roof shall have pressure switches installed on the high pressure side and be connected to the security alarm.
- Protective grommets shall be installed on all conduits to protect wire.
- All devices shall be wired with NON shielded cable.
- All panels, power supplies and modules shall be grounded.
- All wire shall be run in J hooks above ceiling with a minimum space of 4" from ceiling deck. All wire shall be in separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and roof deck.
- All wire visible from the finished floor shall be covered in decorative wire molding.
- All wire ran between building shall be in conduit and shall be non shielded direct burial cable. It shall be a minimum of 4 conductor 16 AWG copper.
- Installer shall have a commercial burglar technician on the job site at all times during installation.
- Installer will work closely with the electrical and or masonry contractors to ensure conduit, back boxes, door frame access conduit, etc. are in the proper locations and accessible.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008.
- Follow and adhere to installation practices specified by the Manufacturers.

1.02 Products Installed but not Supplied Under This Section

- All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work area. EMT or Conduit for pathways shall have no more than two 90 degree sweeps and no continuous section over 100'.
- All core holes and poke through devices in the floor for the installation of Fire cabling.
- All core holes and EMT sleeves between floors for the routing of Fire cabling.
- Back boxes for the mounting of Fire Devices.

- Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Fire Cabling.
- 1.03 Quality Assurance
- 1.03.01 Qualifications
- Install all components as directed by Manufacturer's installation guidelines.
 - All products shall bear the mark of UL or ETL for performance level.
 - System installation shall meet all applicable Local/State codes and safety requirements where project is located.
 - All products shall be new and un-used in original packaging.

1.03.02 Bidder/Installer Qualifications

- Bidding contractor shall be a local licensed Commercial Burglar Alarm Company with licensed Commercial Burglar Alarm technician(s) on staff.
- bidding contractor shall be certified by manufacturer to install & program the specified systems.
- bidding contractor shall perform all programming required to complete the installation. moore public schools shall not be required to assist in any part of the installation or programming.
- bidding contractor shall have at least one year experience installing dsc/dmp equipment.
- bidding contractor shall have a minimum of 5 years experience installing commercial burglar alarms.
- bidding contractor shall be able to provide insurance at the request of the owner.
- bidding contractor shall have a commercial burglar technician on the job site at all times during installation

1.04 Delivery, Storage, and Protection

- Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Contractor is responsible for all materials, tools and vehicles left on the job site.
- Follow Manufacturer's recommendations for handling of materials.

1.05 Project Conditions

1.05.01 Environmental Requirements

- Contractor shall ensure that any pollutants produced during the Work are disposed off according to local, state or national regulations. Follow the most stringent guidelines.
- It is preferred that the Contractor recycle any used or un-used components during the course of the construction project.

1.06 Sequencing

- Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project.

1.07 Scheduling

- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

1.08 Warranty

- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure. (1 year warranty shall begin at job completion)

Part 2 - Products

2.02 Source Quality Control

- Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components.

Part 3 -

3.01 Field Quality Control

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

3.02 Adjusting

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

3.03 Cleaning

- Contractor shall sweep and mop the floors of all equipment rooms or connection point closets prior to turnover to the Owner.

3.04 Protection

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

3.05 Schedules

- Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project manager.
- It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is met.
- Contractor bidding will work closely with the electrical and or masonry contractors to ensure conduit, back boxes, door frame access conduit, etc. are in the proper locations and accessible.

End of Section

1.02 Submittals

1.03.01 Prior to installation

- Show compete map of system design for approval by Owner.

Security System Installation Completion Check List

Part 1 - General

1.01 Section Includes

- Security System Completion Check List

1.02 Completion Check List

- A map of the entire system showing device numbers and wire routes has been left inside the main control panel and a copy has been given to Jack Phillips with MPS.
- All panel programming has been checked and is correct.
- Panel(s) has been tested for proper operation.
- All zones have been tested to verify proper description at keypad.
- All zones have been tested to verify proper reporting to the monitoring station.
- All zones have been tested to verify they are in their proper partition(s).
- All sirens and strobes have been tested for proper operation.
- All motion detectors have been adjusted for proper sensitivity and have been walk tested.
- All motion detectors have been sealed to prevent air and insects from entering.
- All glass break detectors have been adjusted for proper sensitivity and tested.
- All cabinets are labeled on the outside with module numbers and zone numbers.
- All cabinets are labeled on the inside with module numbers by the corresponding module and zone descriptions.
- All user codes have been programmed and tested for proper partition access.
- The monitoring station has the correct account information such as call list, zone descriptions etc. End of Section

1.09 References

- NFPA-70 National Electrical Code 2008 edition
- NFPA-72 National Fire Alarm Code
- UL 1666 - Standard for Safety of Flame Propagation Height
- NFPA 262 - Flame Travel and Smoke of Wires and Cables
- Local Authority Having Jurisdiction

1.10 Definitions

- AWG - American Wire Gauge
- BICSI - Building Industry Consulting Service International
- EIA - Electronics Industry Alliance
- FCC - Federal Communications Commission
- NECA - National Electrical Contractors Association
- NFPA - National Fire Protection Agency
- UL - Underwriters Laboratory

Access Control System Specifications

Access Control Equipment

Part 1 - Manufacture

- Access Control Manufacturer shall be Keyscan. (No Substitutions)
- Peripheral device Manufacturers shall be according to equipment list. (No Substitutions)
- Cable Manufacturer shall be Genesis. (Or Equivalent)

1.01 Access Control Equipment Description

- Access Control System Manufacture shall be Keyscan (No Substitutions)
- Access Control Management Software = Aurora (This software is already installed and in use. It is listed for information purposes only)
- Reader Control Panels shall be (No Substitutions) Keyscan CA 4500 = 4 Door Keyscan CA 8500 = 8 Door
 - Each Reader Control Panel shall be equipped with (2) 16VAC 40VA Transformer
 - Each Reader Control Panel shall be equipped with (1) 12V 7AH Battery
 - One 2,4 or 8 Door Reader Control Panel per site shall be equipped with (1) Keyscan Netcom2p module. If the site has an existing 2,4 or 8 Door Control Panel with a Netcom2P already installed, then a Netcom 2P is not needed and CIM or CIM-Link modules shall be used to connect the new Control Panel to the existing Control Panel.
 - All Reader Control Panels shall be linked together with either CIM or CIM-Link modules.
- Each new Reader Control Panel shall be capable of 4 doors minimum

Card Readers shall be (No Substitutions)

- HID 40NKS0000000 Signo Wall Mount Reader (for use in all locations except where mullion mount reader size is required to fit)
- HID 20NKS00000000 Signo 20 Mullion Reader (For use on mullion mount locations where single gang reader is too large.
- ALL READERS REQUIRE 22/6 STR OAS WIRE.

Access Control Strikes and locks shall be (No Substitutions unless approved by Moore Public Schools)

- RCI 0163X32D ¼ inch Rim(ONLY USE IF ¾ INCH RIM WILL NOT FIT)
- RCI 0162X32D ¼ inch Rim
- RCI F0162X32D ¾ inch Rim Fire Rated
- RCI F2164 RECESSED ALL-IN-ONE STRIKE

- Where storm doors are installed, install compatible power motor and power supply to activate door hardware unless installed by door contractor.

- Egress Motions shall be (No Substitutions) BOSCH DS160 OR HONEYWELL IS310

- Door Contacts shall be GE Model # 1100UM Double Pole Double Throw (To be utilized for Access Control and Security Alarm) (See security alarm specs)
- DOOR LOCK RELEASE BUTTON SHALL BE (NO SUBSTITUTIONS) RCI PART # 909S ROCKER SWITCH
- Power Supply for locking hardware
 - *Power supply in Keyscan Controller is for the Control and Readers only.
- Power Supplies shall be sized to meet requirements of Strikes and locks with a maximum of 80% amp load.
- Power Supply shall have form "C" contacts for supervision that is connected to Keyscan Control Aux Input.
- 24 VDC Securtron- AccuPower- AQM20-8C/16C, AGD5-8C or equal.

2.01 Systems Installation

- All junctions and or splices shall be soldered and insulated.
- All circuits and wiring shall be labeled at all terminating ends.
- All devices shall be mounted in accordance to the manufactures specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All controllers shall be labeled outside with their corresponding modules and installed with lock.
- All controllers shall have a Cat 6 network cable Blue in color ran from the nearest network cabinet and labeled with drop number.
- All card readers shall be labeled with their corresponding reader number.
- All doors with access control shall have contacts installed for door status indication. Steel doors shall have wide gap door contacts installed.
- All doors with access control shall have egress motions installed to allow system to detect proper egress. (including doors with panic exit hardware.)
- Protective grommets shall be installed on all conduits to protect wire.
- All panels, power supplies and modules shall be grounded.
- All wire shall be run in J hooks above ceiling with a minimum space of 6" from ceiling deck. All wire shall be in separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and roof deck.
- All wire visible from the finished floor shall be covered in decorative wire molding.
- All wire ran between building shall be in conduit and shall be direct burial cable.
- Installer shall have a licensed Access Control technician on the job site at all times during installation.
- Installer will work closely with the electrical and or masonry contractors to ensure conduit, back boxes, door frame access conduit, etc. are in the proper locations and accessible.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008.
- Follow and adhere to installation practices specified by the Manufacturers.

3.01 Bidder/Installer Qualifications

- Bidding contractor shall be a local licensed Access Control Company with licensed Access Control technician(s) on staff.
- Bidding contractor shall have at least one year experience installing Keyscan Access Control Systems.
- Bidding contractor shall have a minimum of 5 years experience installing commercial Access Control Systems.
- Bidding contractor shall be able to provide insurance at the request of the owner.
- Bidding contractor shall have a commercial Access Control technician on the job site at all times during installation.

3.01.1 Submittals

3.01.2 Prior to installation

- Show compete map of system design for approval by Owner.

3.01.3 Prior to final acceptance

- Provide a soft CAD copy As-Built showing layout of Controller Panel, Card Readers, Power Supplies and all mounted equipment upon Substantial Completion.
- Ensure all warranties specify that the Owner is entitled to all rights guaranteed by the warranty for various components.

3.02 Quality Assurance

3.02.1 Qualifications

- Install all components as directed by Manufacturer's installation guidelines.
- All products shall bear the mark of UL or ETL for performance level.
- System installation shall meet all applicable Local/State codes and safety requirements where project is located.
- All products shall be new and un-used in original packaging.

Access Control Installation Completion Check List

Part 4 - General

4.01 Section Includes

- Access Control System Completion Check List

4.02 Completion Check List

- A map of the entire system showing device numbers and wire routes has been left inside the main controller panel and a copy has been given to Rodney Cobb with MPS.
- All system programming has been checked and is correct.
- Panel(s) has been tested for proper operation.
- All card readers are labeled with reader number and have been tested to verify proper operation.
- All user card and key fobs have been programmed into system and tested to verify proper operation.
- All egress motion detectors have been adjusted for proper sensitivity and have been walk tested.
- All controllers are labeled on the outside with module numbers.
- All controllers are labeled on the inside with module numbers by the corresponding module.

End of Section

4.03 Products Installed but not Supplied Under This Section

- All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work area. EMT or Conduit for pathways shall have no more than two 90 degree sweeps and no continuous section over 100'.
- All core holes and poke through devices in the floor for the installation of cabling.
- All core holes and EMT sleeves between floors for the routing of cabling.
- Back boxes for the mounting of Devices.

- Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Cabling.

4.04 References

- NFPA-70 National Electrical Code 2008 edition
- NFPA-72 National Fire Alarm Code
- UL 1666 - Standard for Safety of Flame Propagation Height
- NFPA 262 - Flame Travel and Smoke of Wires and Cables
- Local Authority Having Jurisdiction

4.05 Definitions

- AWG - American Wire Gauge
- BICSI - Building Industry Consulting Service International
- EIA - Electronics Industry Alliance
- FCC - Federal Communications Commission
- NECA - National Electrical Contractors Association
- NFPA - National Fire Protection Agency
- UL - Underwriters Laboratory

4.06 Delivery, Storage, and Protection

- Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Contractor is responsible for all materials, tools and vehicles left on the job site.
- Follow Manufacturer's recommendations for handling of materials.

4.07 Project Conditions

4.07.1 Environmental Requirements

- Contractor shall ensure that any pollutants produced during the Work are disposed off according to local, state or national regulations. Follow the most stringent guidelines.
- It is preferred that the Contractor recycle any used or un-used components during the course of the construction project.

4.07.2 Field Measurements

- Contractor shall coordinate with electrical engineer on project that the main electrical service ground has a resistance to earth of less than 5 ohms.
- Contractor shall ensure that all field testers have been calibrated from the Manufacturer within 1 year.
- All field test results will be documented and submitted to Moore Public Schools, Technology Department.

4.08 Sequencing

- Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project.

4.09 Scheduling

- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

4.10 Warranty

- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure. (1 year warranty shall begin at job completion)

4.11 Source Quality Control

- Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components.

Part 5 -

5.01 Field Quality Control

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.

- Contractor shall replace all defective components.

5.02 Adjusting

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

5.03 Cleaning

- Contractor shall sweep and mop the floors of all equipment rooms or connection point closets prior to turnover to the Owner.

5.04 Protection

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

5.05 Schedules

- Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project manager.
- It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is met.
- Contractor bidding will work closely with the electrical and or masonry contractors to ensure conduit, back boxes, door frame access conduit, etc. are in the proper locations and accessible.



201 N. BROADWAY
SUITE 210
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

KFC ENGINEERING

STRUCTURAL

SALAS O'BRIEN

MECHANICAL / ELECTRICAL

NY

drawn by

NY

checked by

JANUARY 2024

date

revisions

MOORE PUBLIC SCHOOLS
BOARD OF EDUCATION
MOORE, OKLAHOMA



SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

T-501

OWNERSHIP USE OF DOCUMENTS:

AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.