IDEA PUBLIC SCHOOLS

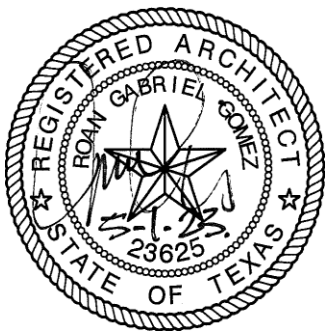
IDEA EDINBURG / IDEA TRES LAGOS SECURITY FENCING IMPROVEMENTS

EDINBURG / McALLEN, TEXAS

PROJECT # 8-RGF-0623

ARCHITECTS - PLANNERS

GMS Architects
Ethos Engineering



Set No.

REQUEST FOR COMPETITIVE SEALED PROPOSALS

IDEA Public Schools will accept Competitive Sealed Proposals for the construction of the IDEA Public Schools, IDEA **Edinburg and Tres Lagos Security Fencing.** Proposals are due:

- **May 25, 2023, at 3:00pm local time**

Proposals will be read aloud immediately after bid due date and time. No proposals for this project shall be accepted after this deadline. Proposals will be accepted electronically thru e-mail to David A. Monreal AIA, Architect of Record, at **rgg@gmsarchitects.com.**

Projects include demolition and construction of perimeter security fencing, access gates, pedestrian gates, and related electrical work.

Reference construction documents for more information including video conference instructions for both the pre-construction and bid opening meetings.

Plans and Specifications will be available beginning **May 8, 2023** (Electronically Only) from GMS Architects, 1150 Paredes Line Rd., Brownsville Texas 78521. 956-546-0110**.** For Electronic Documents request email to: **susana@gmsarchitects.com**

SITE VISITS will be held for the project on Thursday, May 18, 2023, at 9:30am at the IDEA Edinburg Campus and at 11am at IDEA Tres Lagos Campus. All General Contractors are encouraged to attend.

IDEA Public Schools reserves the right to reject any and/or all submittals, to award contracts as may appear advantageous to **IDEA Public Schools** and to waive all formalities in the procurement process.

REQUEST FOR COMPETITIVE SEALED BIDS

IDEA EDINBURG AND IDEA TRES LAGOS SECURITY FENCING IMPROVMENTS

IDEA Public Schools invites qualified firms to submit Competitive Sealed Bids for construction services for the new IDEA EDINBURG AND IDEA TRES LAGOS SECURITY FENCING IMPROVMENTS.

The IDEA EDINBURG is located at 2553 N Roegiers Road, Edinburg, TX 78541. IDEA TRES LAGOS is located at 5200 Tres Lagos Blvd., McAllen, TX 78504.

The Project consists of security fencing, gates and operators at perimeter of each campus. Electrical, Data and Communication for gates, operators and networking are included.

Competitive Sealed Bids will be received until ***Thursday, May 25, 2023 at 3:00PM*** local time. Bids will be received electronically. Refer to the Invitation for Bids for bid details.

IDEA Public Schools will receive and evaluate. Bids received after the date and time for receipt of Bids may not receive consideration and may be returned unopened. Bids will be publicly opened and read aloud immediately after the submission deadline via video conference. IDEA Public Schools reserves the right to reject any and/or all bids, to waive technicalities, to re-advertise or to proceed in the best interest of the school.

Plans and Specifications will be available beginning **May 8, 2023** from Gomez Mendez Saenz, Inc., 1150 Paredes Line Road, Brownsville, Texas 78521 956-546-0110 which will be issued in electronic file format. All prospective proposers must obtain the Electronic File information from Gomez Mendez Saenz, Inc. to be placed on the official bidders list. No hardcopies will be distributed.

Gomez Mendez Saenz, Inc. is the Architect of Record. You can contact Roan Gomez by email at rgg@gmsarchitects.com with questions about plans.

A Pre-Proposal Conference will be held for the project on Thursday, May 11, 2023 at 9:30am at the IDEA Edinburg Campus and at 11am at IDEA Tres Lagos Campus. All General Contractors are encouraged to attend.

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DOCUMENT 001000

REQUEST FOR COMPETITIVE SEALED PROPOSALS

IDEA Public Schools Board, in accordance of Texas Education Code Chapter 44, Subchapter B and Chapter 2269 of the Texas Government Code, has delegated to its Construction Committee of the Board the authority of the selection of procurement method, determining the evaluation/ranking criteria, ranking of respondents, selection of the respondent that will provide best value to the the District. The Board desires to delegate to the CEO/Superintendent (or her designee) the authority to negotiate a contract with the selected respondent. The Chief Executive Officer has elected to utilize the Competitive Sealed Proposal procurement process. Furthermore, The Board has delegated the authority to open proposals to the Owner's independent Project Manager or the Architect/Engineer of Record. Competitive Sealed Proposals will be received from qualified General Contractor Proposers for the entire scope of Work described below in accordance with Proposal Documents, and Addenda as may be issued, by IDEA Public Schools, until the date and time fixed for the Proposal Opening, as identified below:

OWNER:	IDEA Public Schools – 2115 W Pike Blvd. Weslaco Tx 78596.
ARCHITECT:	Gomez Mendez Saenz, Inc. – 1150 Paredes Line Rd., Brownsville, Texas 78521 Representative: Roan G. Gomez, AIA, (956) 546-0110 rgg@gmsarchitects.com
PROJECT & LOCATION:	**IDEA Edinburg and Tres Lagos Security Fencing** The project site for Idea Edinburg and IDEA Tres Lagos Security Fencing Improvements is located at 2553 N Roegiers Road, Edinburg, TX (IDEA Edinburg) and 5200 Tres Lagos Blvd., McAllen, TX. (IDEA Tres Lagos). The Project consists of security fencing, gates and operators at perimeter of each campus. Electrical, Data and Communication for gates, operators and networking are included.
PLANS AVAILABLE:	May 8, 2023, from GMS ARCHITECTS (Electronicaly Only). For Electronic Document request email to: susana@gmsarchitects.com
SITE VISITS:	Thursday, May 11, 2023 at 9:30am at the IDEA Edinburg Campus and at 11am at IDEA Tres Lagos Campus. Representatives of the Architect and Owner will be present at this meeting. All Proposers are encouraged to attend. Any questions concerning the Project shall be forwarded to the Architect by email at rgg@gmsarchitects.com.
PROPOSAL DATE AND TIME:	**Thursday, May 25, 2023 at 3:00 p.m.** Proposals received after the time indicated will not be accepted and will be returned unopened. Bid submissions that are accepted will be read aloud immediately after the bid opening date and time.
PROPOSAL LOCATION:	Proposals will be accepted via the Tyler Munis Self Service website, Public Purchase or by sending a hard copy to: IDEA Public Schools Attn. Purchasing Department 2115 West Pike Blvd Weslaco, TX 78596

Proposals sent by mail must be in a sealed envelope marked with the RFP Number and Title and include:

a)One (1) clearly identified hard copy ORIGINAL of the Proposal.

b)One (1) copy of the Proposal on FLASH DRIVES, marked with Respondent's name.

Note: Faxed or emailed Proposals will not be accepted.

Proposal Acknowledgment

May 25, 2031 @ 3:00pm via

Microsoft Teams

Meeting ID: 233 802 362 259
Passcode: Ho7aMm

END OF DOCUMENT

DOCUMENT 002000

INSTRUCTIONS TO PROPOSERS

The IDEA Public Schools Board, in accordance of Texas Education Code Chapter 44, Subchapter B and Chapter 2269 of the Texas Government Code, has delegated to its Construction Committee of the Board, the authority of the selection of procurement method, determining the evaluation/ranking criteria, to rank respondents, and to select the respondent that will provide best value to the District. The Board desires to delegate to the CEO/Superintendent (or her designee) the authority to negotiate a contract with the selected respondent. The Board has also authorized its Project Manager or Architect to open bid submissions to be publicly read aloud at the time of opening. The following Instructions to Bidders outlines the decisions by the Chief Executive Officer.

.AVAILABILITY OF PROPOSAL DOCUMENTS

A. Proposal Documents will be available on the date and time indicated in Document 001000 - Request for Competitive Sealed Proposals.

B. The Proposal Documents, made available by the Owner and Architect, are for the exclusive purpose of obtaining proposals for the Work indicated; availability does not confer a license or grant for any other use. The Proposal Documents remain the property of the Owner and must be returned if not used for construction purposes.

C. Complete sets of the Proposal Documents shall be used for the preparation of proposals; partial sets will not be issued. Neither the Owner nor the Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Proposal Documents.

D. Successful Proposers may retain their Proposal Documents for construction use.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

Project Description: The Project consists of security fencing, gates and operators at perimeter of each campus. Electrical, Data and Communication for gates, operators and networking are included.

Project Location: Idea Edinburg and IDEA Tres Lagos Security Fencing Improvements is located at 2553 N Roegiers Road, Edinburg, TX (IDEA Edinburg) and 5200 Tres Lagos Blvd., McAllen, TX. (IDEA Tres Lagos).

Owner: IDEA Public Schools, 2115 W. Pike, Weslaco, Texas 78596.

Architect: The Contract Documents were prepared for this Project by Gomez Mendez Saenz, Inc. (GMS Architects),1150 Paredes Line Rd., Brownsville, Texas 78521 and their consultants identified on the Project Directory page of this Project Manual.

1.3 EXAMINATION OF PROPOSAL DOCUMENTS, SITE AND LOCAL CONDITIONS

A. Proposers shall carefully examine the Proposal Documents and shall visit the site to examine the existing conditions under which the Work is to be performed. Extra payments will not be authorized for Work that could have been foreseen by careful examination of the Site.

B. Proposers shall carefully examine the Proposal Documents to verify that they agree with the Table of Contents in the Project Manual, the Index of Sheets on the Drawings, and the Cover Page of Addenda. Proposers shall be responsible for obtaining any pages or sheets that may have been inadvertently left out during the printing process.

1.4 BIDDERS ACCESS TO PREMISES

A. A site tour will be conducted immediately after the Pre-Proposal Conference for the purpose of acquainting bidders with the Project.

1.5 INTERPRETATION OF PROPOSAL DOCUMENTS

A. Proposers shall promptly notify the Architect of any ambiguity, inconsistency or error that they may discover upon examination of the Proposal Documents or of the site and local conditions.

B. Proposers requiring clarification or interpretation of the Proposal Documents shall submit written questions 48 hours before the specified time of bid.

C. Replies will be issued to Proposers in the form of an Addendum, which will be available for purchase and on file at each location where the Proposal Documents are on file for examination.

1.6 SUBSTITUTION OF PRODUCTS, MATERIALS AND EQUIPMENT

A. The products, materials and equipment described, indicated and specified in the Proposal Documents establish a standard of required function, dimension, appearance, and quality and have been selected as the basis of design because of their particular suitability and/or record of satisfactory performance. It is not the intent to preclude the use of other products, materials and equipment provided that it is determined to be equivalent or better by the Architect and Owner.

B. Due to limited time available during bidding period, request for substitutions will not be evaluated by Architect until after “Notice to Proceed”. For period of fifteen (15) consecutive calendar days after “Notice to Proceed”, substitutions will be considered by Architect. Requests for substitution after that time will be considered or rejected at the discretion of the Architect. Refer to Section 012510 - Substitution Procedures for additional information. For gymnasium equipment and lockers – products by manufactures that meet the design standards will be accepted.

1.7 PROPOSER’S REPRESENTATIONS

A. By submitting a Proposal, the Proposer agrees with the following provisions; failure to do so constitutes basis for disqualification from being awarded the contract for the Work:

1. The Proposal Documents have been examined and the Proposal is being submitted in accordance with the indicated requirements.
2. The site has been examined and the Proposer is familiar with the conditions under which the Work is to be performed and observations at the site have been correlated with the Proposal Documents.
3. Work will begin immediately upon receipt of an executed contract and a notice to proceed.
4. The Proposer will participate and cooperate with the Architect.
5. The Proposer agrees to complete the Work within the time limits indicated (confirmation required on bid form).
6. **A competent, full-time superintendent will be assigned for the duration of the Work, including completion of outstanding work required for issuance of the certificate of substantial completion.**
7. If awarded the contract for the Work, the Proposer shall furnish a performance bond and a payment bond as required.
8. If awarded the contract for the Work, the Proposer shall obtain and carry for the duration of the Work the insurance coverage required.
9. The Proposer has included only products, materials and equipment as specified by the Proposal Documents.

1.8 CERTIFICATION OF CRIMINAL HISTORY BACKGROUND CHECKS FOR CONTRACTORS

A. The new law is found in Texas Education Code § 22.0834, which can be accessed through

www. tlo2. tlc. state. tx. us/ statutes/ statutes. html . This new law was created through the enactment of Senate Bill 9 ("SB 9") by the 80th Legislature. Senate Bill 9 can be accessed through the Texas Legislative website at www. capitol. state. tx. us and typing SB 9 into the search engine. Information regarding the fingerprinting obligations required by Senate Bill 9 can also be found on the Department of Public Safety ("DPS") website at www. txdps. state. tx. us. Much of the information can also be found in the DPS publication, *Senate Bill 9 Background Check for Education: A Reference Guide*.

B. The contractor shall be responsible for complying with all provisions of the law. Refer to additional information provided in specification section 004150. The contractor shall include an executed "Contractor Criminal Background Certification" in the Competitive Sealed Proposal.

1.9 FELONY CONVICTION NOTIFICATION

A. Section 44.034 of the Texas Education Code requires a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony. Subsection (b) states, "… a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for the services performed before the termination of the contract." Subsection (c) states, "… this section does not apply to a publicly held corporation."

B. Proposer shall execute the form contained in Document 004200 - Felony Conviction Notification Form, and include in the Competitive Sealed Proposal.

1.10 PROPOSAL EVALUATION WAIVER

A. By submitting a Proposal, each Proposer, and by extension each subcontractor, supplier and vendor, agrees to waive any claim it has, or may have, against the Owner and its respective employees, the Architect and its respective employees, the Architect's Consultants and its respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any Proposal; waiver of any requirements under the Proposal Documents, acceptance or rejections of any Proposal; and award of the contract.

B. Proposer shall execute the form contained in Document 004300 - Proposal Evaluation Waiver Form, and include in the Competitive Sealed Proposal.

1.11 NON-DISCRIMINATORY EMPLOYMENT

A. All Proposers, if awarded the contract for the Work, and subcontractors, suppliers and vendors shall agree to refrain from discrimination in terms and conditions of employment on the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and Rules and Regulations issued in order to maintain and insure non-discriminatory employment practices.

B. Proposer shall execute the form contained in Document 004400 - Affidavit of Non-Discriminatory Employment Form, and include in the Competitive Sealed Proposal.

1.12 PARTICIPATION OF UNDER-UTILIZED BUSINESSES

A. As a policy, IDEA Public Schools promotes the inclusion of under-utilized businesses as part of the construction team to provide opportunities for less-advantaged enterprises where possible and appropriate. Proposers are encouraged to submit proposed M/WBE subcontractors who will be actively engaged in the project. In addition, if the firm has a formal program involving mentoring of under-utilized subcontractors and suppliers to provide management and technical assistance, information related to the mentoring program should be provided. If the Proposer is not engaged in a formal mentoring program, then letters from under-utilized firms describing the mentoring efforts provided are encouraged and will be accepted.

1.13 SUBMISSION PROCEDURES FOR PROPOSALS

A. A Proposal will be considered invalid if it has not been received, regardless of how sent, at the designated location prior to the designated time fixed for the Proposal Opening, or prior to any extension issued by Addenda. Proposals received in this manner will be returned to the Proposer unopened.

B. If a Proposal Form is sent by U.S. Mail, it must be sent as Registered Mail. Proposals received by facsimile machine will be rejected.

C. Proposals shall be made on unaltered forms furnished within the Proposal Documents. All blank spaces shall be properly filled in by typewriter or manually in black or blue ink. The signer of the Proposal must initial any alteration or erasure to information entered in the blank spaces. Oral, telephonic or personal proposals will not be considered.

D. The various documents that will be submitted as the Competitive Sealed Proposal electronically at a maximum file size of 20MB. Proposal Forms submitted in paper copy shall be placed in an opaque envelope with the following information on the outside front and sealed:

(Name of General Contractor Proposer)
IDEA Public Schools – IDEA Edinburg and IDEA Tres Lagos Security Fencing
2115 W. Pike Blvd.
Weslaco, Texas 78596
Attention: Mia Harris, IDEA Public Schools

E. Proposers are requested to submit the following electronic files to Roan Gomez, AIA at rgg@gmsarchitects.com and Mia Harris at mia.harris@ideapublicschools.org .

- **One (1) PDF file containing the completed Bid Proposal Form along with the Bid Bond. Label the file: "Bid Proposal – Bid Bond – Name of Contractor".**
- **One (1) PDF file containing the proposer's complete submission to be evaluated and ranked. Refer to Section F below for forms required.**

F. The Competitive Sealed Proposal shall contain the following fully executed documents:

1. Proposal:

   a. Document 004100 - Proposal Form, signed in longhand below the typed name of the person authorized to bind the Proposer to a contract. Where the Proposer is a corporation, the Proposal must be signed with the legal name of the corporation followed by the name of the State of Incorporation and the legal signature of a person authorized to bind the corporation to a contract.
   b. Document 004200 - Felony Conviction Notification Form
   c. Document 004300 - Proposal Evaluation Waiver Form
   d. Document 004400 - Affidavit of Non-Discriminatory Employment Form
   e. Document 004500 – Conflict of Interest Questionnaire

f. Document 006100 - Bid Bond
g. Information required in Section 1.15 below.
h. Proposed subcontractor list (within 24 hours after bid time and date).
i. AIA 305 Qualifications Statement

G. The Owner reserves the right to reject any Proposal if the evidence submitted by, or investigations of, such Proposer fails to satisfy the Owner that such Proposer is properly qualified to carry out the obligations of the contract and to complete the Work therein.

H. Failure to submit a Proposal in the form requested, or the inclusion of stipulations, conditions, qualifications, limitations, or provisions distorting the intent of the Proposal Documents, will render the Proposal irregular and subject to rejection.

I. A Proposal may be withdrawn only upon written request by the Proposer provided it is received by the Owner at the place fixed for the Proposal Opening at least 48 hours prior to the time fixed for the Proposal Opening. The withdrawal of a Proposal does not prejudice the right of the Proposer to submit a new Proposal at the time and place fixed for the Proposal Opening. Proposals may not be withdrawn for a period of five (5) calendar days after the time fixed for the Proposal Opening.

J. Proposals shall be valid for sixty (60) calendar days from the date and time of opening. By signing this proposal, the Proposer certifies and represents to the Owner that the Proposer has not offered, conferred, or agreed to confer any pecuniary benefit or other thing of value for the receipt of special treatment, advantage, information, recipient's decision, opinion, recommendation, vote or any other exercise of discretion concerning this proposal. The Proposer further certifies that the Proposer is not prohibited from doing business with any Federal or State Department or Agency and that to the best of their knowledge no company employee, either full or part time, owner, official, stockholder, subcontractor, or member of their immediate family, are related to a member of the Board of Trustees in violation of the Nepotism Prohibition of the State of Texas Government Code (Chapter 573 Gov. Code). Venue for any litigation arising from this contract shall lie in the County where the project is located.

K. The drawings and specifications set forth for this proposal are not intended to be restrictive. The intent of this proposal is to obtain the best construction project at the most economical price available. The specifications are established to ensure that the Owner remains within the bounds of the rules and regulations that govern its operation and to protect the taxpayer's investment in this entity.

1.14 BID BOND

A. A Proposal will only be considered if accompanied by an executed Bid Bond per Document 006100, in the amount of not less than 5 percent of the greatest amount proposed (considering alternates, if any).

B. Proposer shall execute the Bid Bond form referenced in Document 006100 - Bond Forms, and include in the Competitive Sealed Proposal.

C. The Bid Bond shall ensure the execution of the contract and the furnishing of an acceptable performance bond and payment bond by the Successful Proposer within five (5) calendar days after Notification of Award. The Proposal of the Successful Proposer may not be withdrawn within 5 calendar days after the time fixed for the Proposal Opening without the written consent of the Owner.

D. Should the successful Proposer refuse to enter into such contract or fail to furnish the required bonds, the amount of the Bid Bond shall be forfeited to the Owner as liquidated damages, not as a penalty.

E. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

F. The Owner reserves the right to retain the Bid Bond of Proposers to which an award is being considered until either the contract has been executed and bonds have been furnished, or the specified time has elapsed so that Proposals may be withdrawn, or all Proposals have been rejected.

1.15 DETERMINATION OF SUCCESSFUL PROPOSER

The Owner reserves the right to apply all criteria as deemed appropriate and allowed in the Texas Education Code 44.031 (b). Including but not limited to, as provided by section 44.031 (b), Part (8), other relevant factors specifically denoted in the bid package. The district specifically requests offerors to answer or provide the information to the following selection criteria. Questions left unanswered or omitted requested information may result in a partial or total reduction of allocated points.

A. The Owner will make such investigations, as it deems necessary to determine the ability of the Proposer to perform the Work, and the Proposer shall furnish all such information and data as may be requested. The Owner reserves the right to reject any Proposal if the evidence submitted by, or investigation of, such Proposer fails to satisfy the Owner that such Proposer is properly qualified to carry out the obligations of the contract and to complete the Work contemplated therein.

B. Pass/Fail Criteria
1. Ability to provide required bonding and insurance
2. Ability to meet the project schedule
3. Financial Stability as demonstrated by financial statements
4. History of excessive litigation
5. Conflicts of interest
6. Criminal conviction history
7. Substantive objections to the form of contract
8. Other legal status barring award of contract
9. Record of Safe Operation

C. Proposed Questions & Information for Each Pass/Fail Category:

1. Provide a bid bond with a penal sum of 5% of the proposal amount, valid for two weeks after the proposal deadline. List your insurance carrier(s) and confirm ability to meet the insurance requirements published in the Request for Proposals.
2. Confirm ability to meet the project schedule published in the Request for Proposals.
3. The Owner is interested in understanding the stability of your firm in terms of managed growth. Provide information showing measured corporate work trends in the form of total projects relative to firm resources or a workload analysis based on gross billings for the prior 3 years and projecting through 2018 assuming that your firm is awarded this Project. The intent is to understand your firm's growth and trajectory and the company's ability to successfully manage projects based on historical and future trends. Explain any anomalies or major deviations on the charts provided. Provide certified financial statements for the past 3 years (the Owner reserves the right to disqualify firms that cannot show financial stability in a satisfactory manner to the Owner. Financial information provided will not be shared with anyone outside of the Owner and the selection team.).
4. Provide a history of litigation your firm has been involved in during the past five years and the disposition of such litigation.
5. Provide the completed conflicts of interest form provided in the Request for Proposals.
6. Provide the completed criminal conviction form provided in the Request for Proposals.
7. Review and acknowledge the contract in Exhibit E and list any objections or modifications to the contract form.

8. Confirm that your firm is legally able to conduct business in the State of Texas and enter into construction contracts involving public funds.
9. Please provide your firm's Experience Modification Rate (EMR). If your EMR is above 1.0, please provide a copy of your firm's OSHA Form 300 from the past three years and an explanation of any reported incidents.

D. Weighted Scoring Criteria

1. Firm Experience/Key Personnel and Firm Stability/Management **(30 Points**)
2. Proposed subcontractor team (submitted 48 hours after bid opening) **(10 Points)**
3. Cost (**50 Points**)
4. K-12 Construction Experience **(5 Points)**
5. Prior Experience with the Project Team including the Owner, Project Management Services, Inc. (PMSI), and/or the design team. (**5 Points**)

E. Relevant Firm Experience, Key Personnel, and Ability to Complete the Work (**30 Points**)

1. Include an organizational chart for your proposed management team. The proposed team will be evaluated based on their relevant experience and qualifications. Include, at a minimum, the name of the principal-in-charge for the firm as well as the following staff: project manager (primary decision maker), superintendent(s), project engineer, and safety manager. The safety manager may have other roles, such as project superintendent or project manager, but must be on-site full time. Staffing strength is of significant importance to the Owner and changes to proposed staff (or staff options) without the prior approval of the Owner may be grounds for termination prior to construction phase services. **10 points**
2. Provide information on a minimum of five projects of comparable type, size, and quality that your firm has completed in the last five years. Identify similar challenges and describe your approach. Regarding these projects, identify which staff members were on the featured projects, along with names and contact information for the related Owner and Architect. **5 points**
3. Provide the number of Surety companies that your company has engaged over the last 2 years, the name(s) of the Surety company, and the number of years that your firm has consistently engaged the Surety company(ies). **5 points**
4. Describe how your firm's quality control team will measure the quality of construction and commissioning and how will you address non-conforming work. **5 points**
5. Describe your firm's warranty service support philosophy and your approach to warranty service implementation. **5 points**

F. Proposed Subcontractor Team (**10 Points**)

Within 48 hours of the proposal deadline, submit a list of proposed subcontractors for major trades of work (scope over $50,000). Subcontractor strength will be evaluated based on the subcontractors' reputation, past experience with the project team, strength in the market where the project is located, and other relevant factors. **10 points**

G. Cost (50 Points)

Points will be awarded based on Offerors' ratio to the lowest price received. Points will be awarded based on the following formula: Lowest Bid / Proposer's Bid x 50 = Points Received. As an example, the following sample scoring matrix is provided:

Proposer	Offeror's Proposed Cost	Calculation	Assigned Point Value

Contractor 1	$2,500,000	$2,500,000/$2,500,000 x 50 =	50
Contractor 2	$2,700,000	$2,500,000/$2,700,000 x 50 =	46
Contractor 3	$2,800,000	$2,500,000/$2,800,000 x 50 =	45
Contractor 4	$2,900,000	$2,500,000/$2,900,000 x 50 =	43
Contractor 5	$3,000,000	$2,500,000/$3,000,000 x 50 =	42

H. K-12 Construction Experience (**5 Points**)
Provide details of all K-12 school construction projects completed or underway over the past ten years. Provide contact information for the owner's representative for all projects completed in the last five years. Recent experience and experience of the proposed project team will receive highest consideration. **5 points**

I. Prior Experience with the Project Team (**5 Points**)
Provide details of all projects completed with the Owner, design team, and/or PMSI. **5 points**

J. The Owner may interview the top ranked firms. The following information shall be presented during the interview:

1. A schedule and work plan indicating how they will approach the project. Including their supervision, sub-contractors, use of double shifts, timeliness of punch list completion, and other information that will show their commitment to the project and schedule.

K. The Owner reserves the right to reject any or all Proposals and to waive any formalities or irregularities and to make the award of the contract in the best interests of the Owner.

L. The Owner will make a decision regarding the determination of the successful Proposer based on Texas Education Code §§44.035, 44.039.

1.16 SUBCONTRACTOR INFORMATION

A. Upon request from the Owner, within five (5) calendar days the Successful Proposer shall furnish a statement of costs for each major portion of the Work included in the Proposal. Each section of the specifications shall be considered a major portion of the Work and shall be shown as a separate cost item.

1.17 AWARD OF CONTRACT

A. After the time fixed for the Proposal Opening, at the discretion of the Owner, the Proposer determined to be the Successful Proposer will be promptly notified that the Owner intends to enter into a contract for the Work.

B. If any of the following occurs related to the Successful Proposer, the Owner has the right to award the contract for the Work to another Proposer, or Proposer's, or may call for the submission of new Proposals:

1. The Proposer withdraws the Proposer's Proposal within five (5) calendar days after the time fixed for the Proposal Opening.
2. The Proposer fails or refuses to execute the contract, or other required forms within 5 calendar days after they have been presented for execution.
3. The Proposer fails or refuses to furnish a properly executed performance bond, a properly executed payment bond, and a certificate of insurance within five (5) calendar days of the request.

1.18 NOTICE TO PROCEED

A. The Successful Proposer / General Contractor shall not commence the Work under this contract until the contract has been duly executed by both parties, and a written Notice to Proceed has been issued by the Owner.

B. FUNDING/NOTICE TO PROCEED TO COMMENCE WORK

1. Notice regarding construction project financing: This project is a "public project" for purposes of Tx. Bus. Comm. Code chapter 56. Unlike a traditional school district where a bond election must be held and approved before major construction projects are undertaken charter schools such as IDEA are authorized to use interim financing, traditional bank financing and to issue tax exempt bonds that do not require an election. IDEA typically uses a combination of the above, and proceeds with construction using an available line of credit before issuing bonds to finance the completed project. Responding bidders and the selected contractor acknowledge the financing plan of the Owner and agree that they will comply with IDEA's notice to proceed and commence construction when and as directed, in order to meet IDEA's construction timelines. The following information is provided to the selected contractor and shall be provided by each contractor in writing to each subcontractor in accordance with Bus. Comm. Code 56.054(e):

Owner/Obligor: IDEA Public Schools, 2115 W. Pike, Weslaco, Texas 78596
Surety: [INSERT NAME ADDRESS OF SURETY ON PAYMENT BOND]
Statement: IDEA is the primary obligor and provides the following statement: "funds are available and have been authorized for the full contract amount for the construction of the improvements"

1.19 WORK UNDER OTHER CONTRACTS

A. Simultaneous Separate Contracts: Owner will award separate contracts for performance of certain construction operations at Project site. Those operations may be conducted simultaneously with work under this Contract. The separate contracts **excluded** from this contract will include the following:

B. contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.20 WORK SCHEDULE AND COMPLETION TIME

A. A Notice to Proceed (NTP) will be issued on or about **June 19, 2023** for the full building permit.

B. The project shall have a Substantial Completion shall not be later than **December 1, 2023.** Final completion shall be 60 days after Substantial Completion.

C. Contractor Work schedule shall include the weather days listed in Section 15 of the Supplementary General Conditions

1.21 WORK RESTRICTIONS

A. Reference section 011400 for work restrictions.

1.22 PERFORMANCE BOND AND PAYMENT BOND AND RETAINAGE AMOUNT

A. Each Proposer shall include in the Proposal the cost for a performance bond and a payment bond, each in the amount of 100 percent of greatest amount proposed (considering alternates, if any). The retainage amount will be 5% of the Contract amount.

B. These bonds shall cover the faithful performance of the contract and payment of all obligations arising thereunder in such form as the Owner may prescribe. The bonding companies must be acceptable to the Owner.

END OF DOCUMENT

AIA® Document A305™ – 1986

Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO:

ADDRESS:

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

[ ] Corporation
[ ] Partnership
[ ] Individual
[ ] Joint Venture
[ ] Other

NAME OF PROJECT *(if applicable)*:

TYPE OF WORK (file separate form for each Classification of Work):

[ ] General Construction
[ ] HVAC
[ ] Electrical
[ ] Plumbing
[ ] Other (please specify)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This form is approved and recommended by the American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) for use in evaluating the qualifications of contractors. No endorsement of the submitting party or verification of the information is made by AIA or AGC.

§ 1. ORGANIZATION

§ 1.1 How many years has your organization been in business as a Contractor?

§ 1.2 How many years has your organization been in business under its present business name?

§ 1.2.1 Under what other or former names has your organization operated?

§ 1.3 If your organization is a corporation, answer the following:

§ 1.3.1 Date of incorporation:

§ 1.3.2 State of incorporation:

§ 1.3.3 President's name:

§ 1.3.4 Vice-president's name(s)

§ 1.3.5 Secretary's name:

§ 1.3.6 Treasurer's name:

§ 1.4 If your organization is a partnership, answer the following:

§ 1.4.1 Date of organization:

§ 1.4.2 Type of partnership (if applicable):

§ 1.4.3 Name(s) of general partner(s)

§ 1.5 If your organization is individually owned, answer the following:

§ 1.5.1 Date of organization:

§ 1.5.2 Name of owner:

§ 1.6 If the form of your organization is other than those listed above, describe it and name the principals:

§ 2. LICENSING

§ 2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

§ 2.2 List jurisdictions in which your organization's partnership or trade name is filed.

§ 3. EXPERIENCE

§ 3.1 List the categories of work that your organization normally performs with its own forces.

§ 3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

§ 3.2.1 Has your organization ever failed to complete any work awarded to it?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

§ 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years?

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

§ 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

§ 3.4.1 State total worth of work in progress and under contract:

§ 3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

§ 3.5.1 State average annual amount of construction work performed during the past five years:

§ 3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

§ 4. REFERENCES

§ 4.1 Trade References:

§ 4.2 Bank References:

§ 4.3 Surety:

§ 4.3.1 Name of bonding company:

§ 4.3.2 Name and address of agent:

§ 5. FINANCING

§ 5.1 Financial Statement.

§ 5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

§ 5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

§ 5.1.3 Is the attached financial statement for the identical organization named on page one?

§ 5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

§ 5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

§ 6. SIGNATURE

§ 6.1 Dated at this day of

Name of Organization:

By:

Title:

§ 6.2

being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this day of 20

Notary Public:

My Commission Expires:

Additions and Deletions Report for
AIA® Document A305™ – 1986

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 13:28:18 on 03/22/2006.

PAGE 6

~~M~~—being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

...

Subscribed and sworn before me this day of ~~20~~ 20___

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Charles V. Bucci, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 13:28:18 on 03/22/2006 under Order No. 1000201877_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A305™ – 1986 - Contractor's Qualification Statement, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

DOCUMENT 004100

PROPOSAL FORM

Name of Proposer: _____

Date of Proposal: _____

To: IDEA Public Schools (Owner)
2115 W. Pike Blvd. Weslaco, TX 78596

We, the undersigned, propose to enter into a Contract with the Owner, to furnish labor, material, tools, transportation, insurance, permits, and all incidentals necessary for the completion of the **IDEA EDINBURG AND IDEA TRES LAGOS SECURITY FENCING IMPROVEMENTS** in accordance with the drawings and specifications **Dated 5/1/2023**, prepared by GMS Architects, Brownsville, Texas.

We have carefully reviewed and understand the "Instructions to Proposers", the drawings, the specifications, and have acquainted ourselves with the existing and anticipated conditions that might affect the Work.

We understand that if we are the Successful Proposer a Contract will be prepared, and we will furnish satisfactory payment and performance bonds each in the full amount of the Contract covering all parts of the Work.

The Proposal includes the following: Provide all items, articles, materials, operations of methods listed, mentioned or scheduled on the drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for the **IDEA EDINBURG AND TRES LAGOS SECURITY FENCING IMPROVEMENTS** for the Owner.

Proposers shall include in the BASE PROPOSAL, the work described in attached Proposal Documents.

BASE PROPOSAL:

_____ Dollars ($_____).

ALLOWANCES:
The Undersigned acknowledges by initials _____ that the Allowances listed below and in Specification Section 012100 - Allowances are included in the Base Proposal amount. Reference Specification Section 012100 - Allowances for a complete description of each Allowance.

ALLOWANCE NO. 1: OWNER'S CONTINGENCY ALLOWANCE: Include the amount of $25,000 for use according to the Owner's instructions.

UNIT PRICES:
The Undersigned acknowledges by initials _____ that the Unit Prices listed below and in Specification Section 012200 - Unit Prices are included in the Base Proposal amount. Reference Specification Section 012200 - Unit Prices for a complete description of each Unit Price.

The Undersigned further agrees that in case of authorized variations of quantities from those shown or specified, the following Unit Prices will be used in adjusting the Contract Sum.

ALTERNATES:
Proposers shall include in the PROPOSAL, the work described in attached Proposal Documents. Reference Specification Section 012300 - Alternates for a complete description of each Alternate.

ALTERNATE #1 – Remove existing chain link fencing and gates. Provide aluminum fencing, rolling gates and passenger gates. Refer to Sheet A1.04 – Edinburg for locations.

_____ Dollars ($_____).

DECLARATION
The Undersigned hereby declares that he has visited the site and has carefully examined the Drawings, Specifications, Contract Documents, and Proposal Documents related to the work covered by this Proposal.

DELAY COST
The Undersigned understands that delay costs will be incurred as defined in other portions of the Proposal Documents, will be included in the Contract, and the General Contractor will be bound thereto.

EXECUTION OF CONTRACT
Upon receipt of notice of acceptance of the Proposal, the Undersigned will immediately execute the formal Contract.

RECEIPT OF ADDENDA
I hereby acknowledge receipt of the following Addenda:

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

☐ **We have reviewed the A101 and A201 and the supplementals to the A101 and A201 and take no exceptions.**

☐ **We have reviewed the proposed schedule completion duration and we acknowledge that Substantial Completion of the Work can be completed within the duration specified.**

Witness: _____ Proposer: _____

By: _____

Address: _____

City: _____

Zip Code: _____

Telephone: _____

(SEAL - If bid is by a corporation)

END OF PROPOSAL FORM

Instructions to Contractors Regarding Criminal History Background Searches Under Senate Bill 9

Senate Bill 9 directs contractors (i.e., Company) to obtain state and national criminal history background searches on their employees who will have direct contact with students, and to receive those results through the DPS criminal history clearinghouse (Fingerprint-based Applicant Clearinghouse of Texas – FACT). In order for contractors to receive the information through FACT, they must first establish an account with the DPS for FACT clearinghouse access. The Company owner must sign a user agreement with the DPS. To obtain the user agreement and more information, Company must contact:

Access and Dissemination Bureau
Texas Department of Public Safety
Crime Records Service
P. O. Box 149322
Austin, Texas 78714-9322

Email: FACT@txdps. State. tx. us
Phone: (512) 424-2365

For fastest service, please email or call. State in the message that Company is a school contractor and needs to have an account established for DPS FACT clearinghouse access. Please include:

Company Name
Company Address
Company Phone
Name of Company point of contact
Phone of Company point of contact
Company email to be used for notification of FACT records and messages

The information in the DPS FACT Clearinghouse is confidential, and access must be restricted to the least number of persons needed to review the records. The account must include at least one designated supervisor to make necessary changes and to monitor the site's security and the access to the criminal history data retrieved. Additional users must be limited to those who need to request, retrieve, or evaluate data regarding the individual applicants.

PLEASE NOTE: After the Company signs the DPS User Agreement for FACT, DPS will provide the Company with a revised ***FAST Fingerprint Pass*** that Company will have to provide to its employees and applicants. Company's employees and applicants will use that ***FAST Fingerprint Pass*** when scheduling their FAST fingerprinting.

Contractor Criminal Background Certification

Introduction: Texas Education Code Chapter 22 requires service contractors to obtain criminal history record information regarding covered employees and to certify that fact to the Owner. Covered employees with disqualifying convictions are prohibited from serving at a School.

Definitions:

Covered employees: All employees of a contractor who have or will have continuing duties related to the service to be performed at the school and have or will have direct contact with students. The Owner will be the final arbiter of what constitutes direct contact with students.

Disqualifying conviction: One of the following offenses, if at the time of the offense, the victim was under 18 or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense under federal law or the laws of another state; or (d) the conviction of a felony or misdemeanor that would disqualify a person from obtaining certification as an educator under Texas Education Code 21.060.

Note: For covered persons hired on or after January 1, 2008, fingerprinting and photographing of the covered person is required. A covered person is considered to have been employed by a service contractor as of the date the covered person first provided services for compensation.

On behalf of _____ ("Contractor"), I certify that [check one]:

[ ] None of Contractor's employees are *covered employees*, as defined above.

Or

[ ] Some or all of Contractor's employees are *covered employees.* If this box is selected, I further certify that:

(1) Contractor has obtained all required criminal history record information, through the Texas Department of Public Safety, regarding its covered employees. None of the covered employees has a disqualifying conviction. Contractor has taken reasonable steps to ensure that its employees who are not covered employees do not have continuing duties related to the contract services or direct contact with students.

(2) If Contractor receives information that a covered employee has a disqualifying conviction, Contractor will immediately remove the covered employee from contract duties and notify the Owner in writing within three (3) business days.

(3) Upon request, Contractor will make available for the Owner's inspection the criminal history record information of any covered employee. If the Owner objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Contractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance by Contractor with this certification may be grounds for contract termination.

Company Name:_____/Submitter's Name/Title:_____

Email Address: (PLEASE TYPE EMAIL ADDRESS)_____

Submitter's Signature:_____Telephone No._____/ 800 # (if available)_____

Fax No._____ Date:_____

Address:_____City, State and Zip Code:_____

This form is required to be completed and signed however, only the successful Proposers will be required to comply with requirement set forth in Act of May 28, 2007, 80th Leg., R.S., S.B. 9, § 30. All related costs including background checks/fingerprinting shall be at the contractor's expense. Revised February 1, 2011***This sheet must be completed, signed, and returned with Prime Contractor's submittal***

Subcontractor Form

Undersigned shall employ, subject to the Owner's approval, the following subcontractor for the Request for Proposal. **One (1) form must be provided for each and every subcontractor employed.** The prime Proposer shall bear the sole responsibility for the successful completion of work performed by the below listed third party service provider(s).

Service provided by Subcontractor:	
Name of Subcontractor:	
Address:	
City/State/Zip:	
Telephone:	
Fax Number:	
E-Mail Address:	
Point of Contact:	
Business Days/Hours:	
No. Years in Business Under This Name:	
No. Years at Location Listed:	
No. Personnel Employed:	

Subcontractor Name:_____/Submitter's Name/Title:_____

Address:_____City, State and Zip Code:_____

Email Address: _____

Submitter's Signature:_____Telephone No._____

Fax No._____800 # (if available)_____

Date:_____

Note: Due to provisions made to Contracted Services Criminal History by HB 2730, effective September 1, 2009, all subcontractors must certify to the Owner, that the subcontractor complied and adheres to the Criminal History check requirements.

All subcontractors identified above, must complete the "Subcontractor Criminal Background Certification" form.

This sheet must be completed, signed, and returned with Prime Contractor's submittal

Revised February 1, 2011

Subcontractor Criminal Background Certification

Introduction: Texas Education Code Chapter 22 requires service subcontractors to obtain criminal history record information regarding covered employees and to certify that fact to the Owner. Covered employees with disqualifying convictions are prohibited from serving at a school district.

Definitions:

Covered employees: All employees of a subcontractor who have or will have continuing duties related to the service to be performed at the school and have or will have direct contact with students. The Owner will be the final arbiter of what constitutes direct contact with students.

Disqualifying conviction: One of the following offenses, if at the time of the offense, the victim was under 18 or enrolled in a public school: (a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; (c) an equivalent offense under federal law or the laws of another state; or (d) the conviction of a felony or misdemeanor that would disqualify a person from obtaining certification as an educator under Texas Education Code 21.060. This same standard applies to employees of subcontractors.
Note: For covered persons hired on or after January 1, 2008, fingerprinting and photographing of the covered person is required. A covered person is considered to have been employed by a service contractor as of the date the covered person first provided services for compensation

On behalf of _____ ("Subcontractor"), I certify that [check one]:

[ ] None of subcontractor's employees are *covered employees*, as defined above.
Or
[ ] Some or all of subcontractor's employees are *covered employees.* If this box is selected, I further certify that:

(1) Subcontractor has obtained all required criminal history record information, through the Texas Department of Public Safety, regarding its covered employees. None of the covered employees has a disqualifying conviction. Subcontractor has taken reasonable steps to ensure that its employees who are not covered employees do not have continuing duties related to the contract services or direct contact with students.
(2) If Subcontractor receives information that a covered employee has a disqualifying conviction, subcontractor will immediately remove the covered employee from contract duties and notify the Owner in writing within three (3) business days.
(3) Upon request, Subcontractor will make available for the Owner's inspection the criminal history record information of any covered employee. If the Owner objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Subcontractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance by Subcontractor with this certification may be grounds for contract termination.

Subcontractor Name:_____/Submitter's Name/Title:_____

Email Address: (PLEASE TYPE EMAIL ADDRESS)_____

Submitter's Signature:_____Telephone No._____/ 800 # (if available)

Fax No._____ Date:_____

Address:_____ City, State and Zip Code:

This form is required to be completed and signed however, only the successful Proposers will be required to comply with requirement set forth in Act of May 28, 2007, 80th Leg., R.S., S.B. 9, § 30. All related costs including background checks/fingerprinting shall be at the sub- contractor's expense. Revised February 1, 2011***This sheet must be completed, signed, and returned with Prime Contractor's submittal***

DOCUMENT 004200

FELONY CONVICTION NOTIFICATION FORM

FELONY CONVICTION NOTIFICATION

STATEMENT OF AFFIRMATION

The undersigned affirms that he/she is duly authorized to provide this information by the person(s) or business entity making the proposal, and the information provided below concerning felony convictions has been personally and thoroughly reviewed, and verified, and is, therefore, current, true and accurate to the best of his/her knowledge.

Firm's
Name:_____Address_____

“a. ___ My firm is a publicly held corporation, therefore, this reporting requirement is not applicable."

"b. ___ My firm is not owned nor operated by anyone who has been convicted of a felony."

“c. ___ My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:"

Name of Felon(s)

_____

Details of Conviction(s)_____

_____

PLEASE CHECK a, b, or c ABOVE AND SIGN BELOW

Offeror's
Name_____

Position/Title_____

Offeror's
Signature_____Date_____

Subscribed and sworn to me on this _____day of _____, 20___.

_____
Notary Public

_____
My Commission expires

END OF DOCUMENT

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DOCUMENT 004300

PROPOSAL EVALUATION WAIVER FORM

PROPOSAL EVALUATION WAIVER

By submitting a Proposal, the Proposer indicated below agrees to waive any claim it has or may have against the Owner, Architect, Engineers, Consultants and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any proposal. The Proposer further agrees the Owner reserves the right to waive any requirements under the proposal documents or the Contract Documents, with regards to acceptance or rejection of any proposals, and recommendation or award of the contract.

STATEMENT OF AFFIRMATION

"The undersigned affirms that he/she is duly authorized to execute this waiver by the person(s) or business entity making the proposal.

Firm's Name_____Address_____

Proposer's
Name _____Date_____

Proposer's
Signature _____

Position/Title_____

Subscribed and sworn to me on this _____day of _____, 20___.

_____
Notary Public

_____
My Commission expires

END OF DOCUMENT

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DOCUMENT 004400

AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT FORM

AFFIDAVIT OF NON-DISCRIMINATORY EMPLOYMENT

The undersigned Contractor or Subcontractor agrees to refrain from discrimination in terms and conditions of employment to the basis of race, color, religion, sex, or national origin, and agrees to take affirmative action as required by Federal Statutes and rules and Regulations issued pursuant thereto in order to maintain and insure non-discriminatory employment practices.

_____

Name of Contractor or Subcontractor

Subscribed and sworn to me on this _____day of _____, 20___.

_____

Notary Public

_____

My Commission expires

END OF DOCUMENT

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CONFLICT OF INTEREST FORM

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

DOCUMENT 005200

AGREEMENT FORM

A. The "Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM", AIA Document A101, 2017 Edition, will be the form used as a Contract for this Project.

B. A copy of the Supplementary Conditions Document is included in this Project Manual, following this section.

END OF DOCUMENT

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AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Idea Public Schools
2115 W. Pike Blvd.
Weslaco, Texas 78596

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

IDEA Edinburg and IDEA Tres Lagos Security Fencing
Edinburg and McAllen, Texas

The Architect:
(Name, legal status, address and other information)

Gomez Mendez Saenz, Inc.
1150 Paredes Line Rd.
Brownsville, Texas 78521
Telephone Number: 956-546-0110
Fax Number: 956-546-0196

The Owner and Contractor agree as follows.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[ ] A date set forth in a notice to proceed issued by the Owner.

[ ] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

%

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[ ] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION
§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS
§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

2115 W. Pike Blvd.
Weslaco, Texas 78596

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
.3 AIA Document A201™–2017, General Conditions of the Contract for Construction
.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:

(Insert the date of the E204-2017 incorporated into this Agreement.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Leann Hernandez, Chief Financial Officer	
(Printed name and title)	*(Printed name and title)*

SUPPLEMENTARY CONDITIONS TO THE STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR AIA DOCUMENT A101-2017

The Supplementary Conditions contain modifications and additions to the Standard Form of Agreement between Owner and Contractor, AIA Document A101—2017 Edition. Where any part of the AIA A101—2017 is modified or voided by the Supplementary Conditions, the unaltered portions shall remain in effect.

All references to the AIA A201—2017 shall mean the AIA Document AIA A201–2017 as modified by Owner.

ARTICLE 4 – Contract Sum

4.5 Insert the following terms and conditions for liquidated damages:

> **"**Owner and Contractor recognize that time is of the essence in this Agreement and that Owner will suffer significant financial loss if the Work is not completed within the time specified in Section 3.3 above, plus any extension thereof allowed in accordance with Article 8 of the General Conditions. They also recognize the actual damages caused by delays, is difficult to ascertain and that there are additional difficulties involved in proving in a legal proceeding and due to differences of opinion with respect thereto, the actual damages suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring such proof, Owner and Contractor agree that as liquidated damages for delay (but not as penalty) Contractor shall pay Owner Two Thousand, Five Hundred Dollars ($2,500.00) for each day that expires after the time specified in Section 3.3 for Substantial Completion until the work is substantially complete. Owner and Contractor agree and stipulate that this amount is reasonable compensation to Owner in the event of delay.
>
> If Final Completion is not achieved after sixty (60) days from the date of Substantial Completion, an amount of Five Hundred Dollars ($500)/day in additional liquidated damages shall be assessed. In the event the Contractor fails to achieve Substantial Completion by the date indicated in the Contract or Final Completion in the period stated herein, as may be extended by approved Change Order, the Owner shall be entitled to liquidated damages stipulated herein. It is expressly understood that the said sum per day is agreed upon as a fair estimate of the pecuniary damages, which will be sustained by Owner in the event that the Work is not completed within the agreed time, or within the legally extended time, if any. Said sum shall be considered as liquidated damages only, the exact ascertainment of which is difficult and in no sense be considered a penalty."

ARTICLE 5 – Payments

5.1.3 Delete this paragraph in its entirety and replace with the following:

> "Contractor shall submit an Application for Payment to the Architect by the **1st** of the month. Architect shall have seven **(7) days** to approve or reject the application for payment. Owner shall pay Contractor within **30 days** of receipt of an approved Application of Payment from the Architect. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner no later than **30 days** after the Architect approves the Application for Payment. A draft pencil review of the Application for Payment prior to the approval date may be conducted to facilitate the approval process."

Delete sections 5.1.7.1.1, 5.1.7.2, and 5.1.7.3 in their entirety.

5.2.2 At the end of the paragraph delete "or as follows" and insert "and upon acceptance by the Owner and Architect, and after satisfactory evidence has been given by the Contractor that all of the Contractor's subcontractors and suppliers have been paid and the entire Project is free from liens."

ARTICLE 6 Dispute Resolution

6.2 Check the second box, "Litigation in a court of competent jurisdiction."

ARTICLE 7 Termination or Suspension

7.1.1 Delete in its entirety

ARTICLE 8 Miscellaneous Provision

8.6 Delete in its entirety

Add new 8.7.1 and 8.7.2 as follows:

8.7.1 Family Code Child Support Certification By signing the Agreement, the Contractor certifies as follows: "Under Section 231.006, *Texas Family Code*, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate."

8.7.2 Felony Conviction Notice Section 44.034 of the Texas Education Code requires a person or business entity that enters into a contract with a charter school or school district must give advance notice to the school if the person or an owner or operator of the business entity has been convicted of a felony. The

notice must include a general description of the conduct resulting in the conviction of a felony. Subsection (b) states: “[...] a school district [or charter school] may terminate a contract with a person or business entity if the [school] determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The [school] must compensate the person or business entity for the services performed before the termination of the contract.” Subsection (c) states: “[...] this section does not apply to a publicly held corporation.”

8.7.3 Conflict of Interest. Contractor must comply with all applicable conflict of interest laws. In accordance with Chapter 176, Local Government Code, the Owner requires individuals or businesses who contract business with the Owner to accurately complete and file a Conflict of Interest Questionnaire (CIQ) which is provided in the Project Manual. The CIQ form must be completed and submitted as part of the required contractor bid submission documents. The Owner is required to maintain a list of businesses, officers, Board members (and their family members) as well as other employees of Owner who are subject to this Local Government Code. Disclosures must be made and posted online by the Owner. Anyone who knowingly fails to file the statement commits a class C misdemeanor. A class C misdemeanor is punishable by a fine of up to $500. Further, failure to complete the CIQ or falsification of the CIQ is grounds for contract termination per state law.

EXHIBIT A – Insurance and Bonds

Refer to AIA A201-2017 Supplemental Instructions, Section 11.1

DOCUMENT 007000

GENERAL CONDITIONS

A. The General Conditions of this Contract is the American Institute of Architects Document A201, "General Conditions of the Contract for Construction", 2017 Edition, hereinafter referred to as the "General Conditions".

B. A copy of the Supplementary Conditions Document is included in this Project Manual, following this section, and shall apply to each and every Section of the Work as though written in full therein.

END OF DOCUMENT

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SUPPLEMENTARY CONDITIONS
TO THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION
AIA DOCUMENT A201-2017
IDEA PUBLIC SCHOOLS

A. The Supplementary Conditions contain modifications and additions to the General Conditions of the Contract for Construction, AIA Document A201-2017 Edition. Where any part of the AIA General Conditions is modified or voided by the Supplementary Conditions, the unaltered portions shall remain in effect. The paragraph numbering system of AIA Document A-201-2017 Edition, is continued in the Supplementary Conditions.

B. The following paragraphs and subparagraphs take precedence over the Agreement and General Conditions. Where any part of the Agreement or General Conditions are modified or deleted by the Supplementary Conditions, the unaltered provisions remain in effect.

C. Paragraph numbers and titles refer to like numbers and titles in the Agreement and General Conditions.

ARTICLE 1 – GENERAL PROVISIONS

1.1 Basic Definitions

1.1.1 The Contract Documents

1.1.1 In line 6, after "Architect" delete "." and insert "pursuant to Paragraph 7.4." In line 6 delete "Unless specifically enumerated in the Agreement" and replace with, "At the Owner's option,"

Insert new 1.1.1.1 as follows:

1.1.1.1 Contractor acknowledges and warrants that it has closely examined all the Contract Documents and is unaware of any instance where the documents are not suitable or are insufficient, to enable the Contractor to complete the Work in a timely manner for the Contract sum, and that they include all Work, whether or not shown or described, which reasonably may be inferred or useful for the completion of the Work in full compliance with all applicable codes, laws, ordinances, and regulations."

1.1.2 The Contract

1.1.2 In line 5 after "Sub-Subcontractor" insert the following, "(except as provided in Paragraph 5.3 and 5.4 hereof)". In line 7 after "obligations" insert "of Contractor".

1.1.3 The Work

Insert new 1.1.3.1 as follows:

1.1.3.1 The Work shall include the obligation of the Contractor to visit the site of the project before submitting a proposal. Such site visit shall be for the purpose of familiarizing Contractor with the conditions as they exist and the character of the operations to be carried on under the Contract Document, including all existing site conditions, access to the site, physical characteristics of the site and surrounding areas. It also includes all supplies, skill, supervision, transportation services and other facilities and things necessary, proper or incidental to the carrying out and completion of the terms of the Contract and all other items of cost or value needed to produce, construct and fully complete the public work identified by the Contract Documents.

1.1.4 <u>The Project</u>

1.1.4 At the end of the paragraph delete the "." and insert the following, "wherever located and whenever issued."

1.2 <u>Correlation and Intent of the Contract Documents</u>

1.2.1 At the end of the paragraph insert the following, "Any differences between the requirements of the Drawings and the Specifications or any differences noted within the Drawings themselves or within the Specifications themselves have been referred to Owner and Architect by Contactor prior to the submission of bids and have been clarified by an Addendum issued to all bidders."

"If such differences or conflicts were not called to Owner's and Architect's attentions prior to submission of bids, Architect shall decide which of the conflicting requirements will govern based upon the following: the most stringent of the requirements will take precedence over the less stringent; the most expensive item will take precedence over the less expensive, and subject to the approval of Owner, Contractor shall perform the Work in accordance with the Architect's decision, without change to the Contract Sum or Contract Time. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable as being necessary to produce the intended results referenced in the Contract Documents."

Insert new 1.2.1.2 as follows:

1.2.1.2 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

.1 The Agreement;
.2 Addenda, with those of later date having precedence over those of earlier date;
.3 Supplementary Conditions issued by the Owner;
.4 The General Conditions of the Contact for Construction;
.5 Specifications;

.6 Drawings, in the case of inconsistency between the Drawings and Specifications or within either document, not clarified by Addendum, the better quality or greater quantity of Work shall be included in the Contract Documents. Clarifications of the inconsistency will be accomplished with the Contractor and, if necessary, an appropriate reduction in the contract will be accomplished by Change Order. Figures given on drawings govern scale measurements. Large scale drawings take precedence over small scale drawings. Written words take precedence over numbers. Handwritten documents take precedence over typewritten documents. Existing conditions take precedence over drawings and specifications for dimensions and shall be verified by the Contractor. The Contractor proceeds at his own risk if conflicts or discrepancies are not resolved prior to the execution of the Work.

Insert new 1.2.1.3 as follows:

1.2.1.3 If Work is required in a manner to make it impossible to produce Work of the quality required by or reasonably inferred from the Contract Documents, or should discrepancies appear among the Contract Documents, Contractor shall request in writing an interpretation from Architect before proceeding with the Work. If Contractor fails to make such request, no excuse will thereafter be entertained for failure to carryout Work in the required manner or provide required guarantees, warranties, or bonds, and Contractor shall not be entitled to any change in the Contract Sum or the Contract Time on account of such failure.

1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

1.5.1 Delete the first sentence in its entirety and replace with the following: “Instruments of Service, including the Drawings, Specifications, and other similar or related documents and copies thereof are furnished to Contractor for the purpose of performing the Work and are, and shall remain, the property of Owner and Owner will retain all common law, statutory and other reserved rights, including copyrights.” In line 6 delete “Architect or Architect’s consultants’” and replace with: “Owner or Owners’ consultants.” Add the following at the end of the paragraph: “Neither the Contractor nor any subcontractor may utilize the Instruments of Service on other projects without the written consent of the Owner and the Architect.”

ARTICLE 2 – OWNER

2.1 General

Delete the existing Paragraph 2.1.1 and replacing it with the following paragraph:

2.1.1 The Owner is the person or entity identified as such in the Agreement and is

referred to throughout the Contract Documents as if singular in number. Owner's Board of Trustees has designated the Chief Executive Officer, Chief Operating Officer, and Chief Financial Officer, with the power to enter into a Contract, to execute a change order requiring an increase in the Contract Sum, or agreements to extend the contractual completion date. Project Management Services, Inc. (may be referred to as "Project Manager"), is an authorized representative to act on its behalf during the course of construction and any decisions made by the Project Manager effecting cost or extensions of contract time must be ratified by one of the Owner's Chief Officers.

2.1.2 Replace paragraph 2.1.2 in its entirety with the following:

Notice regarding construction project financing; Unlike a traditional school district where a bond election must be held and approved before major construction projects are undertaken, charter schools such as the Owner are authorized to use interim financing, traditional bank financing and to issue tax exempt bonds that do not require an election. Owner typically uses a combination of the above, and proceeds with construction using an available line of credit before issuing bonds to finance the completed project. Responding bidders and the selected contractor acknowledge the financing plan of the Owner and agree that they will comply with Owner's notice to proceed and commence construction when and as directed, in order to meet Owner's construction timelines.

2.3 Information and Services Required of the Owner

2.3.4 In line 1 after, "characteristics" insert "and" and delete "and utility locations". At the end of the paragraph insert the following, "In connection with the foregoing, Contractor shall be solely responsible for locating (and shall locate prior to performing any Work) all utility lines, telephone company lines and cable, sewer lines, water pipes, gas lines, electrical lines, including without limitation, all buried pipelines and buried telephone cables and shall perform the Work in such a manner so as to avoid damaging any such lines, cables, pipes and pipelines"

2.3.6 At the end of the sentence delete the "." and insert the following, "for use on this Project. All costs of reproduction are the responsibility of Contactor."

2.4 Owner's Right to Stop the Work

2.4 In line two after, "Contract Documents" insert the following, "or fails to remove and discharge (within ten (10) days) any lien filed upon Owner's or Landlord's property by anyone claiming by, through, or under Contractor; or disregards the instructions of Architect or Owner when based on the requirements of the Contract Documents". At the end of the paragraph delete "." and insert the following, ", and any delay resulting from such Work stoppage shall not extend any Milestone Date identified in the Contract for Construction or the required dates of Substantial or Final Completion."

2.5 Owner's Right to Carry Out the Work

Insert new 2.5.1 as follows:

2.5.1 The rights stated in Article 2 shall be in addition and not in limitation of any other rights of Owner granted in the Contract Documents or at law or in equity.

Insert new 2.6 and 2.6.1:

2.6 For any charges submitted for payment based upon costs incurred by the Contractor, the Owner shall be entitled to audit all records of the Contractor to verify the accuracy of costs. This right of audit will extend for three years after final completion, and the Contractor will maintain records reflecting all costs for this period and promptly provide access to the Owner upon request.

2.6.1 In no event shall the Owner have control over, change of, or any responsibility for construction, means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted the Owner in the Contract Documents.

ARTICLE 3 – CONTRACTOR

3.2 Review of Contract Documents and Field Conditions by Contractor

3.2.2 In line 7 after "Architect" insert "and Owner" and in line 8 after "request for" insert, "design". Delete the last sentence in its entirety.

3.2.3 In line 3 after "Architect" insert, "and Owner in writing," and in line 4 after "request for" insert "design."

3.2.4 Delete the "." at the end of the paragraph and insert the following, "unless the Contractor recognized or reasonably should have recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect and Owner."

Insert new paragraphs 3.2.5, 3.2.6, 3.2.7 and 3.2.8 as follows:

3.2.5 "The Contractor shall not be entitled to additional compensation for the "rework portion" of any additional work caused by his failure to carefully study and compare the Contract Documents prior to execution of the Work."

3.2.6 "The Contractor shall make a reasonable attempt to interpret the Contract Documents before asking the Architect for assistance in interpretation. The Contractor shall not ask the Architect for observation of work prior to the Contractor's field superintendent's personal inspection of the work and his determination that the work complies with the Contact Documents."

3.2.7 "If, in the opinion of the Architect and Owner, the Contractor does not make a reasonable effort to comply with the above requirements of the Contract Documents and this causes the Architect or his consultants to expend an unreasonable amount of time in the discharge of the duties imposed on him by the Contract Documents, then the Contractor shall bear the cost of compensation for the Architect's additional services made necessary by such failure. The Architect will give the Contractor prior notice of intent to bill for additional services related to 3.2.6, 3.2.7 and 3.12 before additional services are performed."

3.2.8 If the Contractor has knowledge that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the work or to honor his Warranty, Contractor shall promptly, but no later than three (3) business days after having such knowledge, notify the Architect in writing, providing substantiation for the position. Any necessary changes, including substitutions of materials, shall be accomplished by appropriate Modification.

3.3 <u>Supervision and Construction Procedures</u>

3.3.2 Add the following to the end of the paragraph:

As part of that responsibility, Contractor shall enforce the Owner's alcohol-free, drug-free, tobacco and e-cig-free, and weapon-free policies and zones, which will require compliance with those policies and zones by Contractor's employees, Subcontractors, and all other persons carrying out the Contract. Contractor shall also require adequate and appropriate dress of Contractor's employees, Subcontractors, and all other persons carrying out the Contract.

As to those matters for which the Contractor has responsibility under the terms of the Agreement, the Owner shall not be responsible for or have control or charge over the acts or omissions of the Contractor, Subcontractors or any of their agents or employees or any other persons for whom Contractor is responsible. It is understood and agreed that the relationship of Contractor to Owner shall be that of an independent contractor. Nothing contained herein of inferable herefrom shall be deemed or construed (1) to make Contractor the agent, servant, or employee of the Owner or (2) create any partnership, joint venture or other association between Owner and Contractor. Any direction or instruction by Owner or any of its authorized representatives in respect of the Work shall related to the results the Owner desires to obtain from the Work, and shall in no way affect Contractor's independent contractor status as described herein.

Insert new 3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.8, 3.3.9, 3.3.10, 3.3.11 as follows:

3.3.4 Contractor shall be responsible to Owner for acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under Contract Documents or other arrangements with Contractor.

3.3.5 Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the Work, including those with respect to the safety of persons and property and their protection from damages, injury, or loss. Contractor shall promptly, but no later than 5 days, remedy damage and loss to property at the site caused in whole or in part by Contractor, its Subcontractor, or anyone directly or indirectly employed by any of them or by anyone for whose acts they may be liable, except for damage or loss attributable solely to acts or omissions of Owner or Architect or by anyone for whose acts either of them may be liable and not attributable to the fault or negligence of Contractor, its Subcontractor, or anyone directly or indirectly employed by them. The foregoing obligations of Contractor are in addition to Contractor's obligations under other provisions hereunder.

3.3.6 Contractor shall be responsible for inspection of portion of Work already performed under the Contract for Construction to determine that such portions are in proper condition to receive subsequent Work.

3.3.7 Contractor has the responsibility to ensure that all material suppliers and Subcontractors, their agents, and employees adhere to the Contract Documents, and that they order materials on time, taking into account the current market and delivery conditions, and that they provide materials on time. Contractor shall coordinate its Work with that of all others on the Project, including of construction utilities.

3.3.8 Contractor shall establish and maintain bench marks and all other grades, lines, and levels necessary for the Work; report errors or inconsistencies to Owner and Architect before commencing Work; and, if applicable, review the placement of the buildings and permanent facilities on the site with Owner and Architect after all lines are staked out and before foundation Work is started. Contractor shall provide access to the Work for Owner, Architect, other persons designated by Owner, and governmental inspectors. Any encroachments made by Contractor or its Subcontractors on adjacent properties caused by construction as revealed by an improvements survey, except for encroachments arising from errors or omissions not reasonably discoverable by Contractor in the Contract Documents, shall be the sole responsibility of Contractor, and Contractor shall correct such encroachments within thirty (30) days of the improvement survey (or as soon thereafter as reasonably possible), at Contractor's sole cost and expense, either by the removal of the encroachment (and subsequent reconstruction on the Project site) or agreement with the adjacent property Owner(s) (in form and substance satisfactory to Owner in its sole discretion) allowing the encroachments to remain.

3.3.9 Contractor shall verify at the Work site the measurements indicated on the Drawings and Specifications and shall establish correctly the lines, levels, and positions for the Work and be responsible for their accuracy and proper correlation with control lines, monuments, and data, as established by surveys furnished by Owner. Work shall be erected square, plumb, level, true to line and grade, in the exact plane and to the correct elevation and/or sloped to drain as indicated. To ensure the proper execution of its subsequent Work, Contractor shall measure all Work already in place (including but not

limited to utilities and grades installed or prepared by others) and shall at once report to Architect and Owner any discrepancy between said Work and the Drawings and Specifications for the Work.

3.3.10 Any discrepancy or omission in the dimensions or elevations shown on the Drawings and Specifications or found in previous Work which may prevent accurate layout or construction of the Work, shall immediately be reported by Contractor to Owner and Architect. If Contractor performs, permits, or causes performance of any Work when Contractor knows or reasonably should have known that such discrepancy or omission exists, without first obtaining further instruction from Architect or Owner, Contractor shall bear any and all costs arising therefrom including, without limitation, the costs of correction thereof without increase or adjustment in the Contract Sum. Omissions from the Drawings or Specifications, or the mis-description of details of Work which are reasonably inferable in order to carry out the intent of the Drawings and Specifications, or which are customarily performed, shall not relieve Contractor from performing such omitted or mis-described details of the Work, and they shall be performed as if fully and correctly set forth and described in the Drawings and Specifications, at no additional cost to Owner.

3.3.11 Contractor shall engage workers who are skilled in performing the Work, and all Work shall be performed with care and skill and in a good workmanlike manner under the full-time supervision of an approved engineer or foreman. Contractor shall be liable for all property damage, including repairs and replacements of the Work and economic losses, which proximately result from the breach of this duty. Contractor shall advise Architect:

.1 if a specified product deviates from good construction practices;

.2 if following the Specifications will affect any warranties; or

.3 any objections which Contractor may have to the Specifications.

Nothing contained in Subparagraph 1.1.3 shall alter the responsibilities established in this Subparagraph.

3.4 Labor and Materials

3.4.2 At the end of the paragraph delete the "." and insert the following, "by making requests for substitutions based on Subparagraph 3.4.2, Contractor:

.1 represents that Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

.2 represents that Contractor will provide the same warranty for the substitution that Contractor would for that specified;

.3 certifies that the cost data presented is complete and includes all related

costs under this Contract except Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent; and

.4 will coordinate the installation for the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Add the following at the end of the paragraph: "Contractor shall bear the risk of any delay in performance caused by submitting substitutions."

3.4.3 At the end of the paragraph insert the following, "Contractor shall also be responsible for labor peace on the Project and shall at all times make its best efforts and judgments as an experienced Contractor to adopt and implement policies and practices designed to avoid Work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstances and shall at all times maintain Project-wide labor harmony. Except as specifically provided in Subparagraph 8.3 hereof, Contractor shall be liable to Owner for all damages suffered by Owner."

Insert new 3.4.4, 3.4.5, 3.4.6 and 3.4.7 as follows:

3.4.4 Materials shall conform to manufacturer's standards in effect at the date of execution of the Agreement and shall be installed in strict accordance with manufacturer's directions. Contractor shall, if required by Owner or Architect, furnish satisfactory evidence as to the kind and quality of any materials. All packaged materials shall be shipped to the site in the original containers clearly labeled, and delivery slips shall be submitted with bulk materials identifying thereon the source, and warranting quality and compliance with Contract Documents.

3.4.5 When the Contract Documents require the Work, or any part of same, to be above the standards required by applicable laws, ordinances, rules and regulations, and other statutory provisions pertaining to the Work, such Work shall be performed and completed by Contractor in accordance with the Contract Documents.

3.4.6 When the manufacturer's name, patent numbers, underwriter's labels, model numbers or similar identifying marks are required, such markings shall be located as inconspicuously as possible.

3.4.7 Contractor agrees that it and its agents and employees will comply with the Immigration Reform and Control Act of 1986, as amended by the Immigration Act of 1990, or any subsequent legislation which regulates the employment of aliens. Contractor will not knowingly employ or knowingly allow any of its Subcontractors to employ, any illegal or undocumented aliens to perform any Work in connection with the Project. Contractor will retain and make available for inspection by Owner at the Contractor's Primary place of business on the first day of employment or upon reasonable notice, a completed I-9 Employment Eligibility Verification Form and copies of associated employment eligibility and identity documentation for each person that Contractor directly employs on the jobsite. If Contractor receives actual knowledge of

the unauthorized status of one of its jobsite employees, or if Contractor learns of facts that would lead a reasonable person to infer the unauthorized status of any jobsite employee, Contractor will immediately remove that employee from the jobsite, inform Owner, and shall require such Subcontractor to act in a similar fashion with respect to such Subcontractor's employees. Contractor agrees to have a provision on its subcontracts stating that each Subcontractor will have the duties and responsibilities with regard to its employees that the Contractor has agreed to in this section. The Contractor agrees to defend (at Owner's option, and with counsel acceptable to Owner), indemnify and hold harmless the Owner as to any fines or other liabilities of any kind arising out of or relating to Contractor's breach of this section or any immigration laws or regulations.

3. 5 Warranty

3.5.1 In line 2, delete "good" and substitute "the best". In line 4 delete "except for those inherent in the quality of the Work that Contact Documents require or permit." Delete the fourth sentence in its entirety. In the line 8 after "Architect" add "or Owner".

At the end of paragraph 3.5.2 insert the following:

ALL WARRANTIES SHALL INCLUDE LABOR AND MATERIALS AND THE MANUFACTURER'S WARRANTY SHALL BE SIGNED BY SUBCONTRACTOR AND COUNTERSIGNED BY CONTRACTOR. ALL WARRANTIES SHALL BE ADDRESSED TO OWNER AND DELIVERED TO ARCHITECT UPON COMPLETION OF THE WORK AND BEFORE OR WITH THE SUBMISSION OF REQUEST FOR FINAL PAYMENT.

Insert new 3.5.3, 3.5.4, 3.5.5, 3.5.6, 3.5.7, 3.5.8, 3.5.9 and 3.5.10 as follows:

3.5.3 Contractor shall issue in writing to Owner as a condition precedent to final payment a "general warranty" reflecting the terms and conditions of this Paragraph 3.5 for all Work under the Contract.

3.5.4 The warranties provided in Section 3.5 shall be in addition to and not in limitation of any other warranty or remedy required by law or by the Contract Documents, and such warranty shall be interpreted to require Contractor to replace defective materials and equipment and re-execute defective Work which is disclosed to the Contractor by the Owner within a period of one (1) year after Substantial Completion of the entire Work unless a longer time is specifically called for in the specifications. The Contractor shall assign all components, equipment and fixture warranties to the Owner and will deliver all manuals to the Owner at the completion of construction.

3.5.5 Except when a longer warranty time is specifically called for in the Specification Sections or is otherwise provided by law, the General Warranty shall be for twelve (12) months and shall be in form and content otherwise satisfactory to Owner.

3.5.6 Warranties shall become effective on a date established by Owner and Architect in accordance with the Contract Documents. This date shall be the Date of Substantial Completion of the entire Work, unless otherwise provided in any Certificate of Partial Substantial Completion approved by the parties.

3.5.7 If Architect considers it impractical, because of unsuitable test conditions or some other factors, to execute simultaneous final acceptance of all equipment, portions of the installation may be certified by Architect for final acceptance, subject to Owner's approval, when that portion of the system is complete and ready for operation as called for under Subparagraph 9.8.1.

3.5.8 Contractor shall warrant for a period of twelve (12) months that the building(s) shall be watertight and leak proof at every point and in every area, except where leaks can be attributed to damage to the building(s) by external forces beyond Contractor's control. Contractor shall, immediately upon notification by Owner of water penetration, determine the source of water penetration and, at its own expense, do any Work necessary to make the building(s) watertight. Contractor shall also, at its own expense, repair or replace any other damaged material, finishes, and furnishings, damaged as a result of this water penetration, to return the building(s) to its (their) original condition.

3.5.9 In addition to the foregoing stipulations, Contractor shall comply with all other warranties referred to in any portions of the Contract Documents or otherwise provided by law or in equity, and where warranties overlap, the more stringent requirement shall govern.

3.5.10 If for any reason Contractor cannot warrant any part of the Work using material or construction methods that have been specified, or shown, it shall notify Owner and Architect in writing before the Contract is signed, giving reasons, together with the name of product and data on a substitution it can warrant.

3.6 Taxes – NUMBERING WAS INCORRECT

Add the following paragraph:

The Owner is exempt from the Texas Sales Tax on any purchase of tangible personal property and will issue Certificates of Exemption from the Texas Sales Tax on materials furnished by Contractors on School Construction projects. No sales taxes shall be paid or charged to Owner by Contractor, subcontractors, materialmen or tradesmen.

3.7 Permits, Fees, Notices and Compliance with Laws

3.7.1 Delete entire section and replace with: Reference below sections for list of permits and fee payments.

a. Building Permit: Owner will make building permit application and pay directly to the City and plan review fees and building permit fees. The contractor shall be responsible for obtaining the approved permit and associated drawings from the City including any requirements for licensing or name change.

b. Permanent Tap and Impact Fees: All permanent tap and impact fees assessed by the City for water, sewer, storm sewer, driveway curb cuts, streets and traffic shall be paid by the Owner directly or by the Contractor through funds included in the Construction Contingency Allowance. The Contractor shall be responsible for applying for and obtaining any tap and impact permits. Permanent fees shall be those required for the permanent Work and shall not include any tap or impact fees required by the Contractor to complete their Work or any fees associated with temporary conditions due to phasing requirements.

c. Permanent Service Provider Work and Fees: All electric and gas service provider fees associated with bringing permanent power and permanent gas service from the distribution line to the transformer and or to the gas meter, including the transformer and gas meter themselves shall be paid for by the Contractor through funds included in the Contingency Allowance. The Contractor shall be responsible for contacting, coordinating, scheduling, obtaining any required forms (including those requiring Owner's signature), and coordination of the Service Provider's Work. The Contractor shall be responsible for the Work required to facilitate the Service Provider's Work, including but not limited to: transformer and meter mounting pads, removing trees, fences, grading, site preparation or other site items required for installation. The Contractor shall be responsible for any costs associated with obtaining non-permanent power or gas required for their Work or any Subcontractor's Work to maintain the project schedule.

d. Energy and Accessibility Work and Fees: The Owner shall be responsible for paying any Energy or Accessibility review fees and or Energy or Accessibility Inspection fees. If the Contractor constructs accessibility items that are not in accordance with those designed in the Construction Documents, the Contractor shall be responsible for any Energy or Accessibility inspection fees associated with non-compliant Work or the result of the Work not being ready for Inspection when called. The Contractor will not be responsible for cost of Work or inspection fees if the accessibility items shown in the Construction Documents are not compliant with Accessibility codes or rules.

e. Miscellaneous Permits, Work and Inspection Fees: The Contractor shall be responsible for any and all state and local authorities' inspection fees. The Contractor shall be responsible for applying, obtaining and paying any and all fees associated with any Work not listed above in items a. through d. This shall include but not limited to: fire alarm, fencing & gates, security, fire sprinkler, lawn sprinkler, mechanical, electrical, plumbing, paving permits, temporary utilities or temporary taps, construction trailer, moving, additional building component permits or reviews for canopies, bleachers, cold-formed metal framing, 3-way contracts, etc.

f. SWPPP Plans: The Contractor shall also obtain all permits and approvals, and

pay all fees and expenses, if any, associated with National Pollutant Discharge Elimination System (NPDES) regulations administered by the Environmental Protection Agency and state and local authorities, that require completion of documentation and/or acquisition of all permits for the Project. Contractor's obligations under this paragraph do not require it to perform engineering services during the pre-construction phase to prepare proper drainage for the construction sites. However, any drainage alterations made by Contractor during construction phase which modifies the original site drainage plan and requires the issuance of a permit shall be at Contractor's sole cost. The Owner shall pay directly to the governing authority the cost of all permanent property utility assessments and similar utility connection charges.

3.7.2 In line 2 after "lawful orders" insert "and all other requirements".

3.7.3 In line 1 after "Work" insert, "(including, without limitation, the installation of any materials or equipment) that it knows or reasonably should have known would" and also in line 1 delete "knowing it to be"

3.7.4 In line 8 after "will recommend" insert "to the Owner in writing,". At the end of the paragraph insert the following, "No adjustment in the Contract Time or Contract Sum shall be permitted in connection with a concealed or unknown condition that does not differ materially from those conditions disclosed or based on data provided to Contractor and by the Contractor's prior inspections, tests, reviews, and pre-construction services for the Project; or by the Contractors inspections, tests, reviews and pre-construction services that Contractor had the opportunity and obligation to make in connection with the Project but did not do so.

3.7.5 In line 3 after "Owner and Architect" insert "in writing".

Insert new 3.7.6 as follows:

3.7.6 The Contractor shall comply with the provisions of Section 22.08341 of the Texas Education Code and Section 153.1117 of the Texas Administrative Code. The form of certification by the Contractor shall be supplied by the Owner and must be supplemented by the Contractor as required by law, or as requested by the Owner.

3.8 Allowances

3.8.3 At the end of the sentence insert the following, "If a decision is needed to avoid a delay, Contractor shall notify Architect and Owner in writing sufficiently in advance of needed date to allow reasonable time for selections to be made."

3.9 Superintendent

3.9.2 Delete the second and third sentences in their entirety and insert the following in lieu thereof, "The Superintendent shall be satisfactory to the Owner and shall not be changed except with the consent of the Architect, unless the Superintendent leaves the

employment of the Contactor. No increase in Contract Time or Contract Sum shall be allowed in the event the Owner or Architect objects to any nominated superintendent. Such approval by the Owner shall not be unreasonably withheld."

3.9.3 Delete in its entirety and replace with the following:

3.9.3 Superintendent shall become resident on the site as soon as possible after commencement of the Work, and shall remain assigned to this Work, and resident on the site, throughout the course of the Work until items requiring completion or correction, identified at Substantial Completion, have been completed or corrected. A "resident on the site" is a person/worker who maintains his office and work area on the site and remains available to those working on site or visiting the site.

Insert new 3.9.4 and 3.9.5 as follows:

3.9.4 Project manager, while not required to be resident on the site, shall remain assigned to this Work, and be available on an as-needed basis throughout the course of the Work until items requiring completion or correction, identified at Substantial Completion, have been completed or corrected.

3.9.5 Owner shall be notified not less than 24 hours before any time superintendent will not be resident at the site for any reason except periodic illness; if the reason is due to illness, Owner shall be notified at the beginning of that day. Owner shall be notified of the identity of the acting superintendent. In the event the superintendent is absent from the site and notice has not been provided nor has an acting superintendent been assigned to the Work, then the Contractor is subject to being backcharged in the amount of $250.00 for each occurrence.

3.10 <u>Contractor's Construction and Submittal Schedules</u>

3.10.1 Delete the last sentence and add: "The schedule shall be updated every thirty (30) days and submitted to Architect with Contractor's Applications for Payment. Each schedule shall contain a comparison of actual progress with the estimated progress for such point in time stated in the original schedule. If any schedule submitted sets such a date for Substantial Completion for the Work or any phase of the Work beyond the date(s) of Substantial Completion established in the Contract (as the same may be extended as provided in the Contract Documents), then Contractor shall submit to Architect and Owner for their review and approval a narrative description of the means and methods that Contractor intends to employ to expedite the progress of the Work to ensure timely completion of the various phases of the Work as well as the totality of the Work. To ensure such timely completion, Contractor shall take all necessary action including, without limitation, increasing the number of personnel and labor on the Project and implementing overtime and double shifts. In that event, Contractor shall not be entitled to an adjustment in the Contract Sum or the schedule."

3.10.2 In line 2 after "for the Architect's" insert "and Owner's". In line 3 after "Architect's"

insert “and Owner’s”

Insert new 3.10.4, 3.10.5 and 3.10.6 as follows:

3.10.4 The process of approving Contractor’s schedules and updates to Contractor’s schedule shall not constitute a warranty by the Owner that any non-Contractor milestones or activities will occur as set out on Contractor’s schedule. Approval of a Contractor’s schedule does not constitute a commitment by the Owner to furnish any Owner-furnished information or material any earlier than Owner would otherwise be obligated to furnish that information or material under the Contract Documents. Failure of the Work to proceed in the sequence scheduled by Contractor shall not alone serve as the basis for a Claim for additional compensation or time. In the event there is interference with the Work, which is beyond its control, Contractor shall attempt to reschedule the Work in a manner that will hold resulting additional time and cost to a minimum. The construction schedule shall be in a detailed format satisfactory to the Owner and the Architect and shall also:

.1 Provide a graphic representation of all activities and events that will occur during performance of the Work;
.2 identify each phase of construction and occupancy; and
.3 set forth dates that are critical in ensuing the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents hereinafter referred to as Milestone Dates.

3.10.5 The Owner shall have the right to reschedule the time of day for the performance of any part of the Work that may interfere with the operation of the Owner’s premises or any tenants or invitees thereof. The Contractor shall, upon the Owner’s request, reschedule any portion of the Work affecting operation of the premises during hours when the premises are not in operation. Any rescheduling of performance of the Work under this Subparagraph 3.10.5 may be grounds for an extension of the Contract Time, if permitted under Subparagraph 8.3.1 and an equitable adjustments in the Contract Sum, if: (1) the performance of the Work was properly scheduled by the Contractor in compliance with the requirements of the Contract Documents, (2) such rescheduling is required for the convenience of the Owner and is not attributable to any act or omission of Contractor, and (3) if Owner agrees to the Contract Sum adjustment prior to any rescheduling.

3.10.6 If the project is behind schedule, Contractor shall submit a “Recovery Plan” which will indicate the manner in which Contractor intends to get the Work back on schedule. Owner may require Contractor to take efforts to expedite progress of the Work in conformance with the progress anticipated by the schedule, which actions may include without limitations, increasing the number of workmen performing the Work, utilizing overtime work and requiring additional work shifts. In the event of such unexcused Project delays, any extra costs incurred by the Contractor to place the Project back on schedule shall be at Contractor’s sole expense.

3.11 Documents and Samples at the Site

Insert new 3.11.1 and 3.11.2 as follows:

3.11.1 At the Date of Substantial Completion and as a condition precedent to final payment, Contractor shall furnish the following documents to Architect for submittal to Owner: Record Drawings showing the field changes and selections (all changes and selections to be approved by Owner and Architect in advance) affecting the general construction, mechanical, electrical, plumbing, and all other Work, and indicating the Work as actually installed. These shall consist of carefully drawn markings on a set of reproducible prints of Architect's Drawings obtained and paid for by Contractor. Contractor shall maintain at the job site one (1) set of Architect's Drawings and indicate thereon each field change as it occurs. The Contractor shall post all Addenda on Construction Documents prior to commencing work on the site.

3.11.2 Contractor shall at all times maintain job records, including, but not limited to, invoices, payment records, payroll records, daily reports, logs, diaries, and job meeting minutes, applicable to the project. Contractor shall make such reports and records available to inspection by the Owner, Architect, or their respective agents, within five (5) working days of request by Owner, Architect, or their respective agents.

3.12 Shop Drawings, Product Data and Samples

3.12.5 At the end of the paragraph insert the following, "If, in the opinion of the Architect, the Shop Drawings, Product Data, Samples and similar submittals are incomplete, indicate an inadequate understanding of the work covered by the submittals, or indicate a lack of study and review by the Contractor prior to submittal to the Architect, the submittals will be returned, unchecked, to the Contractor for correction of these three deficiencies and subsequent re-submittal. Additional service charges as outlined in 3.2.7 may be charged by the Architect in this event.

3.12.10.1 In line 6 after "design professional" insert "and who shall comply with requirements of Owner regarding qualifications and insurance and".

Insert new 3.12.11 as follows:

3.12.11 The Contractor shall submit Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents to the Architect at least 30 days prior to the date the Contractor needs the reviewed submittals returned. Where colors are to be selected by the Architect, the Contractor shall submit all Samples in adequate time to allow the Architect to prepare a complete selection schedule. In general, all submittals requiring color selection shall be submitted to the Architect within four weeks of the date of the Contract for construction.

3.13 Use of Site

Insert new 3.13.1, 3.13.2, 3.13.3 and 3.13.4 as follows:

3.13.1 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site but in no event shall the equipment be left on the Property longer than two (2) days after its completed use. Protection of construction materials and equipment stored at the Project site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.

3.13.2 The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the Project site without written consent of the Owner.

3.13.3 Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any other provision on the Contract Documents, Contractor shall use its best efforts to minimize any interference with the occupancy or beneficial use of: (1) any area and buildings adjacent to the site or the Work or (2) the Building in the event of partial occupancy.

3.13.4 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including without limitation, lavatories, toilets, entrance and parking areas other than those designated by Owner. Without limitation of any other provisions of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the Building, as amended from time to time.

3.15 Cleaning Up

Insert new 3.15.3 as follows:

3.15.3 Prior to the Architect's inspection for Submittal Completion the Contractor shall clean exterior and interior surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces; clean equipment and fixtures to a sanitary condition; replace air filters in mechanical equipment; clean roof, gutters and downspouts; remove obstructions and flush debris from drainage systems; clean site; sweep paved areas and rake clean other surfaces; remove trash and surplus materials from the site.

Delete Section 3.18 in its entirety and replace with the following:

§ 3.18 INDEMNIFICATION, ACKNOWLEDGEMENT OF LIMITED LIABILITY, ETC.

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and its directors, officers, agents and employees (the "Indemnitees") from and against claims, damages, losses and expenses, including without limitation, attorney's fees, arising out of or relating to the Work of this Contract, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease, or death, or injury to or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, to the extent such claim, damage, loss or expense is caused, in whole or in part, by the negligence or fault, strict liability, breach or violation of a statute, ordinance, governmental regulation, standard, or rule, or breach of contract by any person or entity other than the Indemnitees, including that of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable.

§ 3.18.2 To the fullest extent permitted by law, and in addition to the indemnity obligation under Section 3.18.1, the Contractor shall indemnify and hold harmless the Indemnitees from and against claims, damages, losses and expenses, including without limitation, attorney's fees, arising out of or relating to the Work of this Contract, provided that such claim, damage, loss or expense is attributable to bodily injury or death of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable.

§ 3.18.3 In the event of any claim alleging partial, contributory, concurrent, or joint wrongful conduct of the Indemnitees that is not covered under the Contractor's indemnity obligations under Section 3.18.2, the Contractor shall be obligated to reimburse the Owner for its reasonable attorneys' fees in proportion to the Contractor's liability, as such may be agreed to by the Contractor or found by a trier of fact.

§ 3.18.4 The defense, indemnity and reimbursement obligations in Sections 3.18.1, 3.18.2, and 3.18.3 shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to the party or persons described in this Section 3.18, or elsewhere in the Contract Documents. These defense, indemnity and reimbursement obligations shall not be limited by any limitation on the amount or type of compensation, benefits or damages payable by or for the Contractor under any workers' compensation or other benefits laws, or by the limits of any insurance of the Contractor. These defense, indemnity and reimbursement obligations shall survive completion of the Work or early termination of the Contract.

§ 3.18.5 The Contractor acknowledges that the Owner shall have no obligation to supervise performance of the Work or Work Site for safety, nor does the Owner

exercise any control over the means and methods of construction employed by the Contractor, Subcontractor of any tier, or anyone directly or indirectly employed by them. The Contractor further acknowledges that the Owner's liability for claims of personal injury, death, or property damage are limited by Section 95.003 of the Texas Civil Practice and Remedies Code, as well as the privileges and immunities enjoyed by Owner as a governmental unit of the State of Texas.

§ 3.18.6 The Contractor shall provide workers' compensation insurance coverage for each employee of the Contractor employed on the Project, and shall require the same of its Subcontractors of any tier. The Contractor and each Subcontractor of any tier shall be required to provide certificates of this coverage to the Owner. The foregoing indemnification obligations shall not be limited in any way by limitations on the amount or type of damages, compensation or benefits payable under workers' compensation acts, disability benefits acts or other employee benefits acts.

§ 3.18.7 To the extent any of the obligations in this Section 3.18 violate applicable law, the obligation(s) will be reformed or severed to the minimum extent necessary to comply with applicable law in order to provide the maximum protection to the Indemnitees.

§ 3.18.8 The Contractor's defense, indemnity and hold-harmless obligations under this Agreement shall survive completion of the Work or early termination of the Agreement.

Insert new 3.19, 3.19.1 and 3.19.2 as follows:

3.19 Substitutions of Products and Systems, "Or Equal" Brands

3.19.1 The materials, products and the systems covered by these specifications have been selected as a standard because of quality, particular suitability, or record of satisfactory performance. It is not intended to preclude the use of equivalent or better materials, products or systems provided that it meet the requirements of the particular project and have been approved in an addendum as a substitution prior to the submission of bids. If prior written approval in an addendum has not been obtained, it will be assumed that the Bid is based upon the materials, products, and systems described in the Bidding Documents and no substitutions will be permitted, except as provided hereinafter.

3.19.2 If, after award of contract, the Contractor or one of his Subcontractors or Suppliers determines that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the work or to honor the Warranty, the Contractor shall promptly, but no later than two days after such determination, notify the Architect, in writing, providing detailed substantiation for his position. Any changes deemed necessary by the Owner and Architect, including substitution of materials and change in Contract Sum, either upward or downward, if any, shall be accompanied by

appropriate modification.

Insert new 3.20 and 3.20.1 as follows:

3.20 Record Drawings

3.20.1 At the completion of the project, the Contractor shall submit one complete set of blue lines showing all changes and routing of utilities made during construction, excluding Architect made CAD changes, to the Architect. Drafting shall be legible to the Architect's satisfaction. The Contractor shall pay for the cost of the required recording/drafting. The record set shall be kept up to date on a daily basis and the Architect shall review its status at the project meetings. The Architect shall furnish the Contractor with a blueline set at contract award which shall have all Addenda incorporated. The Owner will pay for the printing of the blueline set. The Architect will incorporate any record information into the construction (CAD) documents and provide the Owner with an electronic copy of the record information on the Construction documents that have all bid and construction changes incorporated. The cost for incorporating the record information into the CD will be paid for by the Owner. The Architect will transmit the electronic CD to the Owner with a copy of the transmittal to the Contractor's construction manager.

ARTICLE 4 – ARCHITECT

4.1 General

4.2 Administration of the Contract

4.2.3 Delete the last two sentences in their entirety and insert "Architect shall not have control over or charge of and shall not be responsible for safety precautions and programs in connection with the Work. Architect shall be responsible for immediately notifying Contractor of the failure of Contractor, Subcontractors or any other persons performing any of the Work, in failing to use proper construction means, methods, techniques, sequences, procedures, safety precautions and programs, but only to the extent Architect becomes aware of, or should, exercising due professional diligence, be aware of, same. Architect shall also immediately notify Owner in writing of the failure of any of the foregoing parties to carry out the Work in accordance with the Contract Documents."

4.2.7 In line 1, after "approve" insert "or reject,". In line 2, delete "but only for the limited purpose of checking".

4.2.12 Delete the last sentence in this paragraph.

4.2.13 Delete paragraph in its entirety.

ARTICLE 5 – SUBCONTRACTORS

5.1 Definitions

5.1.1 In line 2, after "site" delete "." and insert "or to otherwise furnish labor, material, or other services with respect to a portion of the Work."

5.1.2 In line 2, after "site" delete "." and insert "or to otherwise furnish labor, material, or other services with respect to a portion of the Work."

5.3 Subcontractual Relations

Insert new 5.3.1 as follows:

5.3.1 All subcontracts shall be in written form.

5.4 Contingent Assignment of Subcontracts

Add at the end of 5.4.1

"Such assignment shall not constitute a waiver by Owner of its rights against Contractor because of defaults, delays and defects for which a Subcontractor or material vendor may also be liable. Contractor indemnifies and holds Owner harmless from any failure or refusal of any Subcontractor to comply with any provision of the Contract Documents."

5.4.3 Delete the second sentence in its entirety.

Insert new paragraph 5.5 as follows:

5.5 Contractor shall immediately notify Owner and Architect of any material defaults by any Sub-contractor. Notwithstanding any provision contained in Article 5 to the contrary, it is hereby acknowledged and agreed that Owner has in no way agreed, expressly or implicitly, nor will Owner agree, to allow any Sub-contractor or other materialman or workman employed by Contractor the right to obtain a personal judgment or to create a lien against Owner for the amount due from the Contractor.

ARTICLE 6 – CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTOR

6.2 Mutual Responsibility

6.2.3 Delete in its entirety.

6.2.4 In line 1 delete “wrongfully”.

ARTICLE 7 – CHANGES IN THE WORK

7.1 General

7.1.1 In line 1, before “be” add “only”.

7.1.2 In Line 2, delete “and” after the word “Owner” and insert “and/or”. In line 3, replace the words “Architect alone” with “Owner or the Architect subject to the approval of Owner”.

7.1.3 At the end of the paragraph insert “Except as permitted in Paragraph 7.3 and 9.7, a change in the Contract Sum or the Contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work and no claim that Owner has been unjustly enriched by any alteration of or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.”

7.2 Change Orders

Insert new 7.2.2, 7.2.3, 7.2.4, 7.2.4.1, 7.2.5, 7.2.5.1, 7.2.5.1.1, 7.2.5.1.2, 7.2.5.1.3, 7.2.5.1.4 and 7.2.5.2 as follows:

7.2.2 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited, to all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the construction schedule.

7.2.3 Contractor shall keep and periodically submit to Owner copies of a log for all Change Orders.

7.2.4 Changes in the Work: The Owner, without invalidating the Contract and without approval of the surety, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions. The Contractor may recommend and propose changes in the Work to be considered by the Owner. The Contract Sum and the Contract Time will only be adjusted in accordance by Change Orders processed and approved by the Owner.

7.2.4.1 No written order or oral order from the Owner (which terms as used in this paragraph shall include direction, instruction, interpretation, or determination) which fails to address Contract Time or Contract Sum shall be treated as a change in the Contract which affects the Contract Time or the Contract Sum unless the Contractor gives the Owner written notice within ten (10) days of such written or oral order stating the date, circumstances, source of the order and that the Contractor regards the order to be a change in the Contract which affects the Contract Time or the Contract Sum. Except as provided above, no order, oral statement, or direction of the Owner shall be treated as a change in the Work to be addressed by a Change Order or entitle the Contractor to an adjustment in the Contract Time or the Contract Sum.

7.2.5 Change Proposals: The Contractor shall review and respond to all requests for a Change Proposal submitted by the Architect in accordance with the following:

7.2.5.1 In responding to a request for a Change Proposal, the Contractor shall furnish a lump sum proposal supported by a complete breakdown as described hereafter and satisfactory to the Owner indicating the total estimated cost for performance of the changed Work including the applicable percentage for overhead and profit. To permit evaluation by the Owner, any request for a time extension must be justified and presented in adequate detail, showing that the proposed change will cause a delay in meeting one or more Milestones. The contractor shall make all reasonable efforts to rearrange the work to avoid time extensions. Any extension that may be approved shall be net of any delays caused by or due to the fault or negligence of the Contractor or which are otherwise the responsibility of the Contractor and shall be also net of any contingency or "float" time in the Project Schedules.

7.2.5.1.1 The Contractor 's cost proposal given in response to a request for a Change Proposal shall, unless otherwise consented to in writing by the Owner, contain the following items for changed Work performed directly by the Contractor or performed by a Subcontractor:

a) Estimated cost, using any discounts to the trades, of the materials and supplies used, which shall be itemized completely to include unit cost, quantity and total cost.

b) Estimated wages paid for labor performing the additional Work, which shall be itemized completely to include for each trade and skill level the hourly rate, total hours and total cost. Such wages shall include labor required for performance of the changed Work only. Crew foremen may be included. All other supervisors shall be excluded and shall be considered as a part of the Overhead Markup.

c) Estimated cost for construction equipment used on the changed Work, to include rental rates or owned equipment rates for such items of equipment while in use directly on the changed Work covered by the Change Proposal,

which shall be itemized completely to include type(s), the number(s) of each, hourly rate, hours, total cost and state sales tax paid. Rental or owned equipment rates shall be no greater than those established by market conditions for the local area. As used herein the terms “construction equipment” and “equipment” shall include wheeled vehicles and tools. The Owner retains the right of purchase or lease purchase if cumulative rental costs make this an economically sound option.

d) Estimated reasonable transportation costs for delivery and handling of materials, additional construction equipment, and/or new items of installed equipment, if applicable, which shall be itemized separately.

e) Estimated off-site storage costs for periods in excess of thirty (30) calendar days, if applicable, covering protection of new items or equipment to be installed.

f) A percentage for labor burdens added to the wages computed in accordance with (b) above. Such percentage for labor burden shall be delivered in writing by the Contractor to the Owner for approval by the Owner within ten (10) days after issuance of the Notice to Proceed. This percentage shall reimburse the Contractor for the actual cost of FICA, State and Federal Unemployment Insurance, insurance computed on wages, small tools (tools having an original value of $500 or less, consumable supplies, and training and fringe benefits, if applicable. The premium portion of any overtime (which must be approved in advance by the Owner in writing) shall not include an allowance for small tools (toolshaving an original value of $500 or less), consumable supplies, training or fringe benefits.

7.2.5.1.2 In submitting the response to a Change Order Proposal, a mark-up of ten percent (10%) of the items in (a)-(f) above may be included for the Contractor or Subcontractor directly performing the changed Work covered by items (a)-(f) above. Such ten percent (10%) mark-up is intended to cover all field supervision above the level of crew foreman, field and general home office services and expenses, interference with other work or any other consequential effects, adjustments to progress schedules and all other overhead (including bond and insurance not computed on wages) and profit of the Contractor or Subcontractor directly performing the changed Work.

7.2.5.1.3 In submitting the response to a Change Order Proposal, a mark-up of five percent (5%) of any payments to a Subcontractor may be included for the Contractor and any Subcontractors which supervise the Subcontractor directly performing the changed Work. Such five percent (5%) mark-up is intended to fully reimburse the Contractor and any Subcontractor supervising the Subcontractor directly performing the changed Work for overhead expenses and profit.

7.2.5.1.4 In cases where changes in the Work performed by the Contractor with its own

forces or by a Subcontractor result in a credit (i.e., cost savings) to the Owner, the credit shall be limited to direct costs to the Contractor or Subcontractor, which include the labor burden described in paragraph 7.2.5.1.1(f) above; that is, no overhead or profit shall be credited. In cases where an individual change in the Work results in both credits and charges to the Owner, the Contractor will add the overhead and profit percentages indicated in this Section above only to the "net" charge to the Owner (i.e., based upon the amount by which the total charges exceed the total credits to the Owner).

7.2.5.2 The Contractor's response to a request for a Change Proposal shall be submitted in writing within ten (10) days after the Owner's delivery to the Contractor of the Change Proposal request, unless the Owner extends such period of time in writing. Changes in the Contract Time and/or Contract Sum will be negotiated as soon as practicable thereafter. If agreement is reached, the agreed changes will be incorporated in a Change Order and such Change Order shall be signed by the Contractor and the Owner. If (i) the Contractor fails to timely respond to a request for a Change Proposal, (ii) the Owner and the Contractor do not agree as to changes in the Contract Time or Contract Sum, or (iii) the Owner concludes that the time needed for obtaining a proposal from the Contractor and negotiating a Change Order would significantly damage the Project and/or impose significant added cost, the Owner may, at its option, issue a Unilateral Change Order without the agreement of the Contractor as to changes in the Contract Time and Contract Sum. In all events, the Contractor will diligently proceed to accomplish the Work set forth in the Change Order issued by the Owner. Contractor shall not be required to perform or subcontract work for removal, remediation, and/or transportation of hazardous materials.

7.3 Construction Change Directives

7.3.1 At the end of the paragraph insert “Contractor shall keep and periodically submit to Owner copies of a log for all Construction Change Directives and a log for all requests for information.”

7.4 Minor Changes in the Work

7.4 Substitute “Owner” for “Architect” in all sentences in this paragraph.

ARTICLE 8 – TIME

8.1 Definitions

Insert new 8.1.1.1 and 8.1.1.2 as follows:

8.1.1.1 The Work shall be fully completed within the time limit and/or date stated in the Contract between Owner and Contractor.

8.1.1.2 Liquidated Damages: If the Contractor should fail to fully complete the Work

within the stated time (subject however to extension of time duly granted in the manner and for the causes specified in the General Conditions), Contractor shall be charged by and shall pay to Owner, as liquidated damages, the sum specified in Article 3.1 of the Modified AIA document A101 – 2017 Edition per calendar day that the Work remains incomplete beyond the time fixed for completion. Contractor hereby agrees that from the nature of the project it would be impracticable and extremely difficult to fix the actual damage that would or will be suffered in the event that Contractor should fail to fully complete the Work by the time limit or date stated and the amount of the liquidated damages are fair and reasonable. The parties agree that the liquidated damages are a reasonable forecast of just compensation for the harm done to Owner that would be caused by Contractor's failure to timely complete the Work and are not a penalty. Contractor agrees that the amount of liquidated damages due Owner may be deducted by Owner from any monies that might otherwise be or become payable to Contractor.

8.3 <u>Delays and Extensions of Time</u>

8.3.1 At the end of the paragraph delete "." , and insert ", provided, however, that such extension of Contract Time shall be net of any delays caused by or due to the fault or negligence of Contractor or that are otherwise the responsibility of Contractor and shall also be net of any contingency or float time allowance included in Contractor's construction schedule. Contractor shall, in the event of any occurrence likely to cause a delay, cooperate in good faith with Architect and Owner to minimize and mitigate the impact of any such occurrence and do all things reasonable under the circumstances to achieve this goal."

Delete existing Article 8.3.3 and replace with the following:

Extension of time shall be Contractor's sole remedy for any such delay, unless the same shall have been caused by acts constituting intentional interference by Owner with Contractor's performance of the Work and where and to the extent that such acts continue after Contractor's notice to Owner of such interference. Owner's exercise of any of its rights under this Agreement, or Owner's exercise of any of its remedies of suspension of the Work, or requirement of correction or re-execution of any defective Work, shall not under any circumstances be construed as intentional interference with Contractor's performance of the Work.

ARTICLE 9 – PAYMENTS AND COMPLETION

9.2 <u>Schedule of Values</u>

9.2 In line 2 after "schedule of values to the" insert "Owner and". In line 3 delete "prepared in the form and supported by the data to substantiate its accuracy required by the Architect" and insert, "equal the total Contract Sum, divided so as to facilitate payments to Subcontractors, supported by such evidence of correctness as Architect may direct or as required by Owner. This schedule, when approved by Architect and Owner, shall be

used to monitor the progress of the Work and as a basis for Certificates for Payment. All items with entered values will be transferred by Contractor to the Application and Certificate for Payment, and shall include the latest approved Change Orders and Construction Change Directives. Change Order values and Construction Change Directives values shall be broken down to show the various subcontracts. The Application for Payment shall be on a form as provided by Architect and approved by Owner. Each item shall show its total scheduled value, value of previous applications, value of the application, percentage completed, value completed, and value yet to be completed. All blanks and columns must be filled in, including every percentage complete figure."

9.3 <u>Applications for Payment</u>

9.3.1 In line 2 delete "if required under Section 9.2" At the end of the paragraph insert "Any allowances included in the Application for Payment shall be separately itemized with supporting data attached. The Application for Payment shall be accompanied by a certification by an officer of the Contractor to the effect that:

> There are no known mechanics', materialman's or laborers' liens or claims, or any other liens or claims, legal or equitable, contractual, statutory, or constitutional, outstanding or known to exist at the date of this Application; all due and payable bills with respect to the Work have been paid to date or are included in the amount requested in the current Application and there is no known basis for the filing of any mechanics', materialman's or laborers' lien or claim, or any other lien or claim, legal or equitable, contractual, statutory, or constitutional, on the Work; and waivers and releases from all Subcontractors, laborers, and material men for Work done and materials furnished have been obtained in such form as to constitute an effective waiver and release of all such liens and claims under the laws of the state within which the Project is located and shall be delivered to Architect together with Contractor's waiver and release of liens and claims at the time of submission of the Application for Payment.

Certifications shall also be submitted by all subcontractors and suppliers with each application for payment for Work performed the given payment period. "

9.3.2 In line 4 after "in writing" insert "by the Owner and Surety." At the end of the paragraph insert the following, "Under no circumstances will the Owner reimburse the Contractor for down payments, deposits, or other advance payments for materials or equipment."

9.3.3 At the end of the paragraph insert, "The vesting of such title shall not impose any obligations on Owner or relieve Contractor of any of its obligations under the Contract, that Contractor shall remain responsible for damage to or loss of the Work, whether completed or under construction, until responsibility for the Work has been accepted by Owner in the manner set forth in the Contract Documents.

9.5 Decisions to Withhold Certification

9.5.1.3 Add to the end of the sentence, “and failure to provide certifications of payment by the Contractor and its subcontractors and suppliers”

9.5.1.6 In line 1 delete “and” and insert “or”.

9.5.1.7 In line 1 delete “repeated”.

Insert new 9.5.5 as follows:

9.5.5 Notwithstanding any provision contained within this Article, if the Work has not attained Substantial Completion with the contract time, subject to extensions of time allowed under these Conditions, Architect may withhold any further payment to Contractor to the extent necessary to preserve sufficient funds to complete the construction of the Project and to cover liquidated damages assessed against Contractor up to the time of the Application for Payment and to the time it is reasonably anticipated that Substantial Completion will be achieved.

9.6 Progress Payments

9.6.1 At the end of the paragraph insert the following, “Owner may refuse to make payment on any Certificate for Payment for any default of the Contractor, including, but not limited to, those defaults set forth in Clauses 9.5.1.1 through 9.5.1.7. Owner shall not be deemed in default by reason of withholding payment while any of such defaults remain uncured.”

9.6.4 In line 5 delete “except as may otherwise be required by law.”

9.6.7 Delete in its entirety.

9.7 Failure of Payment

9.7 In line 2, after “not” add “, for reasons other than a default of the Contract, including, but not limited to, those defaults set forth in Clauses 9.5.1.1 through 9.5.1.7". In line 3 delete “or awarded by binding dispute resolution”.

Insert new 9.7.1 as follows:

9.7.1 If Owner is entitled to reimbursement or payment from Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if Contractor fails to promptly make any payment due Owner, or if Owner incurs any costs and expenses to cure any default of Contractor or to correct defective Work, Owner shall have an absolute right to offset such amount against the Contract Sum and may, in Owner’s sole discretion, elect either to (i) deduct an amount equal to that which Owner is

entitled from any payment then or thereafter due Contractor from Owner, or (ii) issue a written notice to Contractor reducing the Contract Sum by an amount equal to that which Owner is entitled.

9.8 <u>Substantial Completion</u>

9.8.1 In line 1 after "thereof" add "(which Owner agrees to accept separately)".

9.8.4 In line 5, delete "Substantial Completion of the Work or designated portion thereof" and substitute "issuance of the certificate of final payment by Architect". At the end of the paragraph insert "The Work will not be considered suitable for Substantial Completion review until all Project systems included in the Work are operational as designed and scheduled, all designated or required governmental inspections and certifications have been made and posted, designated instruction of Owner's personnel in the operation of systems has been completed, and all final finishes within the Contract are in place. In general, the only remaining Work shall be minor in nature, so that Owner and/or Owner's employees and if applicable, the public, could occupy the building on that date and the completing of the Work by Contractor would not materially interfere or hamper Owner's or Owner's employees and if applicable, the public, (or those claiming by, through, or under Owner) normal school operations. As a further condition of Substantial Completion acceptance, Contractor shall certify that all remaining Work will be completed within thirty (30) consecutive calendar days or as agreed upon following the Date of Substantial Completion. If Contractor requests a Substantial Completion review, and Architect, after performing the Substantial Completion review, finds that the Project was not ready for the Substantial Completion review, then Contractor shall pay the Architect's fees for any additional Substantial Completion reviews."

Insert new 9.8.6 and 9.8.7 as follows:

9.8.6 In order for the project or a major portion thereof to be considered substantially complete, the following conditions must be met: (1) All inspections by governmental authorities which have jurisdiction over the project must have been finalized, any remedial work required by those authorities must have been completed, and Certificates of Occupancy and similar governmental approval forms must have been issued and copies delivered to the Owner and Architect. (2) All work, both interior and exterior, shall have been completed and cleaned except minor items which if completed after occupancy, will not, in the Owner's opinion, cause interference to the Owner's use of the building or any portion thereof. A significantly large number of items to be completed or corrected will preclude the Architect from issuing a Certificate of Substantial Completion. The Owner and Architect will be the sole judge of what constitutes a significantly large number of items.

9.8.7 After the date of Substantial Completion of the Project is evidenced by the Certificate of Substantial Completion, the Contractor will be allowed a period of thirty (30) days, unless extended by mutual agreement or provision of the Contract, within which to correct all deficiencies attached to the Certificate of Substantial Completion. Failure of the

Contractor to complete such corrections within the stipulated time will be reported to the Contractor's surety. In this report, the Contactor and surety will be informed that, should correction remain incomplete for fifteen (15) days, the Owner may initiate action to complete corrective work out of the remaining Contract funds in accordance with Article 14.

9.10 Final Completion and Final Payment

9.10.2 Add at the end of the first sentence "(7) Record Drawings, and (8) Maintenance and instruction Manuals, three sets bound in a 3" ring binder."

9.10.4 Add at the end ".5 faulty or defective Work appearing after Substantial Completion."

ARTICLE 10 – SAFETY OF PERSONS AND PROPERTY

10.2 Safety of Persons and Property

10.2.3 At the end of the paragraph insert "The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the project and improvements therein. Any damage to such property or improvements shall be immediately repaired by the Contractor."

10.3 Hazardous Materials

10.3.3 Delete paragraph in its entirety.

10.3.4 In the first sentence after "brings to the site" insert "." Delete the remainder of the paragraph.

10.3.6 Delete paragraph in its entirety.

Add the following at the end of 10.4

"; provided the Contractor shall not be entitled to additional compensation or an extension of time if an emergency is caused by the negligence or failure to fulfill a specific responsibility of the Contractor to the Owner set forth in the Contract Documents or the failure of the Contractor's personnel to supervise adequately the Work of the Subcontractors or suppliers."

ARTICLE 11 – INSURANCE AND BONDS

11.1 Contractor's Liability Insurance

Insert new 11.1.1.2 through 11.1.1.6.5 as follows:

11.1.1.2 SCHEDULE OF INSURANCE COVERAGES

11.1.1.2.1 Contractor shall carry and keep in full force for the duration of the project the following Coverage.

Coverage	Amounts and Limits
Worker's Compensation	Statutory Limits
Employer's Liability:	
Bodily Injury by Accident	$1,000,000/each accident
Bodily Injury by Disease	$1,000,000/each employee
Bodily Injury by Disease	$1,000,000/Policy Limit
Commercial General Liability	
Bodily Injury/Property Damage	$1,000,000.00 per occurrence $2,000,000.00 aggregate

(Premises Operations, Independent Contractors, Product/Completed Operations, Personal Injury, Contractual Liability, Explosion, Collapse, Underground and Broad Form Property Damage).

Comprehensive Automobile Liability	$1,000,000.00 Combined Single Limit per Occurrence

Auto liability insurance shall be on a standard form written to cover all owned, hired, and non-owned automobiles. The policy shall be endorsed to include the Indemnitees (Section 3.18) as additional insured, and state that this insurance is primary insurance as regards to any other insurance carried by the Indemnified Parties (see Section 3.18).

11.1.1.2.2 All policies shall contain special endorsements to include:

.1 The Owner as an additional insured (except for Worker's Compensation) and all other parties identified in Section 3.18 (Indemnitees);

.2 Wavier of Subrogation in favor of Owner under the Worker's Compensation and Employer's Liability policies.

.3. A statement that a notice shall be given to Owner by certified mail fifteen (15) days prior to cancellation or upon any material changes in coverage.

.4 Contain cross-liability and severability of interest endorsements;

.5 state that this insurance is primary insurance in regard to any other insurance carried by the indemnified Party (see 3.18));

.6 the following coverage:

a. Premises/Operations;
b. Independent Contractors;
c. Completed Operations following the acceptance of Contractor's Work;
d. Comprehensive General Liability Endorsement to include Blanket Contractual Liability (specifically covering, but not limited to, the contractual obligations assumed by Contractor, Broad Form Property Damage, and Personal Injury Liability with employee and contractual exclusions removed);
e. Deletion of exclusions relative to Collapse, Explosion, and Underground Property Damage Hazards;
f. Personal Injury Liability with the contractual exclusions removed;
g. Cross Liability Endorsement.

11.1.1.3 <u>Umbrella Excess Liability Insurance</u>

Bodily Injury and	$10,000,000 per occurrence
Property Damage	$10,000,000 aggregate

This policy shall be written on an umbrella excess basis above, the coverage described in this Article 11. The policy shall be endorsed to include the Indemnified Parties (3.18) as additional named insureds. The policy shall contain cross-liability and severability of interest endorsements and shall state, as regard the Indemnified Parties that the insurance is primary insurance as to any other insurance carried by any Indemnified Party. The policy shall be endorsed to provide the defense coverage obligation. Insurance carried by the Contractor shall be with insurers having Best's Rating of A-V or better.

11.1.1.4 Further, Contractor shall require all Subcontractors to carry similar insurance coverage and limits of liability as required under this Article 11 related to Worker's Compensation, Commercial Liability and Comprehensive Automotive, adjusted to the nature of Subcontractor's operations before any Work commences.

11.1.1.5 In the event Contractor fails to obtain the required certificates of insurance from the Subcontractor and a claim is made or suffered, Contractor shall indemnify, defend, and hold harmless the indemnified parties from any and all claims for which the required insurance would have provided coverage.

11.1.1.6 <u>Performance Bond and Payment Bond</u>

11.1.1.6.1 The Contractor shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Sum, as security for the faithful performance of the Contract and also a one hundred percent (100%) Payment Bond, as security for the payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with the Contract. The Performance Bond and the Payment Bond

may be in one or in separate instruments in accordance with local law. Surety companies must be authorized to write surety bonds in Texas and any such surety bond must comply with the requirements of Subchapter A of 3503 of the Texas Insurance Code.

11.1.1.6.2 The Contractor shall deliver the bonds not later than the tenth (10^{th}) day after the date the Contractor executes this Agreement unless the Contractor furnishes a bid bond or other financial security acceptable to the Owner to ensure that the Contractor will furnish the required performance and payment bonds when a guaranteed maximum price is established. All Bonds will be reviewed by the Architect for compliance with the Contract Documents prior to the execution of the Contract. In the event that Architect has any questions concerning the sufficiency of the bonds, Architect shall refer the bonds to Owner or Owner's representative for decision. The Work will not be started until the bonds and issuing companies have been accepted as satisfactory by the Owner.

11.1.1.6.3 All bonds shall be originals. The Contractor shall require the attorney-in-fact who executes the required Bonds on behalf of the Surety to affix thereto a certified and current copy of the power-of-attorney. The name, address, and telephone number of a contact person for the Bonding Company shall be provided.

11.1.1.6.4 The Bonds shall be provided to comply with the terms and provisions of Chapter 2253 of the Texas Government Code. Bonds shall be signed by an agent resident in the State of Texas and date of bond shall be on or after the date of execution of the Contract but prior to the date of the notice to proceed. If at any time during the continuance of the Contract, the surety of the Contractor's bonds becomes insufficient, the Owner shall have the right to require additional and sufficient sureties which the Contractor shall furnish to the satisfaction of the Owner within ten (10) days after notice to do so. In default thereof, the Contractor may be suspended, and all payment or money due to the Contractor withheld until sufficient bonds are provided by Contractor.

11.1.1.6.5 Claims must be sent to the Contractor and his Surety, in accordance with Texas Government Code, Chapter 2253. The Owner will furnish in accordance with such Article, a copy of the payment bond, as provided therein, to claimants upon request. All claimants are cautioned that no lien exists on the funds unpaid to the Contractor on such Contract, and that reliance on notices sent to the Owner may result in loss of their rights against the Contractor and/or his Surety. The Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no responsibility because of any representation by any agent or employee.

11.2 <u>Owner's Liability Insurance</u>

Insert new paragraphs 11.2.1.1 through 11.2.1.4:

11.2.1.1 By signing the Contract or providing or causing to be provided a Certificate of Coverage, the Contractor is representing to the Owner that all employees of the Contractor who will provide services on the Project will be covered by workers'

compensation coverage for the duration of the Project, that coverage will be based on proper reporting or classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

11.2.1.2 Optionally, the Owner may require the Contractor to purchase and maintain Project Management Protective Liability insurance from the Contractor's usual sources as primary coverage for the Owner's, Contractor's and Architect's vicarious liability for construction operations under the contract. Unless otherwise required by the Contract Documents, the Owner shall reimburse the Contractor by increasing the Contract Sum to pay the cost of purchasing and maintaining such optional insurance coverage and the Contractor shall not be responsible for purchasing any other liability insurance on behalf of the Owner. The minimum limits of liability purchased with such coverage shall be equal to the aggregate of the limits required for Contractor's Liability Insurance under Article 11.

11.2.1.3 The Owner shall obtain and furnish Builder's Risk insurance. The Contractor is responsible to pay $10,000 of each Builder's Risk claim deductible, or the actual value of the deductible amount, whichever is the lesser amount.

11.2.1.4 The Contractor shall be responsible for obtaining an Installation Floater Insurance Policy for any protections desired beyond the policy limits provided by the Owner's Builder's Risk Policy.

11.3 Waivers of Subrogation

Replace paragraph 11.3.1 and 11.3.2 with the following language and insert new paragraph 11.3.3 as follows:,

11.3.1 The Contractor waives all rights against (1) Owner, the Subcontractors, Sub-subcontractors, agents, and employees, and (2) the Architect, Architect's consultants, separate contractors, if any, and any of their Subcontractors, Sub-subcontractors, agents, and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to Article 11 or other property insurance applicable to the Work, except such rights as Contractor has to proceeds of such insurance held by the Contractor as a fiduciary. The Contractor, as appropriate, shall require of any separate contractors, Subcontractors, Sub-subcontractors, agents, and employees of any of them by appropriate written agreements, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.2 A loss insured under the Owner's property insurance shall be adjusted by the

Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.3. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.3.3 The Owner shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement.

ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

12.1 Uncovering of Work

12.1.1 At the end of the paragraph delete "." and insert "or Contract Sum."

12.2 Correction of the Work

12.2.1 Before Substantial Completion

12.2.1 In line 1 after ""by the Architect" insert "as incomplete, defective,".

12.2.2.1 In line 2, after "of the" add "entire"; after "Work" delete "or designated portion thereof or after the date for commencement of warranties established under Subparagraph 9.9.1," and substitute "(unless otherwise provided in any Certificate of Partial Substantial Completion approved by the parties), or within such longer period of time as may be prescribed by law or in equity,". In line 6, after "condition." delete the next two grammatical sentences and substitute the following: "This corrective period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between substantial Completion and the actual performance of the Work. Corrective Work shall be warranted to be free from defects for a period equal to the longer of six (6) months after the completion of the corrective Work or one (1) year after the Date of Substantial completion (subject to extension as previously described) or such longer period of time as may be prescribed by law or in equity, or expiration of the term of any applicable special warranty, if applicable, required by the Contract Documents. Any defect in such Work shall be corrected again by Contractor promptly upon notice of the defect from Owner. Upon receipt of written notice from the Owner of the discovery of any defects in the Work, the Contractor shall commence remedy of such defects and replace any property damaged therefrom occurring within the warranty and guarantee period within forty-eight (48) hours. Work forces to repair or replace damaged property shall be maintained on a consistent basis until resolution. The Owner remedy work directly if the damage or failure constitutes and emergency threatening the life, health, or safety or could create significant consequential damages. In the case of

emergency repairs, the Contractor shall compensate the Owner for reasonable costs incurred. If the Contractor, after notice, fails to proceed promptly and remedy within the period of time for remedial action within this paragraph or which has been otherwise agreed to in writing, in compliance with the terms of the warranty and guarantee, the Owner may have the defects corrected and the Contractor and/or its surety shall be liable for all actual expenses incurred by Owner, Architect or Project Manager. This obligation under this Subparagraph 12.2.2.1 shall survive acceptance of the Work under the Contract and termination of the Contract by the Owner."

Replace paragraph 12.2.2.2 with the following language and delete paragraph 12.2.2.3

12.2.2.2 Just before the termination of the various guarantee periods, Contractor shall accompany Owner and Architect on an inspection and tour of the building and Project site and shall note and call out any defects and shall start remedying these defects within ten (10) days of the inspection tour and shall prosecute the Work without interruption until accepted by Owner and Architect, even though such prosecution should extend beyond the limit of the guarantee period. If the Contractor, after notice, fails to proceed promptly and remedy within ten (10) days or within another period of time which has been agreed to in writing, in compliance with the terms of the warranty and guarantee, the Owner may have the defects corrected and the Contractor and/or its surety shall be liable for all actual expenses incurred by Owner, Architect or Project Manager.

12.2.4 In line 2, after "caused" add "in whole or in part". In line 3, after "that is" add "defective or otherwise".

12.2.5 In line 2, after "Documents" delete "." and insert "or under law or in equity." In line 2 delete "one year".

12.3 <u>Acceptance of Nonconforming Work</u>

12.3 In line 1, after "is" insert "defective or otherwise".

ARTICLE 13 – MISCELLANEOUS PROVISIONS

13.3 <u>Rights and Remedies</u>

13.3.1 At the end of the paragraph delete "." and insert "or in equity or by any other agreement, and any such rights and remedies shall survive the acceptance of the Work and/or any termination of the Contract Documents."

13.4 <u>Tests and Inspections</u>

13.4.1 Delete the last two grammatical sentences in their entirety and insert the following, "Architect, Owner and Contractor shall be afforded a reasonable opportunity to attend, observe, and witness all inspections and tests of the Work. Architect or Owner may at any time request and receive from Contractor satisfactory evidence that materials,

supplies, or equipment are in conformance with the Contract Documents. The conduct of any inspection or test and the receipt of any approval shall not operate to relieve Contractor from its obligations under the Contract Documents unless specifically so stated by Owner in writing."

13.4.2 Delete the last grammatical sentence in its entirety.

13.4.3 In line 2, after "Documents," delete the remainder of the subparagraph and substitute the following: "or reveal faulty or otherwise defective Work, or if the necessity of any such testing, inspection, or approval procedure arises out of the fault, neglect, or omission of Contractor, Contractor shall bear all costs of such testing, inspection, and approval procedures and all other costs made necessary by Contractor's failures, including, without limitation, those costs of repeated and additional procedures and compensation for Architect's services and expenses of Owner's personnel and consultant fees and expenses. Such costs shall be paid by Contractor within ten (10) days of receipt of invoice from Owner with supporting data attached."

13.4.4 In line 1 delete, "unless otherwise required by the Contract Documents,". In Line 2 delete, "promptly delivered to the Architect" and insert, "delivered to Owner, unless such testing or inspection services are arranged by Owner."

13.5 Interest

Delete paragraph in its entirety and replaced with the following, "An overdue payment bears interest at the rate of one half percent (.5%) each month, or at the legal rate established by the Texas Government Code, currently in Section 2251.025. Any such payment for any undisputed amounts shall be deemed overdue on the thirty-first (31st) day after Owner receives an acceptable invoice from Contractor."

Insert new Article 13.6 as follows:

13.6 Equal Opportunity

13.6.1 The Contractor shall maintain policies of employment as follows: "The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated 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, promotion, demotion, or transfer; recruitment, or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants, notices setting forth the nondiscrimination policies."

13.6.1.1 The Contractor and the Contractor 's Subcontractors shall, in all solicitations or

advertisements for employees placed by them or on their behalf; state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin.

Insert new 13.7 as follows:

13.7 Certification of Asbestos-Free Project

13.7.1 Contractor shall submit to the Architect a letter addressed to the Owner certifying that all materials used in the construction of this Project contain less than 0.10 by weight of asbestos and for which it can be demonstrated that, under reasonably foreseeable job site conditions, will not release asbestos fibers in excess of 0.1 fibers per cubic centimeter. Certification letters shall be dated, shall reference this specific Project, and shall be signed by not less than two (2) officers of the construction company.

13.7.2 Certification shall further state that should asbestos fibers be found at this Project in concentrations greater than 0.1 fibers per cubic centimeter, that Contractor shall be responsible for determining which materials contain asbestos fibers and shall take corrective action to remove those materials from the Project at no additional cost to the Owner.

13.7.3 Final payment shall not be made until this letter of certification has been received.

ARTICLE 14 – TERMINATION OF SUSPENSION OF THE CONTRACT

14.1 Termination by the Contractor

14.1.1.3 After “documents” add “other than what is permitted in Section 9.6.1.

14.1.1.4 Delete paragraph in its entirety.

14.1.3 In line 2 after “Work” insert “properly”. In line 3 after “executed” insert, “in accordance with the Contract Documents.” In line 3 delete “as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.”

14.1.4 Delete paragraph in its entirety and insert the following in lieu thereof, “Owner shall not be responsible for damages for loss of anticipated profits on Work not performed on account of any termination described in Subparagraphs 14.1.1 and 14.1.2.”

14.2 Termination by the Owner for Cause

14.2.1.1 Delete “repeatedly” and insert “and equipment” after “materials.”

14.2.1.3 Delete “repeatedly” and delete “or” at the end of the paragraph.

14.2.1.4 Delete subparagraph in its entirety and replace with the following, “disregards the instructions of Architect or Owner (when such instructions are based on the requirements of the Contract Documents); or”

Insert new 14.2.1.5 and 14.2.1.6 as follows:

14.2.1.5 “is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of Contractor’s creditors, or a trustee or receiver is appointed for Contractor or for any of its property, or files a petition to take advantage of any debtor’s act, or to reorganize under bankruptcy or similar laws; or

14.2.1.6 “otherwise does not fully comply with the Contract Documents.”

14.2.2 In line 1, after “exist” delete “, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action”.

14.2.4 Delete paragraph in its entirety and replace with the following, “To the extent the costs of completing Work, including compensation for additional professional services and expenses, exceed those costs that would have been payable to Contractor to complete the Work except for Contractor’s default, Contractor will pay the difference to Owner, and this obligation for payment shall survive termination of the Contract. Such costs incurred by Owner will be determined by Owner and confirmed by Architect.”

Insert new paragraph 14.2.5, 14.2.6, and 14.2.7 as follows:

14.2.5 In addition to Owner’s right to remove Contractor from any part of Work pursuant to the Contract Documents, Owner may, at any time, at will and without cause, terminate any part of Work or any subcontract or all remaining Work for any reason whatsoever by giving seven (7) days’ prior written notice to Contractor specifying the part of Work or subcontract to be terminated and the effective date of termination. Contractor shall continue to prosecute the part of Work not terminated. If any part of Work or subcontract is so terminated, Contractor shall be entitled to payment for Work properly executed in accordance with the Contract Documents (the basis for such payment shall be as provided in the Contract) and for costs directly related to Work thereafter performed by Contractor in terminating such Work or subcontract including reasonable demobilization and cancellation charges provided said Work is authorized in advance by Architect and Owner. No payment shall be made by Owner; however, to the extent that such Work or subcontract is, was, or could have been terminated under the Contract Documents or an equitable adjustment is made or denied under another provision of the Contract. In case of such termination, Owner will issue a Construction Change Directive or authorize a Change Order making any required adjustment to the Date of Substantial Completion and/or the Contract Sum. For the remainder of the Work, the Contract Documents shall remain in full force and effect.

14.2.6 Owner shall not be responsible for damages for loss of anticipated profits on Work not performed on account of any termination described in Subparagraph 14.2.5.

14.2.7 Upon a determination by a court of competent jurisdiction that termination of Contractor pursuant to Subparagraph 14.2.1 was wrongful, such termination will be deemed converted to a termination for convenience pursuant to Subparagraph 14.2.5 and Contractor's remedy for wrongful termination shall be limited to the recovery of the payments permitted for termination for convenience as set forth in Subparagraph 14.2.5."

14.4.3 Delete section in its entirety and replace with "In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly completed to date, including the Contractor's overhead and profit on that portion of properly completed work. Under no circumstances shall the Contractor be compensated for loss of revenue or anticipated profits from portions of the work not completed."

ARTICLE 15 – CLAIMS AND DISPUTES

15.1.1 Definitions

In line 1 after "matter of right" insert "adjustment or interpretation of the Contract Terms." After the second sentence insert, "Claims must be by written notice."

15.1.2 Time Limits on Claims

In line 2 delete "in accordance with the requirements of the binding dispute resolution method selected in the Agreement". In line 4 delete "," after "applicable law" and insert "." In line 4 delete "but in any case more than 10 years after the date of Substantial Completion of the Work." Delete last grammatical sentence in its entirety.

15.1.3 Notice of Claims

15.1.3.1 In line 2 after "shall be initiated by" add "written". At the end of the paragraph insert the following, "Said written notice of claims shall state specifically the reason for the claim, the date or dates of the cause of causes of the claim, and if any extension of time is requested, the number of days of extension requested."

15.1.5 Claims for Additional Cost

After the first sentence insert the following, "Said notice shall itemize all claims and shall contain sufficient detail and substantiating data to permit evaluation of same by Owner and Architect. No such claim shall be value unless so made."

15.1.6 Claims for Additional Time

15.1.6.2 At the end of the paragraph and the sentence, "Such claims shall be given to the Owner within fourteen (14) days after the occurrence of the event justifying the claim.

Insert new “15.1.6.3, 15.1.6.3.1, 15.1.6.3.2, 15.1.6.3.3, 15.1.6.3.4, and 15.1.6.3.5 as follows**:**

15.1.6.3 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions at the Project and that they had an adverse effect on the critical path of the construction schedule. The Contract Time shall not be extended nor shall the Contract Sum be increased, due to any adverse weather conditions experienced unless (a) the total number of weather-caused days of delay exceeds the Anticipated Weather Days, and (b) the critical path is delayed as a direct result of such adverse weather.

15.1.6.3.1 Anticipated Weather Days: An allowance of Thirty (30) Regular Work Days, established as probable days lost due to weather delays; said allowance shall be included in the Contractor's proposed Completion Time in the Proposal.

15.1.6.3.2 Evaluation of Delay Days: The Owner will evaluate delays claimed by the Contractor based on the critical path of the Contractor's construction schedule, and if it is determined by the Owner that a critical path task has been delayed due to circumstances beyond the Contractor's control, the accepted delay days will be deducted from the Anticipated Weather Delay Day Allowance.

15.1.6.3.3 Weather Days: Regular Work Days when Work is planned to occur that day and when rain exceeds .50” in one calendar day that impacts the current critical path of construction The official weather measurement shall be taken from www.weatherunderground.com for the City where the Project is located. Unusually high winds, mud, or snow are not considered a weather day. The Contractor will be entitled to an extension of the Contract Time for the net additional time, if any, which results from deducting the amount of Anticipated Weather Days from the total amount of actual Weather Days

15.1.6.3.4 Net Weather Days: The difference in working days between the total amount of Anticipated Weather Days and total amount of Weather Days incurred.

15.1.6.3.5 Contractor shall not be entitled to claims for additional time and/or increase in Contract Price due to a problem or non-performance of a subcontractor.

15.2 <u>Initial Decision</u>

15.2.2 In line 3 after “Approve the Claim” insert “in whole or in part”.

15.2.5 In line 6 delete “binding dispute resolution” and insert “litigation”.

15.2.6 Delete in its entirety. Add Intentionally Deleted.

15.2.6.1 Delete in its entirety.

15.2.8 Delete in its entirety.

15.3 Mediation

Delete sections 15.3.1, 15.3.2, 15.3.3 and 15.3.4 in their entirety and replace with the following:

§ 15.3.1 If the parties to a dispute arising out of or related to the Contract agree to submit the Claim to mediation following a decision by the Initial Decision Maker, the parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. Nothing in the Contract Documents shall be construed as requiring mandatory mediation prior to litigation.

15.4 Arbitration

Delete 15.4.1, 15.4.1.1, 15.4.2, and 15.4.3 in their entirety and insert the following in lieu thereof, "The parties expressly agree that disputes or claims arising under the Contract Documents shall not be subject to arbitration unless mutually agreed by the parties in writing."

15.4.4 Consolidation or Joinder

Delete 15.4.4.1, 15.4.4.2 and 15.4.4.3 in their entirety.

DOCUMENT 008200

WAGES

GENERAL REQUIREMENTS

Salaries or wages of all labor, including services of superintendent, assistant superintendent, field engineers, job supervisors, clerks, security personnel, truck drivers, mechanics, laborers, and all others necessary for the proper conduct of the Work and for the time employed on the Work, shall not be less than the usual wage scale paid such workers in the vicinity of the Project for the type of Work set forth under this Agreement.

END OF DOCUMENT

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SECTION 011400

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

Use of Site: Limit use of premises to work in areas indicated.

1. Owner Occupancy: The site is occupied. The Contractor will have the full use of the site at all times.
2. Contractor Parking and Work area: On site. No parking is allowed on existing parking lots within an existing campus.
3. Access to the Site: Access to the site shall be as determined by the Contractor.
4. Security: Contractor shall assume full responsibility for the protection and security of immediate construction site. Owner will not provide any additional security for the Contractor areas.
5. Work Hours: The project subject to the work hours permitted by The City of Mission. The Owner will not compensate the Contractor for Time, Contract Amount, or Penalties associated with not abiding by work hours.

1.2 WORKER CONDUCT AND APPEARANCE - WORK RULES

B. General: The conduct and appearance of each worker at the jobsite is of paramount importance. The Owner reserves the right to require any worker to be reassigned to work outside the Owner's property.

1. Privacy: Conduct all work of the Contract with the maximum effort to maintain the privacy of the Owner’s operations, staff and students. Do not permit workers to peer into other areas of the building visible from the work area. Invasion of privacy is a major infraction of the work rules. For work on existing sites in operation, provide a visual screen barrier on the temporary construction fence along all perimeters that are exposed to sidewalks or direct visibility from the school.
2. Conduct and Demeanor: All construction workers shall treat all other construction workers, Owner's staff, students, and the public professionally with respect and courtesy.
3. Physical Appearance: Require each worker to dress appropriately in a clean, neat, and professional manner.
4. Radios and Television: The use of entertainment devices including personal devices with headphones or earphones is strictly prohibited at all times. Control the volume of communication radios and loudspeakers to avoid creating a nuisance.
5. Smoking: Smoking is strictly prohibited inside any building, inside the work area, and anywhere on the Owner’s property, except in designated smoking permitted areas.
6. Language: The use of foul language is strictly prohibited.
7. Loud Conduct: Screaming, yelling, and unnecessary loud conduct is strictly prohibited.
8. Physical Actions: Running, horseplay, fighting, and other unprofessional conduct is strictly prohibited. Fighting is a major infraction of the work rules.
9. Stealing: Stealing of any material, objects, furnishings, equipment, fixtures, supplies, clothing, or other items is prohibited and a major infraction.
10. Sexual Harassment: All forms of physical and verbal sexual harassment including, without limitation: touching; whistling; sexually explicit stories, jokes, drawings, photos, and representations; exhibitionism; and all other sexually oriented offensive behavior is strictly prohibited.
11. Roaming: Construction personnel shall not be allowed to roam, or wander about, the existing facilities.
12. Eating: Construction personnel shall not use the existing Dining Area for breakfast, lunch, or dinner.
13. Parking: Construction personnel shall only park in designated areas reserved for construction parking.

14. Penalties: First infraction of the work rules shall result in a verbal warning from the Owner. Second infractions shall result in being requested to leave the Owner's property. Owner's decision in such matters shall be final with no exceptions.

C. Warnings and Dismissal: For minor infraction of the rules, the Owner may issue a warning. Only one warning will be allowed per worker, and a second infraction shall result in immediate dismissal of the worker from the Owner's property. For major infractions such as invasion of privacy, the worker shall be dismissed immediately without warning and possibly subject to criminal prosecution.

D. Notification of Workers: Clearly notify and educate each worker about these Work Rules and the requirements for worker conduct and appearance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012100

ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
2. Where material allowance is indicated as a unit cost, this is to establish the quality of material, and Contractor shall be responsible for ascertaining the total quantity required, including waste, necessary to complete the installation.

B. Where material allowance is indicated as a unit cost, this is to establish the quality of material, and Contractor shall be responsible for ascertaining the total quantity required, including waste, necessary to complete the installation.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.3 NET ALLOWANCES

A. Unless noted otherwise, listed allowances shall be Net Allowances. This means that the General Contractor mark-ups for overhead, profit, and indirect time related to Allowance expenditures shall be included in the Base Proposal, and outside of the Net Allowance amounts.

B. Contractor shall only be entitled to expend Allowance funds with written authorization from the Owner and Architect.

C. At Project closeout, unused Allowance amounts will be credited to Owner by Change Order.

1.4 ADJUSTMENTS OF COSTS

A. Should net cost be different than specified amount of allowance, contract sum will be adjusted accordingly by Change Order.

1. Amount of Change Order will recognize changes in handling costs at site, labor, installation costs, overhead, profit, and other expenses caused by selection under allowance.
2. For products specified under unit cost allowance, unit cost shall apply to quantity listed in Schedule of Values.

3. For products specified under unit allowance, unit cost allowance shall apply to quantities actually used with nominal amount for waste, as determined by receipts, invoices or by field measurement.

B. Submit claims for anticipated additional costs at site, or other expenses caused by selection under allowance, prior to execution of work.

C. Submit documentation for actual additional costs at site, or other expenses caused by selection under allowance within 60 days after completion of execution of Work.

D. Failure to submit claims within designated time will constitute waiver of claims for additional costs.

E. At contract closeout, reflect approved changes in contract amounts in final statement of accounting.

1.5 OWNER'S CONTINGENCY

A. Following shall apply to Owner's Contingency Allowance:

1. Contractor shall include profit and overhead in the contingency allowance. This means that the General Contractor mark-ups for overhead, profit, and indirect time related to Owner's Contingency expenditures shall be included in the Base Proposal, and outside of the Net Owner's Contingency amounts.
2. Contractor shall proceed with accomplishing work only after receiving properly executed contingency authorization executed by the Owner.
3. Any unexpended portion of the Owner's Contingency shall be returned to the Owner.
4. At completion of project, Architect will reconcile work accomplished through properly executed contingency allowance authorizations, and provide for refund of unused portion of contingency to the Owner through properly executed change order.

1.6 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Arrange for and process shop drawings, product data, and samples.

D. Provide warranties for products and maintenance installations.

1.7 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.2 SCHEDULE OF ALLOWANCES

A. ALLOWANCE NO.1: **OWNER'S CONTINGENCY ALLOWANCE**: Include the amount of **$25,000.00** for use according to the Owner's instructions.

END OF SECTION

SECTION 012200

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for unit prices.

1.2 DEFINITIONS

A. Unit Price: Amount proposed by Contractor as a price per unit of measurement for materials, equipment, or services added to or deducted from Contract Sum by Change Order if estimated quantities of Work required by Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Unit Price Schedule: A schedule of unit prices is included at end of this Section. Specification Sections referenced in Schedule contain requirements for materials described under each unit price.

C. Quote cost of each Unit Price on the Proposal Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 UNIT PRICE SCHEDULE
N/A

END OF SECTION

SECTION 012300

ALTERNATES

PART 1 - GENERAL

1.1 DEFINITIONS

A. Alternate: An amount proposed by bidders for certain work that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.2 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate. Acceptance of Alternates will be exercised at option of Owner in any order or combination.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. ALTERNATE #1 – Remove existing chain link fencing and gates. Provide aluminum fencing, rolling gates and passenger gates. Refer to Sheet A1.04 – Edinburg for locations.

END OF SECTION

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SECTION 012510

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of Contract.

1.2 DEFINITIONS

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by Contractor after award of Contract are considered requests for "substitutions". Following are not considered substitutions:

1. Revisions to Contract Documents requested by Owner or Architect.
2. Specified options of products and construction methods included in Contract Documents.
3. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

C. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

D. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 SUBMITTALS

A. Submit three copies of each request for product substitution complete with properly executed form and all supporting data.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Due to limited time available during bidding period, request for substitutions will not be evaluated by Architect until after “Notice of Award”. For period of fifteen (15) consecutive calendar days after “Notice of Award”, substitutions will be considered by Architect. Requests for substitution after that time will be considered or rejected at the discretion of the Architect.

B. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents, and are not subject to requirements specified in this Section.

C. Bids shall be based upon providing specified materials, products, Acceptable Manufacturers, organizations, and applications; identified in these Specifications or indicated on Drawings.

D. Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples for construction activities not complying with Contract Documents does not constitute acceptable or valid request for substitution, nor does it constitute approval.

E. Contractor's substitution request will be received and considered by Architect when one or more of following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with general intent of Contract Documents.
3. Request is timely, fully documented and properly submitted.
4. Specified product or method of construction cannot be provided within Contract Time. Request will not be considered if product or method cannot be provided as result of failure to pursue Work promptly or coordinate activities properly.
5. Specified product or method of construction cannot receive necessary approval by governing authority, and requested substitution can be approved.
6. Substantial advantage is offered Owner, in terms of cost, time, energy conservation or other considerations, after deducting additional responsibilities Owner must assume. Additional responsibilities for Owner may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
7. Specified product or method of construction cannot be provided in manner that is compatible with other materials, and where Contractor certifies that substitution will overcome incompatibility.
8. Specified product or method of construction cannot be coordinated with other materials, and where Contractor certifies that proposed substitution can be coordinated.
9. Specified product or method of construction cannot provide warranty required by Contract Documents and where Contractor certifies that proposed substitution provide required warranty.

F. Burden of proof of equality rests with Contractor.

G. Submit separate request for each Product Substitution, on Architect's standard form "Substitution Request Form 012510", copy at end of this section, supported with complete data, technical literature, drawings and samples as appropriate, including:

1. Comparison of qualities of proposed substitution with that specified. (Submit data for both products)
2. Changes required in other elements of work because of substitution.
3. Effect on construction schedule.
4. Cost data comparing proposed substitution with Product specified.
5. Required license fees or royalties.
6. Availability of maintenance service, and source of replacement materials.
7. List of appropriate installations.

H. By making request for substitution, Contractor:

1. Represents and warrants that Contractor has personally investigated proposed substitution product and determined that it is equal to or superior in all respects to that specified;
2. Represents and warrants that Contractor will provide same warranties or bonds for substitution That Contractor would for that specified.
3. Certifies that cost data presented is complete and includes all related costs under this Contract except for Architect's redesign cost, and waives all claims for additional costs related to substitution which may subsequently become apparent; and
4. Will coordinate installation of accepted substitute, making such other changes as may be required to make Work complete in all respects.

I. Architect will review requests for substitutions with reasonable promptness, and notify Contractor, in writing, of decision to accept or reject requested substitution.

J. Owner and Architect reserve right to accept or reject proposed substitutions. Each request shall state amount of savings to Owner, if substitution is accepted. Acceptance of proposed substitution does not constitute approval or inclusion in Architect's and Consultant's Documents. Pay applications certification, change orders, and certificate of substantial completion will contain such qualification.

K. Cost of testing required for analysis of proposed substitution shall be paid for by Contractor at testing agency selected and approved by Architect.

L. Should substitution be accepted, Contractor shall be responsible to make necessary adjustments in Work which may be affected as result of substitution at no additional cost.

M. Contractor warrants that substituted material or system will perform same as original specified material or system would have performed. Should accepted substitution fail to perform as required, Contractor shall replace substitute material or system with that specified and bear costs incurred thereby.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SUBSTITUTION REQUEST FORM 012510

To Architect: _____

Project Name: _____

SPECIFIED ITEM:

Section	Page	Paragraph	Description

The undersigned General Contractor requests consideration of the following:

PROPOSED SUBSTITUTION: _____

1. Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified, both on the proposed substitution and the original specified product.

2. Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned General Contractor states that the following paragraphs, unless modified on attachments, are correct.

1. The proposed substitution does not affect dimensions shown on Drawings.

2. The undersigned General Contractor will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

The General Contractor further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item. The General Contractor further warrants that specification Section 012510, Article 2.1 Paragraph G intent has been met.

5. Cost Reduction to the Owner: $

ACCEPTANCES:

1. General Contractor Acceptance: Representing:

_____ Date: _____ _____

2. Owner Acceptance: Representing:

_____ Date: _____ _____

3. Architect Acceptance: Representing:

_____ Date: _____ _____

_____ Accepted as Noted

_____ Not Accepted

_____ Received too late

_____ Resubmit with complete information

SECTION 012600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Refer to Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after Contract award.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's standard form "Architect's Supplemental Instructions".

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect or Owner will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in the Supplementary Conditions and after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change including the information requested in the Supplemental Conditions, which includes:

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect using Contractor's Standard Form.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time. The Contractor shall make all efforts to resequence work as necessary to reduce the number of reduce an increase in Contract Time.
5. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
3. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on Architects standard form “Change Order”.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on Architects standard form “Construction Change Directive”. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 012900

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.

2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value. Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

1. If the Agreement does not state payment dates, establish dates at preconstruction conference.

C. Payment Application Forms: Use the AIA Document G702 form (amended to add the Owner’s Independent Project Manager signature block) and AIA Document G703 Continuation Sheets as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit signed and notarized electronic copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, the Contractor shall submit waivers of mechanic's lien. If requested by the Owner, also submit waiver from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
   1. With each Application for Payment, submit Conditional Lien Release waivers for the work performed and invoiced, before deduction for retainage and, if requested by the Owner, copies of such Conditional Lien Release waivers from all Subcontractors and Suppliers.
   2. With each Application for Payment, submit Unconditional Lien Release waivers for the work performed and paid for based on the prior Application for Payment. If requested by the Owner, provide copies of Unconditional Lien Release waivers from all Subcontractors and Suppliers.
   3. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

   1. List of subcontractors.
   2. Schedule of Values.
   3. Contractor's Construction Schedule (preliminary if not final).
   4. Products and Materials List.
   5. Schedule of unit prices.
   6. Submittals Schedule (preliminary if not final).
   7. List of Contractor's staff assignments.
   8. List of Contractor's principal consultants.
   9. Copies of building permits.
   10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
   11. Initial progress report.
   12. Report of pre-construction conference.
   13. Aerial (drone) photographs.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

   1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
   2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

   1. Evidence of completion of Project closeout requirements.
   2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   3. Updated final statement, accounting for final changes to the Contract Sum.
   4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims" from the Subcontractors and the General Contractor and/or statutory form or release.
   5. AIA Document G706A, "Contractor's Affidavit of Release of Liens" from the Subcontractors and the General Contractor and/or statutory form or release.
   6. AIA Document G707, "Consent of Surety to Final Payment".
   7. Evidence that claims have been settled.

8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project _____

Job No. _____

On receipt by the signer of this document of a check from _____ *(maker of check)* in the sum of $ _____ payable to _____ *(payee or payees of check)* and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of _____ *(owner)* located at _____ *(location)* to the following extent: _____ *(job description).*

This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date: _____

Company Name: _____

By: _____

Signature: _____

Title: _____

SUBSCRIBED AND SWORN TO BEFORE ME this the _____ day of _____, 20_____.

NOTARY PUBLIC, in and for the
State of Texas

My Commission Expires: _____

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NOTICE:

This document waives rights unconditionally and states that you have been paid for giving up those rights. It is prohibited for a person to require you to sign this document if you have not been paid the payment amount set forth below. If you have not been paid, use a conditional release form.

UNCONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project _____

Job No. _____

The signer of this document has been paid and has received a progress payment in the sum of $_____ for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* on the property of _____ *(owner)* located at _____ *(location)* to the following extent: _____ *(job description).*

The signer therefore waives and releases any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the above referenced project to the following extent: _____. This release covers a progress payment for all labor, services, equipment, or materials furnished to the property or to _____ *(person with whom signer contracted)* as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date: _____ _____

Company Name:_____

By: _____

Signature:_____

Title: _____

SUBSCRIBED AND SWORN TO BEFORE ME this the _____ day of _____, 20_____.

NOTARY PUBLIC, in and for the
State of Texas

My Commission Expires: _____

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SECTION 013100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project.

1.2 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Electronic project management software.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.3 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.

1.4 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.

B. Pre-Construction Conference: The Architect will schedule a pre-construction conference before starting construction, at a time and location convenient to Owner, Contractor and Architect, but no later than 15 days after date of “Notice to Proceed”.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants, Contractor and its superintendent and, if requested, major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
    a. Permit Status
    b. Tentative construction schedule.
    c. Phasing.
    d. Critical work sequencing.
    e. Designation of responsible personnel.
    f. Procedures for processing field decisions and Change Orders.
    g. Procedures for processing Applications for Payment.
    h. Distribution of the Contract Documents.
    i. Submittal procedures.
    j. Status of utility provider site services
    k. Preparation of Project Record Documents.
    l. Use of electronic project management software.
    m. Use of the premises.
    n. Responsibility for temporary facilities and controls.
    o. Parking availability.
    p. Equipment deliveries and priorities.
    q. First aid.
    r. Security.
    s. Progress cleaning.
    t. Working hours.

C. Pre-Installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related Change Orders.
    d. Purchases.

e. Deliveries.
f. Submittals.
g. Review of mock-ups.
h. Possible conflicts.
i. Compatibility problems.
j. Time schedules.
k. Weather limitations.
l. Manufacturer's written recommendations.
m. Warranty requirements.
n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities and controls.
q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Required performance results.
u. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements.
4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: Representatives of Owner, Architect, and Contractor shall be represented at these meetings. The Contractor may be required to invite the subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities upon request. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
3. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
4. Review present and future needs of each entity present, including the following:
   a. Permit status
   b. RFI Status
   c. Status of submittals.
   d. Documentation of information for payment requests.
   e. Status of Change Proposals
   f. Status of Change Orders.
   g. Quality and work standards.
   h. Schedule Status Review
   i. Open Issues Review
   j. Interface requirements.
   k. Sequence of operations.
   l. Utilities Service provider deliver status
   m. Deliveries.
   n. Off-site fabrication.
   o. Access.
   p. Site utilization.
   q. Temporary facilities and controls.

r. Work hours.
s. Hazards and risks.
t. Progress cleaning.

5. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
6. Schedule Updating: Revise Contractor's Construction Interim Planning Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Coordination Meetings: Conduct Project coordination meetings on an as-needed basis. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.

1. Attendees: Each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work
2. Agenda: Review items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

1.5 ELECTRONIC PROJECT MANAGEMENT SOFTWARE

A. General: So as to expedite electronic review process, process all documents through a web-based software service. Sending documents via email, FTP or paper will not be accepted.

1. Basis of Design (Product Standard):

a. Newforma, Inc.; Newforma Project Cloud, web-based software.

1) Website: www.NewformaProjectCloud.com
2) E-mail: projectcloud@newforma.com
3) Phone: (800) 303-4650

B. Performance Requirements:

1. Project License:

a. Cloud based (no hardware required).
b. Unlimited user accounts.
c. Functionality to support subcontractors, contractors, architects and consultants.
d. Provide access to data for all project team members at no cost to the individual users.

2. Training and Support:

a. Dedicated project training.
b. Phone support.

3. Archive:

a. Export all data to an offline archive at the completion of the project.
b. Provide archive to architect, contractor and owner.
c. Archive shall include all attachments, meta data, review comments and time stamp history.

4. Submittals and RFIs:

    a. Customizable logs and reporting accessible by all users.
    b. Logs shall automatically update as submittals and RFIs are processed.
    c. Automated routing of submittals and RFIs to design team based on trade.
    d. Automated email notifications when submittal or RFI has been assigned or returned to a user.
    e. Automated weekly email to design team users of overdue items.
    f. Automatic sequential numbering per spec section for submittals.
    g. Two sets of due dates - one overall due date and a consultant due date.
    h. Built-in web-based markup tools to support a concurrent review of submittal and RFI.

5. Submittal Register:

    a. Software vendor shall take specifications and build the required list of submittals and import into the software.

6. Drawing Management:

    a. Provide current set of drawings and specifications through a centralized index.
    b. Automated association of PDFs to the centralized index.
    c. Manage drawing revisions with customizable review states.
    d. Drawings shall be accessible offline via mobile devices.

7. File Sharing:

    a. Integrated file sharing tool (FTP) to transfer any miscellaneous files such as BIM and CAD files.
    b. Access permissions (view/edit) at a folder level.

8. Punch List and other Field Task Management:

    a. Unlimited customizable field task types including punch list.
    b. Locate and assign tasks from a mobile device.
    c. No additional fees to individual users to access mobile apps.
    d. Data shall be accessible offline on mobile devices.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013120

PROJECT COMMUNICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative procedures for preparation and submission of project communications documents.

1.2 DEFINITIONS

A. Project communications documents shall be defined as the following:

1. Letters.
2. Memoranda.
3. Fax Communications.
4. E-Mail Communications / Internet Communications / Electronic Project Management Software Communications.
5. RFI (Request for Information - Contractor).
6. RFI-A (Request for Information - Architect).

1.3 FORMAT

A. Letters, Memoranda, and Fax Communications: Submit in formats acceptable to the Architect.

B. E-Mail Communications / Internet Communications / Electronic Project Management Software Communications: Submit in forms and formats acceptable to and as accepted by the Architect.

C. RFI (Request for Information - Contractor): Submit on forms furnished by the Architect, or on other forms as accepted by the Architect.

D. RFI-A (Request for Information - Architect), will be submitted by Architect to Contractor on Architect's standard form.

PART 2 - PRODUCTS

A. Electronic Project Management Software: As required by Division 01 Section "Project Management and Coordination".

PART 3 - EXECUTION

3.1 PROJECT COMMUNICATIONS DOCUMENTS

A. Letters, Memoranda, and Fax communications documents shall be submitted in a timely manner so as to facilitate project delivery and coordination. Routing of communications shall be as established in the Contract, the Contract Documents and the Preconstruction Conference. Communications documents shall be transmitted or forwarded in a manner consistent with the schedule and progress of the work.

B. E–Mail Communications, Internet Communications, and Electronic Project Management Software programs must be compatible with the Architect's and Owner's computer systems and equipment. The responsibility for all costs for management of these systems, including, but not limited to, licensing, on site training or other training necessary for the proper operation of such systems, shall be by the Contractor. The Contractor shall keep written records and hard file copies of all electronic communications. Failure of the Contractor to keep such records shall waive the Contractor's right to rely on such communications and such communications shall be deemed to have not taken place.

1. Electronic File of Project Communication Documents: Provide Architect with an independent electronic archive of project communication documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination".

C. RFI (Request for Information - Contractor) shall be defined and limited to a request from the Contractor seeking interpretation or clarification of the requirements of the Contract Documents. Such requests shall comply with the following requirements:

1. RFI requests shall be submitted in a timely manner, well in advance of related work, and allow sufficient time for the resolution of issues relating to the request for interpretation or clarification. Contractor shall schedule the submission of RFI's so as to moderate and manage the flow of RFI requests. RFI's shall be submitted in a manner consistent with the schedule and progress of the work, and shall not be submitted in a sporadic and/or excessive manner.
2. RFI requests shall be numbered in a sequential manner and contain a detailed description of the areas of work requiring interpretation or clarification. Include drawing and specification references, sketches, technical data, brochures, or other supporting data as deemed necessary by the Architect, for the Architect to provide the interpretations and clarifications requested. The Contractor shall include a "Proposed Solution" to the issue requiring interpretation or clarification.
3. RFI's submitted to the Contractor by Sub-Contractors, vendors, suppliers, or other parties to the work shall be reviewed by the Contractor prior to submission to the Architect. If the Architect deems that such RFI requests have not been adequately reviewed by the Contractor, such requests will be returned to the Contractor for further action. Sub-Contractor's RFI shall contain a "Proposed Solution".
4. RFI requests shall not contain submittals, substitutions requests, routine communications, correspondence, memos, claims, or any information required by other areas of the Contract Documents. RFI requests containing such information will be returned to the Contractor without action by the Architect.
5. RFI requests are limited to a request for interpretation or clarification of the requirements of the Contract Documents. Interpretations provided by the Architect shall not change the requirements of the Contract or the Contract Documents. If the Contractor determines that the Architect's response to an RFI gives cause for a change in the Contract or the Contract Documents, the Contractor shall promptly, within 5 working days, give written notice to the Architect of request for adjustments. Requests for adjustments to the Contract shall be submitted in a manner consistent with the terms and conditions of the Contract Documents.
6. If the Architect, after review, determines that any RFI has been submitted in an incomplete manner, is unnecessary, or does not otherwise comply with the requirements of this Section, the RFI will be returned without action to the Contractor. The Contractor shall delete the original submittal date from the RFI log and enter a new submittal date at the time of re-submittal.

D. RFI-A (Request for Information - Architect) shall be defined as a request by the Architect for information relating to the obligations of the Contractor under the Contract.

1. After receipt of an RFI-A the Contractor shall provide a written response to the Architect within 5 working days. Responses shall be thorough, complete and shall contain all information requested by the Architect.
2. An RFI-A shall be limited to a request by the Architect for information related to the project. The RFI-A shall not be construed as authorizing or directing a change in the Contract or the Contract Documents.

END OF SECTION

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SECTION 013200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities that must start and finish on the planned early start and finish times.
2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. Major Area: A story of construction, a separate building, or a similar significant construction element.

C. Milestone: A key or critical point in time for reference or measurement.

1.3 SUBMITTALS

A. Submittals Schedule: Submit one electronic copy. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Preliminary Construction Schedule: Submit one electronic copy.

C. Contractor's Construction Schedule: Submit one electronic copy indicating Activity: ID, description, duration, successors, predecessors, total float, and critical path. The schedule will show the Work broken down into areas agreeable to the Owner. The schedule shall also include Owner supplied (only) and Owner supplied and installed for items integrated in the site or building.

D. Daily Construction Reports: Submit electronic copies at weekly intervals.

E. Material Location Reports: Submit electronic copies at monthly intervals.

F. Field Condition Reports: Submit electronic copies at time of discovery of differing conditions.

G. Special Reports: Submit electronic copies at time of unusual event.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. A list of all Project Submittals are to be input into the Project Management software system by the Contractor within 30 days of Notice to Proceed Preparation. Submit a schedule of submittals, with the ability to sort in order of any date field, as well as specification section. When assigning schedule dates include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with Contractor's Construction Schedule.
2. Initial Submittal: Submit concurrently with preliminary construction schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Update Submittal: Submit concurrently with the update submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling".

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than 7 days for startup and testing.

5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Owner-Furnished Products: Include a separate activity for each product.
2. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Uninterruptible services.
c. Seasonal variations.
d. Environmental control.

3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Accepted Major Submittals.
b. Deliveries of Major Components.
c. Dry-in by area.
d. Fabrication of Major Components.
e. Installation.
f. Permanent power.
g. Startup and placement into final use and operation.

4. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural Framing Completion.
b. Permanent space enclosure (Dry-in).
c. Completion of mechanical installation; conditioned space for finishes
d. Completion of electrical installation; permanent power
e. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

G. Computer Software: Prepare schedules using Suretrak or approved equivalent.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 14 days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 REPORTS

A. Daily Construction Reports: Daily reports shall be bundled weekly into Adobe PDF format and sent electronically to the Owner and Architect. Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. Approximate count of personnel at Project site.
3. High and low temperatures and general weather conditions.
4. Accidents.
5. Meetings and significant decisions.
6. Progress of work.
7. Unusual events (refer to special reports).
8. Stoppages, delays, shortages, and losses.
9. Meter readings and similar recordings.
10. Emergency procedures.
11. Orders and requests of authorities having jurisdiction.
12. Construction Change Directives received.
13. Major services connected and disconnected.
14. Deliveries of Major Components.
15. Major equipment or system tests and startups.
16. Partial Completions and occupancies.
17. Substantial Completions authorized.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

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SECTION 013300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, Certifications, and other miscellaneous submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

C. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

D. Mock-ups: Full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.3 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals. Contractor must agree in writing to Architect's Download Agreement before obtaining CAD Drawings.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
4. Utilize electronic project management software program to process submittals when feasible with the type and extent of submittals. Refer to Division 01 Section "Project Management and Coordination" for description of electronic project management software.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
3. If intermediate submittal is necessary, process it in same manner as initial submittal.
4. Allow 15 days for processing each resubmittal.
5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

E. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Unique identifier, including revision number.
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review received from sources other than Contractor.

1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

3. Transmittal Form: Provide Contractor's standard form with locations on form for the following information:

    a. Project name.
    b. Date.
    c. Destination (To:).
    d. Source (From:).
    e. Names of subcontractor, manufacturer, and supplier.
    f. Category and type of submittal.
    g. Submittal purpose and description.
    h. Submittal and transmittal distribution record.
    i. Remarks.
    j. Signature of transmitter.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. When submittals cannot be digitally submitted, submit minimum of one reproducible and two prints of Shop Drawings until final acceptance. Submit one additional print of Structural, Mechanical and Electrical items. Reproducible and one print will be returned to the General Contractor after Architect's review.

C. When submittals cannot be digitally submitted, submit minimum of four copies of Product Data until final acceptance. Submit one additional copy of Structural, Mechanical and Electrical items. Three copies of the Product Data will be returned to the General Contractor after Architect's review.

D. Submit minimum of duplicates of Samples. Additional samples may be required for specific items for coordination of finishes.

E. Submit additional copies of Samples and Product Data as necessary for distribution to subcontractors. Contractor shall obtain and distribute required prints of Shop Drawings made from reviewed and stamped reproducible. Number of copies of Product Data, Samples and Shop Drawings to be submitted shall be established in the pre-construction conference.

F. Contractor shall review and stamp with his approval submittals. Submittals which do not bear Contractor's approval stamp shall be returned without review. Stamp shall include statement, "This submittal has been reviewed for compliance with requirements of the work and of the Contract Documents".

G. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Printed performance curves.
h. Operational range diagrams.
i. Mill reports.
j. Standard product operating and maintenance manuals.
k. Compliance with recognized trade association standards.
l. Compliance with recognized testing agency standards.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.
o. Certification that products are appropriate for installation indicated.

H. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.

I. Coordination Drawings: Comply with requirements in Division 01 Section "Project Management and Coordination".

J. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected.
3. Samples include, but are not limited to, the following:

a. Partial sections of manufactured or fabricated components.
b. Small cuts or containers of materials.
c. Complete units of repetitively used materials.
d. Swatches showing color, texture, and pattern; color range sets.
e. Components used for independent testing and inspection.

4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:

    a. Generic description of Sample.
    b. Product name or name of manufacturer.
    c. Sample source.

5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

    a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.
    b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Number of Samples for Initial Selection: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return two submittals with options selected.
7. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 DELEGATED DESIGN SUBMITTALS

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and one paper copy of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

2.3 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies when digital uploads are not possible: Submit one copy of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 01 Section "Quality Control".

B. Contractor's Construction Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation".

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

J. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

K. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

L. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

M. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by

manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

N. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 01 Section “Closeout Procedures".

P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

T. Industry Standards: Where other Sections of the Specifications require that a product, material, or installation complies with specified industry standard, submit copies of standards at same time as submittal of other specified submittals.

1. Submit copies of reference standards specified such as ASTM, UL, FM, ANSI, ETC., for each material or installation of material specified.
2. Submit copies of trade association standards specified such as NRCA, BIA, AWI, SMACNA, ETC., for each material, process fabrication, or installation specified.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

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

B. Except for submittals for the record, for information and similar purposes, where action and return on submittals is required or requested, the Architect will review each submittal, mark to indicate the action taken, and return.

C. Compliance with specified characteristics is the Contractor's responsibility, and not considered part of the Architect's review and indication of action taken.

D. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:

1. Final-But-Restricted Release: When submittals are marked "Accepted as Noted," the Work covered by the submittal may proceed provided it complies with both the Architect's notations and corrections on the submittal and requirements of the Contract Documents. Final acceptance will depend on that compliance.
2. Returned for Resubmittal: When submittal is marked "Not Accepted" or "Revise Resubmit," do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the Architect's notations. Resubmit without delay. Repeat if necessary to obtain a different action mark.

    a. Do not permit submittals marked "Not Accepted or Revise Resubmit" to be used at the Project site, or elsewhere where construction is in progress.

3. Other Action: Where a submittal is primarily for information or record purposes, or for special processing or other Contractor activity, the submittal will be returned, marked "Not Reviewed" or "Not Reviewed; submittal not required by Contract Documents".

E. Architect's acceptance of Shop Drawings, Samples or Product Data which deviates from the Contract Documents does not authorize changes to the Contract Sum. Submit in writing at the

time of submission any changes to the Contract Sum affected by such Shop Drawings, Samples or Product Data, otherwise, claim for extras will not be considered.

F. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

G. Electronic File of Submittal Documents: Provide Architect with an independent electronic archive of project submittal documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination".

END OF SECTION

SECTION 014000

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL (Nationally Recognized Testing Laboratories), an NVLAP (National Voluntary Laboratory Accreditation Program), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction and with the qualification requirements of individual specification section governing their work.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may be the Project superintendent or be an individual with no other Project responsibilities, as accepted by the Architect.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."

3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by the Commissioning Authority when Commissioning is included in the Project.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results, including Owner acceptance of nonconforming work. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Statement whether conditions, products, and installation exceed manufacturer’s statements.
8. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. 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 the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mock-ups: Prior to fabrication and installation, build mock-up for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mock-up to comply with the following requirements, using materials indicated for the completed Work:

1. Build mock-up in the location and of the size indicated or, if not indicated, as directed by Architect. Contractor shall provide structural support framework.

a. Show typical components, attachments to building structure, and requirements of installation.

2. Clean exposed faces of mock-up.
3. Notify Architect seven days in advance of the dates and times when mock-up will be installed.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Protect accepted mock-up from the elements with weather-resistant membrane.
6. Obtain Architect's acceptance of mock-ups before starting fabrication.
7. Maintain mock-ups during construction in an undisturbed condition as a standard for review of the completed Work.
8. Acceptance of mock-ups does not constitute acceptance of deviations from the Contract Documents contained in mock-ups unless such deviations are specifically noted by Contractor, submitted to Architect in writing, and accepted by Architect in writing.
9. Demolish and remove mock-ups when directed by Architect unless accepted to become part of the completed Work.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
4. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify

agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

a. Prepare in tabular form and include the following:

1) Specification Section number and title.
2) Entity responsible for performing tests and inspections.
3) Description of test and inspection.
4) Identification of applicable standards.
5) Identification of test and inspection methods.
6) Number of tests and inspections required.
7) Time schedule or time span for tests and inspections.
8) Requirements for obtaining samples.
9) Unique characteristics of each quality-control service.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner may engage a qualified to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: General regulatory requirements.

1.2 REFERENCES

A. ASTM International
   1. ASTM E 119: Test Methods for Fire Tests of Building Construction and Materials

B. Underwriters Laboratories Inc.
   1. UL 263: Fire Tests of Building Construction and Materials.

1.3 GENERAL REQUIREMENTS

A. General: Additional information with legal implications regarding applicable governing laws and jurisdictions can be found in Conditions of Contract.

B. Codes:
   1. Where references are made on Drawings or Specifications to codes, they shall be considered an integral part of the Contract Documents as minimum standards. Nothing contained in Contract Documents shall be so construed as to be in conflict with law, bylaw or regulation of municipal, State, Federal or other authorities having jurisdiction.
   2. Perform Work in compliance with Codes on Construction Drawings.
      a. NFPA 70 National Electrical Code, edition required by authorities having jurisdiction.
      b. National, state and local barrier free codes, laws and ordinances.
      c. ANSI/ASME A17.1 - Elevator Code, edition required by authorities having jurisdiction.
      d. NFPA applicable NFPA Standards.

C. Contractor shall, without additional expense to Owner, obtain necessary licenses and permits, and be responsible for complying with Federal, state, county, and municipal laws, codes, and regulations applicable to performance of Work, including, but not limited to, laws or regulations requiring use of licensed contractors to perform parts of Work.

D. Environmental Requirements: Contractor shall comply with applicable local, state, and federal air and water quality standards with pollution control laws; and with such rules, regulations and directives as may be lawfully issued for the protection of the environment in the areas surrounding the confines of this contract.
   1. Obtain certificates of registration, issued by The Texas Water Commission, for work involving the installation removal, or repair of underground storage tank systems, including piping.

E. Occupancy Permit: The General Contractor shall be responsible for securing a Certificate of Occupancy permit at completion of project and shall deliver such permit to Owner. Final Payment shall be retained until permit has been received by Owner.

1.4 FIRE-RESISTANCE REQUIREMENTS

A. Fire Resistance Ratings and Fire Tests: Fire-resistance ratings of building elements, components, and assemblies shall be determined only in accordance with the test procedures set forth in ASTM E 119 or UL 263, or by alternative methods approved by applicable authorities having jurisdiction.
   1. Fire-resistance ratings shall be determined or listed based on fire tests performed by one of the following testing agencies, or other agencies acceptable to governing authorities having jurisdiction.
      a. Factory Mutual Laboratories.
      b. Intertek
      c. Southwest Research Institute.
      d. Underwriters Laboratories, Inc.
   2. Where reference is made to only one testing authority, equivalent fire ratings as determined or listed by another testing agency are acceptable if approved by applicable authorities having jurisdiction.

B. Marking and Identification: Fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions, or any other walls required to have protected openings or penetrations, shall be permanently identified with signage or stenciling. Such identification shall:
   1. Be located in accessible floor plenums, ceiling plenums, or attic spaces.
   2. Be repeated at intervals not exceeding 30 feet o.c., measured horizontally along the partition or wall.
   3. Include lettering not less than 0.5- inch in height, worded as follows: "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS AND PENETRATIONS."

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 014200

REFERENCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes reference standards, definitions and specification format and content.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term “indicated” refers to requirements expressed by graphic representations, or in written form on Drawings, in Specifications, and in other Contract Documents. Terms such as “shown”, “noted”, “scheduled”, and “specified” are used to help the user locate the reference.

C. Directed: The term “directed” is a command or instruction by Architect. Other terms including “requested,” “authorized,” “selected,” “approved,” and “permitted” have the same meaning as “directed.”

D. Approved: The term “approved”, when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulations: The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term “furnish” means supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: The term “install” describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. Provide: The term “provide” means to furnish and install, complete and ready for the intended use.

I. Submitted: The terms “submitted”, “reported”, “satisfactory” and similar words and phrases means submitted to Architect, reported to Architect and similar phrases.

J. Installer: An “Installer” is the Contractor or another entity engaged by the Contractor, as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

K. Experienced: The term “experienced”, when used with an entity, means having successfully completed a minimum of ten previous projects similar in size and scope to this Project; being familiar with the special requirements indicated, and having complied with requirements of authority having jurisdiction.

L. Trades: Using terms such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

M. Project Site: The term "Project site" means the space available for performing construction activities. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

N. Testing Agencies: A “testing agency” is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the 16-Division format and CSI/CSC’s “MasterFormat 1995” numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
3. The words “shall” "shall be" or “shall comply with”, depending on the context are implied where a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

D. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

E. Copies of Standards: Each entity engaged in construction on the Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where other Sections of the Specifications require that a product, material, or installation complies with specified industry standard, the Contractor shall obtain copies directly from the publication source, and submit copies of standards at same time as submittal of other specified submittals.

F. Industry Organization Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications and other Contract Documents they shall mean the name of a trade association, standards-developing organization or other entity in the context of referencing a standard or publication. The following abbreviations and acronyms, as referenced in the Contract Documents, mean the associated names.

1. Names and Web site addresses are subject to change and are believed, but not assured, to be accurate and up to date as of the date of Contract Documents.
2. Refer to Gale Research's "Encyclopedia of Associations," or Columbia Book's "National Trade and Professional Association of the U.S.".

AA	Aluminum Association, Inc. (The)	www.aluminum.org
AAADM	American Association of Automatic Door Manufacturers	www.taol.com/aaadm
AABC	Associated Air Balance Council	www.aabchq.com
AAMA	American Architectural Manufacturers Association	www.aamanet.org
AAN	American Association of Nurserymen	(See ANLA)
AASHTO	American Association of State Highway and Transportation Officials	www.aashto.org
AATCC	American Association of Textile Chemists and Colorists	www.aatcc.org
ABMA	American Bearing Manufacturers Association	www.abma-dc.org
ACI	American Concrete Institute/ACI International	www.aci-int.org
ACPA	American Concrete Pipe Association	www.concrete-pipe.org
ADC	Air Diffusion Council	
AEIC	Association of Edison Illuminating Companies, Inc. (The)	www.aeic.org
AFPA	American Forest & Paper Association	(See AF&PA)
AF&PA	American Forest & Paper Association	www.afandpa.org
AGA	American Gas Association	www.aga.org
AGC	Associated General Contractors of America (The)	www.agc.org
AHA	American Hardboard Association	www.ahardbd.org
AHAM	Association of Home Appliance Manufacturers	www.aham.org
AI	Asphalt Institute	www.asphaltinstitute.org
AIA	American Institute of Architects (The)	www.aiaonline.org
AISC	American Institute of Steel Construction, Inc.	www.aisc.org
AISI	American Iron and Steel Institute	www.steel.org
AITC	American Institute of Timber Construction	
ALA	American Laminators Association	(See LMA)
ALCA	Associated Landscape Contractors of America	www.alca.org
ALSC	American Lumber Standard Committee	
AMCA	Air Movement and Control Association International, Inc.	www.amca.org
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen)	www.anla.org
ANSI	American National Standards Institute	www.ansi.org
AOSA	Association of Official Seed Analysts	www.zianet.com/AOSA

APA	APA-The Engineered Wood Association	www.apawood.org
APA	Architectural Precast Association	www.archprecast.org
API	American Petroleum Institute	www.api.org
ARI	Air-Conditioning & Refrigeration Institute	www.ari.org
ASCA	Architectural Spray Coaters Association	www.ascassoc.com
ASCE	American Society of Civil Engineers	www.asce.org
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	www.ashrae.org
ASME	ASME International (American Society of Mechanical Engineers International)	www.asme.org
ASSE	American Society of Sanitary Engineering	www.asse-plumbing.org
ASTM	American Society for Testing and Materials	www.astm.org
AWCI	AWCI International (Association of Wall and Ceiling Industries International)	www.awci.org
AWCMA	American Window Covering Manufacturers Association	(See WCMA)
AWI	Architectural Woodwork Institute	www.awinet.org
AWPA	American Wood-Preservers' Association	www.awpa.com
AWS	American Welding Society	www.aws.org
AWWA	American Water Works Association	www.awwa.org
BHMA	Builders Hardware Manufacturers Association	www.buildershardware.com
BIA	Brick Industry Association (The)	www.bia.org
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)	www.bifma.com
CCC	Carpet Cushion Council	www.carpetcushion.org
CCFSS	Center for Cold-Formed Steel Structures	www.umr.edu/~ccfss
CDA	Copper Development Association Inc.	www.copper.org
CEA	Canadian Electricity Association (The)	www.canelect.ca
CFFA	Chemical Fabrics & Film Association, Inc.	www.taol.com/cffa
CGA	Compressed Gas Association	www.cganet.com
CGSB	Canadian General Standards Board	www.pwgsc.gc.ca/cgsb
CIMA	Cellulose Insulation Manufacturers Association	www.cellulose.org
CISCA	Ceilings & Interior Systems Construction Association	www.cisca.org
CISPI	Cast Iron Soil Pipe Institute	www.cispi.org
CLFMI	Chain Link Fence Manufacturers Institute	www.chainlinkinfo.com (under construction)
CPA	Composite Panel Association (Formerly: National Particleboard Association)	www.pbmdf.com
CPPA	Corrugated Polyethylene Pipe Association Division of Plastics Pipe Institute	www.cppa-info.org
CRI	Carpet and Rug Institute (The)	www.carpet-rug.com
CRSI	Concrete Reinforcing Steel Institute	www.crsi.org
CSA	CSA International (Formerly: IAS - International Approval Services) Division of Canadian Standards Association	www.iasapprovals.org
CSI	Construction Specifications Institute (The)	www.csinet.org
CSSB	Cedar Shake & Shingle Bureau	www.cedarbureau.org
CTI	Cooling Tower Institute	www.cti.org
DHI	Door and Hardware Institute	www.dhi.org
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association	www.eia.org
EIMA	EIFS Industry Members Association	www.eifsfacts.com
EJMA	Expansion Joint Manufacturers Association, Inc.	www.ejma.org
FCI	Fluid Controls Institute	www.fluidcontrolsinstitute.org
FGMA	Flat Glass Marketing Association	(See GANA)
FM	Factory Mutual System	(See FMG)
FMG	FM Global	www.fmglobal.com

	(Formerly: FM - Factory Mutual System)	
GA	Gypsum Association	www.gypsum.org
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association)	www.glasswebsite.com/gana
GRI	Geosynthetic Research Institute	www.drexel.edu/gri
GTA	Glass Tempering Division of Glass Association of North America	(See GANA)
HI	Hydraulic Institute	
HI	Hydronics Institute Division of Gas Appliance Manufacturers Association	www.gamanet.org
HMMA	Hollow Metal Manufacturers Association Division of National Association of Architectural Metal Manufacturers	(See NAAMM)
HPVA	Hardwood Plywood & Veneer Association	www.hpva.org
HPW	H. P. White Laboratory, Inc.	
IAS	International Approval Services (See CSA International)	
ICEA	Insulated Cable Engineers Association, Inc.	www.icea.net
ICRI	International Concrete Repair Institute	www.icri.org
IEC	International Electrotechnical Commission	www.iec.ch
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)	www.ieee.org
IESNA	Illuminating Engineering Society of North America (The)	www.iesna.org
IGCC	Insulating Glass Certification Council	www.igcc.org
ILI	Indiana Limestone Institute of America, Inc.	www.iliai.com
IRI	HSB Industrial Risk Insurers	www.industrialrisk.com
ITS	Intertek Testing Services	www.itsglobal.com
IWS	Insect Screening Weavers Association (Now defunct)	
KCMA	Kitchen Cabinet Manufacturers Association	www.kcma.org
LGSI	Light Gage Structural Institute	www.loseke.com
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association)	www.lma.org
LPI	Lightning Protection Institute	www.lightning.org
LSGA	Laminated Safety Glass Association	(See GANA)
MBMA	Metal Building Manufacturers Association	www.mbma.com
MFMA	Maple Flooring Manufacturers Association	www.maplefloor.org
MFMA	Metal Framing Manufacturers Association	
MGPHO	Medical Gas Professional Healthcare Organization, Inc.	www.mgpho.org
MHIA	Material Handling Industry of America	www.mhia.org
MIA	Marble Institute of America	www.marble-institute.com
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)	
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.	www.mss-hq.com
NAAMM	National Association of Architectural Metal Manufacturers	www.naamm.org
NAAMM	North American Association of Mirror Manufacturers	(See GANA)
NACE	NACE International (National Association of Corrosion Engineers International)	www.nace.org
NAIMA	North American Insulation Manufacturers Association	www.naima.org
NAMI	National Accreditation and Management Institute, Inc.	
NAPM	National Association of Photographic Manufacturers	(See PIMA)
NBGQA	National Building Granite Quarries Association, Inc.	www.nbgqa.com
NCMA	National Concrete Masonry Association	www.ncma.org
NCPI	National Clay Pipe Institute	www.ncpi.org
NCTA	National Cable Television Association	www.ncta.com
NEBB	National Environmental Balancing Bureau	www.nebb.org

NECA	National Electrical Contractors Association	www.necanet.org
NeLMA	Northeastern Lumber Manufacturers' Association	www.nelma.org
NEMA	National Electrical Manufacturers Association	www.nema.org
NETA	InterNational Electrical Testing Association	www.electricnet.com/neta
NFPA	National Fire Protection Association	www.nfpa.org
NFRC	National Fenestration Rating Council	www.nfrc.org
NGA	National Glass Association	www.glass.org
NHLA	National Hardwood Lumber Association	www.natlhardwood.org
NLGA	National Lumber Grades Authority	www.nlga.org
NOFMA	National Oak Flooring Manufacturers Association	www.nofma.org
NPA	National Particleboard Association	(See CPA)
NRCA	National Roofing Contractors Association	www.nrca.net
NRMCA	National Ready Mixed Concrete Association	www.nrmca.org
NSA	National Stone Association	www.aggregates.org
NSF	NSF International (National Sanitation Foundation International)	www.nsf.org
NTMA	National Terrazzo & Mosaic Association (The)	www.ntma.com
NWWDA	National Wood Window and Door Association	(See WDMA)
PCI	Precast/Prestressed Concrete Institute	www.pci.org
PDCA	Painting and Decorating Contractors of America	www.pdca.com
PDI	Plumbing & Drainage Institute	www.pdionline.org
PGI	PVC Geomembrane Institute/Technology Program University of Illinois-Urbana Champaign	//pgi-tp.ce.uiuc.edu
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers)	www.pima.net
RCSC	Research Council on Structural Connections (c/o AISC)	www.boltcouncil.org
RFCI	Resilient Floor Covering Institute	(Contact by mail only)
RIS	Redwood Inspection Service Division of the California Redwood Association	www.calredwood.org
RMA	Rubber Manufacturers Association	www.rma.org
SAE	SAE International	www.sae.org
SDI	Steel Deck Institute	www.sdi.org
SDI	Steel Door Institute	www.steeldoor.org
SEFA	Scientific Equipment and Furniture Association	www.sefalabfurn.com
SGCC	Safety Glazing Certification Council	www.sgcc.org
SIGMA	Sealed Insulating Glass Manufacturers Association	www.sigmaonline.org/sigma
SJI	Steel Joist Institute	www.steeljoist.org
SMA	Screen Manufacturers Association	
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association	www.smacna.org
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)	www.sprayfoam.org
SPI	The Society of the Plastics Industry, Inc.	www.plasticsindustry.org
SPIB	Southern Pine Inspection Bureau (The)	www.spib.org
SPI/SPFD	The Society of the Plastics Industry, Inc. Spray Polyurethane Foam Division	(See SPI)
SPRI	SPRI (Single Ply Roofing Institute)	www.spri.org
SSINA	Specialty Steel Industry of North America	www.ssina.com
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association)	www.ssma.com
SSPC	SSPC: The Society for Protective Coatings	www.sspc.org

STI	Steel Tank Institute	www.steeltank.com
SWI	Steel Window Institute	www.steelwindows.com
SWRI	Sealant, Waterproofing & Restoration Institute	www.swrionline.org
TCA	Tile Council of America, Inc.	www.tileusa.com
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance	www.tiaonline.org
TPI	Truss Plate Institute	
TPI	Turfgrass Producers International	www.turfgrasssod.org
UFAC	Upholstered Furniture Action Council	www.ufac.org
UL	Underwriters Laboratories Inc.	www.ul.com
UNI	Uni-Bell PVC Pipe Association	//members.aol.com/unibell
USITT	United States Institute for Theatre Technology, Inc.	www.culturenet.ca/usitt
USP	U.S. Pharmacopeia	www.usp.org
WASTEC	Waste Equipment Technology Association	www.wastec.org
WCLIB	West Coast Lumber Inspection Bureau	www.wclib.org
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA-American Window Covering Manufacturers Association)	www.windowcoverings.org
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA-National Wood Window and Door Association)	www.wdma.com
WIC	Woodwork Institute of California	www.wicnet.org
WMMPA	Wood Moulding & Millwork Producers Association	www.wmmpa.com
WWPA	Western Wood Products Association	www.wwpa.org

G. Code Agency Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the following entities. Names and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc.	www.bocai.org
CABO	Council of American Building Officials	(See ICC)
IAPMO	International Association of Plumbing and Mechanical Officials	www.iapmo.org
ICBO	International Conference of Building Officials	www.icbo.org
ICC	International Code Council (Formerly: CABO - Council of American Building Officials)	www.intlcode.org
SBCCI	Southern Building Code Congress International, Inc.	www.sbcci.org

H. Federal Government Agency Abbreviations and Acronyms: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the following entities. Names and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADA	Americans with Disabilities Act.	(See ADAAG)
ADAAG	Americans with Disabilities ACT (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board	www.access.board.gov
CE	Army Corps of Engineers	CRD Standards
CFR	Code of Federal Regulations	www.access.gpo.gov/nara/cfr
CPSC	Consumer Product Safety Commission	www.cpsc.gov
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station	www.wes.army.mil
DOC	Department of Commerce	www.doc.gov
DOD	Department of Defense	//astimage.daps.dla.mil/online

	DOD Specifications and Standards	
EPA	Environmental Protection Agency	www.epa.gov
FAA	Federal Aviation Administration Department of Transportation	www.faa.gov
FCC	Federal Communications Commission	www.fcc.gov
FDA	Food and Drug Administration	www.fda.gov
FED-STD	Federal Standard	(See FS)
FS	Federal Specification (Available from DOD, GSA, and NIBS)	
FTMS	Federal Test Method Standard	(See FS)
GSA	General Services Administration	www.gsa.gov
HUD	Department of Housing and Urban Development	www.hud.gov
LBL	Lawrence Berkeley Laboratory	(See LBNL)
LBNL	Lawrence Berkeley National Laboratory	www.lbl.gov
MILSPEC	Military Specification and Standards	(See DOD)
NCHRP	National Cooperative Highway Research Program	(See TRB)
NIST	National Institute of Standards and Technology	www.nist.gov
OSHA	Occupational Safety & Health Administration (See CFR 29)	www.osha.gov
RUS	Rural Utilities Service	(See USDA)
TRB	Transportation Research Board	www.nas.edu/trb
UFAS	Uniform Federal Accessibility Standards Available from Access Board	www.access-board.gov
USDA	Department of Agriculture	www.usda.gov
USPS	Postal Service	www.usps.gov

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including but not limited to, the following:

1. Waste disposal facilities.
2. Field offices.
3. Storage and fabrication sheds.
4. Construction aids and miscellaneous services and facilities.
5. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.

B. Temporary utilities are specified in Division 01 Section “Temporary Utilities”.

C. Security and protection facilities are specified in Division 01 Section “Temporary Barriers and Enclosures”.

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Testing agencies.
2. Personnel of authorities having jurisdiction.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.
6. City ordinances and regulations.

1.5 PROJECT CONDITIONS

A. Temporary Facilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary facilities to use of permanent facilities.

1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Field Offices: Prefabricated with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY FACILITIES INSTALLATION

A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Temporary Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
3. Drinking-Water Facilities: Provide bottled-water, drinking-water units. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

B. Support Facilities: Comply with the following:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

D. Common-Use Field Office: Provide an insulated, weathertight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings at Project site. Keep office clean and orderly. Provide a clean working toilet.

E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

3.3 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures".

END OF SECTION

SECTION 015100

TEMPORARY UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary utilities, including but not limited to, the following:

1. Water service and distribution.
2. Heating and cooling facilities.
3. Ventilation.
4. Electric power service.
5. Lighting.
6. Telephone service.
7. Fire Protection.

1.2 USE CHARGES

A. General: Cost or use charges for temporary utilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary utilities without cost, including, but not limited to, the following:

1. Testing agencies.
2. Personnel of authorities having jurisdiction.

B. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site. For phased Projects adjacent to existing facilities, the Contractor shall secure temporary water sources (e.g. existing hydrants) using temporary meters except when necessary for connecting to permanent building fixtures or permanent irrigation systems, in which case such existing metered water usage will be paid for by the Owner.

C. Electric Power Service: Temporary power will be required to be obtained by the contractor through the local utility. Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site. For phased Projects (existing facility expansions) requiring permanent power from existing and adjacent facilities that are already metered, the Owner will pay for such power usage.

1.3 SUBMITTALS

A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Within 15 days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.

1.4 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.

2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.
6. City ordinances and regulations.

1.5 PROJECT CONDITIONS

A. Permanent Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary facilities to use of permanent facilities.

1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary utilities by all parties engaged in the Work:

1. Operate in a safe and efficient manner.
2. Take necessary fire prevention measures.
3. Do not overload system, or permit them to interfere with progress.
4. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
5. Relocate temporary utilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

E. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate temporary utilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify utilities as required.

B. Provide each utility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until utilities are no longer needed or are replaced by authorized use of completed permanent utilities.

C. Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

D. Existing Water Service: Use of Owner's existing water service facilities will be permitted with prior approval, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

1. Provide rubber hoses as necessary to serve Project site.
2. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

G. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.

1. Install electric power service underground, unless overhead service must be used.
2. Install power distribution wiring overhead and rise vertically where least exposed to damage.
3. Connect temporary service to power source, as directed by electric company officials.

H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
2. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
3. Provide metal conduit enclosures or boxes for wiring devices.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

J. Telephone Service: Provide cellular telephone service throughout construction period for all personnel engaged in construction activities.

1. Provide dedicated cellular telephone services all field office personnel.
2. Provide a voice-mail service on all field office personnel cellular telephones.
3. Provide a cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

K. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

    a. Field Offices: Class A stored-pressure water-type extinguishers.
    b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
    c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than two extinguishers on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
7. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.2 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary utilities. To minimize waste and abuse, limit availability of temporary utilities to essential and intended uses.

B. Maintenance: Maintain utilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

1. Maintain operation of temporary heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

END OF SECTION

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SECTION 015600

TEMPORARY BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary barriers and enclosures, including but not limited to, the following:

1. Environmental protection.
2. Tree and plant protection.
3. Site enclosure fence.
4. Security enclosure and lockup.
5. Barricades, warning signs, and lights.
6. Temporary partitions.

1.2 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to, the following:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.
6. City ordinances and regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

B. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rail.

1. Provide green colored screening material full height of chain-link fence fabric including gates to reduce visibility through fencing where adjacent to existing operations or along perimeter sidewalks in order to limit visibility directly from the school or students walking to the school site.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate temporary utilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify utilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

E. Site Enclosure Fence: Before construction operations begin install chain-link enclosure fence with lockable entrance gates if required to secure the project site beyond existing fence. Enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.

F. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

G. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

1. Construct dustproof, floor-to-ceiling partitions of not less than nominal 4-inch studs, 2 layers of 3-mil polyethylene sheets, inside and outside temporary enclosure. Cover floor with 2 layers of 3-mil polyethylene sheets, extending sheets 18 inches up the side walls. Overlap and tape full length of joints. Cover floor with 3/4-inch fire-retardant plywood.
2. Insulate partitions to provide noise protection to occupied areas.
3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
4. Weatherstrip openings.

3.2 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures".

END OF SECTION

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SECTION 016000

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirement for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Administrative procedures for handling requests for substitutions made after award of Contract are included in another Division 01 Section “Substitution Procedures”.

C. Procedures for receiving and installing products furnished by Owner are included in another Division 01 Section ”Owner Furnished Products”.

1.2 PERFORMANCE REQUIREMENTS

A. Contractor shall comply with environmental laws controlling hazardous substances.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term “product” includes the terms “material,” “equipment,” “system,” and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Products: Items that are demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, and equipment from those required by the Contract Documents and proposed by Contractor. Refer to Division 01 Section “Substitution Procedures”.

C. Basis-of-Design Product Standard Specification: Where a specific manufacturer's product is named and accompanied by the words "Product Standard," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

F. Hazardous Substances Prohibited by Law: Including, but not limited to, any product, material, element, constituent, chemical, substance, compound, or mixture, which is defined in, included under, or regulated by any environmental laws.

G. Environmental Laws: Applicable local, state, and federal laws, rules, ordinances, codes, regulations, and requirements in effect at the time Contractor's services are rendered, any amendments for Contractor's services rendered after the effective date of any such amendments, including, without limitation, the following:

1. The Comprehensive Environmental Response, Compensation and Liability Act of 1980.
2. The Resource Conservation and Recovery Act.
3. The Toxic Substances Control Act.
4. The Clean Water Act.
5. The Clean Air Act.
6. The Marine Protection Research and Sanctuaries Act.
7. The Occupational Safety and Health Act.
8. The Superfund Amendments and Reauthorization Act of 1986.
9. The Environmental Protection Agency.
10. Other state superlien or environmental clean-up or disclosure statutes including all state and local counterparts of such.

1.4 SUBMITTALS

A. Contractor shall submit an affidavit on construction company letterhead signed by an officer of the company, notarized by a notary public, which certifies compliance with the environmental laws controlling hazardous substances for the construction of this Project.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products or materials for use on Project, product or material selected shall be compatible with products or materials previously selected, even if previously selected products or materials were also options.

B. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to the Architect.

1. Maintain one set of complete instructions at the job site during installation and until completion.

C. Compliance: Contractor shall take whatever measures deemed necessary to insure that all employees, suppliers, vendors, fabricators, subcontractors, or their assigns, to comply with hazardous substance requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturers written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products and materials to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store products in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturers written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

1.7 PRODUCT AND MATERIAL WARRANTIES

A. General: Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. General Warranty: Special warranties specified in each Section shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

C. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

D. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures".

PART 2 - PRODUCTS

2.1 PRODUCT SELECTIONS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Products and materials brought onto the Project Site, and products and materials incorporated into the Work, shall comply with environmental laws.

B. Descriptive Specification Requirements: Where Specifications describe a product, or assembly, listing exact characteristics required, without use of a brand or trade name, provide a product, material or assembly that provides the characteristics and otherwise complies with Contract requirements.

C. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product or material is specified for a specific application.

1. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

D. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with imposed code, standard or regulation, select product that complies with standards, codes or regulations specified.

E. Visual Matching Specification: Where Specifications require matching an established sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.

1. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.

F. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.

1. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
2. Custom Range: Where Specifications include the phrase "custom range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.
3. Special Custom Range: Where Specifications include the phrase “special custom range of colors patterns, textures” or similar phrase, Architect will select a new color, pattern, or texture different from those normally produced by the manufacturer.

G. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT OPTIONS

A. For products proprietarily specified by a "Named Manufacturer" and model name or number, this is to establish standard of quality. Other manufacturers listed as "Acceptable Manufacturers" have been listed because they have implied compliance with requirements of the "Named Manufacturer". Listed "Acceptable Manufacturers" are not considered "Substitutions", and therefore, are not required to be submitted as such. However, costs, including professional service fees for changes or modifications to adjacent, contiguous, surrounding, supporting, or otherwise related areas, portions or parts of Project which are required to accommodate products and materials of "Acceptable Manufacturers", for complete, proper and functional installation, in lieu of specified "Named Manufacturer", shall be borne or paid by Contractor.

B. For products specified by naming several "Acceptable Manufacturers", select one of products, or manufacturers named, which complies with Contract Documents. Requests for manufacturer's products not listed must be submitted as Substitutions.

C. For products specified by naming only one product, or manufacturer, Contractor must submit request as for substitutions for product, or manufacturer not specifically named.

D. For products specified by naming only one product and manufacturer and indicated as "no substitute", there is no option.

E. For products specified only by reference standard, select product meeting that standard.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

B. Inspect products immediately upon delivery and again prior to installation. Reject damaged and defective items.

C. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

D. Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

E. Recheck measurements and dimensions, before starting each installation.

F. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible product or material as necessary to prevent deterioration.

G. Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

H. Handle, install, connect, clean, condition and adjust products and materials in accord with manufacturer's instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with manufacturer for further instructions.
2. Do not proceed with work without clear instructions.

I. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

J. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

3.2 RESTRICTION OF HAZARDOUS SUBSTANCES

A. Contractor agrees that it shall not knowingly after reasonable diligence and effort, incorporate into the Work any hazardous substance other than as may be lawfully contained within products, except in accordance with applicable environmental laws. Further, in performing any of its obligations hereunder, Contractor shall not cause any release of hazardous substances into, or contamination of, the environment, including soil, the atmosphere, any watercourse or ground water, except in accordance with applicable environmental laws. In the event that Contractor engages in any of the activities prohibited in this paragraph, to the fullest extent permitted by law, Contractor hereby indemnifies and holds harmless Owner and its partners, members, officers, directors, agents, employees and consultants from and against any and all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorney's fees, arising out of, incidental to or resulting from the activities prohibited.

B. In the event Contractor observes on the Project Site any substance which Contractor reasonably believes to be a hazardous substance, and which is being introduced into the Work, or exists on the Project Site, in a manner violative of any applicable environmental laws, Contractor shall immediately notify Owner and report the condition to Owner in writing. The Work in the affected area shall not thereafter be resumed except by written authorization of Owner if in fact a hazardous substance has been encountered and has not been rendered harmless. In the event that Contractor fails to give Owner proper notification hereunder, upon knowingly observing a hazardous substance at the Project Site, to the fullest extent permitted by the law, Contractor hereby indemnifies and holds harmless Owner, and all of its partners, members, officers, directors, agents, employees and consultants from and against all claims, damages, losses, causes of action, suits and liabilities of every kind, including, but not limited to, expenses of litigation, court costs, punitive damages and attorneys' fees, arising out of, incidental to, or resulting from Contractor's failure to stop the Work.

C. If Owner believes that hazardous substances may have been located, generated, manufactured, used or disposed of on or about the Project Site by Contractor or any of its employees, agents, subcontractors, suppliers, or invitees, Owner may have environmental studies of the Project Site conducted as it deems appropriate, and Contractor shall be responsible for the cost of such studies to the extent that Contractor or any of its employees, agents, subcontractors, suppliers or invitees are responsible for the presence of any hazardous substances.

END OF SECTION

SECTION 016400

OWNER FURNISHED PRODUCTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes work required to relocate and install owner furnished products indicated by Contract Documents and furnish supplementary items necessary for their proper installation.

1.2 SUBMITTALS

A. Obtain following from Owner or Owner’s product manufacturer:

1. Shop drawings for product requirements.
2. Installation drawings for items requiring coordination with work of other Sections.
3. Actual layout of installations pertinent to this Work.
4. Rough-in requirements.

1.3 QUALIFICATIONS

A. Installation of Owner furnished products shall be by skilled experienced and qualified mechanics of the appropriate trade for the work involved.

PART 2 - PRODUCTS

2.1 OWNER FURNISHED, OWNER INSTALLED PRODUCT

A. The specific product is not in this contract, and actual installation of the product will be made by the Owner.

B. Products will be indicated as follows:

1. Product prefixed with "Space for"
2. N.I.C.
3. Owner Furnished - Owner Installed
4. Product noted as "Future"

C. Roughing-in for Owner Furnished, Owner Installed Product is provided by applicable Sections governing the type of work. Obtain rough-in requirements from Owner.

2.2 OWNER FURNISHED, CONTRACTOR INSTALLED PRODUCT

A. Install products indicated as follows:

1. Owner Furnished, Contractor Installed".
2. “Reuse”.
3. “Relocate.”

B. Provide labor, transportation, materials, tools, appliances and utilities necessary for the following:

1. Removing installed product from the Owner's existing facility, as required.
2. Transportation of product from Owner's facility to the job site.
3. Receiving and storage of Owner furnished, Contractor installed product, as required.

4. Providing materials and components for the product as necessary to install in an operating condition, but not including repairing of existing damages to the product.
5. Modification of product only as specified under the particular item.
6. Installation of product in this project, complete and in operating condition, including the adjusting and calibration of the product as necessary for proper operation.
7. Testing of product.
8. Paying of fees, licenses, and taxes in conjunction with the installation of the product.
9. Roughing-in and final utility connections for the Owner furnished, Contractor installed product remains the work of Sections governing the specific utility.

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate work of this Section with related work of other Sections to obtain proper installation of items. Become acquainted with the work of other Sections whose work abuts, adjoins or is in any way affected by or related to work under this Section.

B. Carefully examine the drawings and directions and be responsible for proper installation of materials and product without substantial changes.

C. Indication of pipe connection sizes on the plans shall in no way relieve Contractor of the responsibility of checking and verifying their sizes and locations from the actual product to be installed and any available roughing-in diagrams.

3.2 PRODUCT INSTALLATION - GENERAL

A. Locations: The general arrangement of the Owner Furnished Product is indicated on the drawings.

B. Roughing-in: When product is not available prior to the installation schedule, rough-in the utility service at walls or floors as directed, and leave ready for future connection.

C. Installations: Install product and material in conformance with manufacturer's directions where available. Work shall be assembled and installed in harmony with other trades at such times and in such sequence as acceptable to the Owner.

3.3 PROTECTION TO PRODUCT AND MATERIALS

A. Utilities: Close pipe openings with caps or plugs, and protect electrical work as necessary.

B. Product: Tightly cover and protect product against dirt, water and mechanical or chemical injury.

C. Damage to Owner's property due to fault or negligence of the Contractor shall be repaired or replaced at no additional expense to the Owner.

3.4 REMOVING PRODUCT FROM EXISTING FACILITY

A. Schedule for removal of product from existing facility shall be coordinated with Owner's requirements.

B. Minimize shut down of existing building operations.

C. No utilities may be turned off without the Owner's approval.

D. Take necessary precaution to protect building and occupants from injury due to work of this Section.

E. Cover and insulate exposed wires to removed product.

F. Adequately cover floor openings and flag projections as necessary.

3.5 SCHEDULE OF OWNER FURNISHED, CONTRACTOR INSTALLED PRODUCTS

A. Refer to drawings.

END OF SECTION

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SECTION 017000

EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work.

1.2 SUBMITTALS

A. Qualification Data: For land surveyor or professional engineer to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Final Topographical and Property Survey: After the Work is completed, submit one paper and electronic copy showing the Work performed and record survey data, including a digital copy in AutoCAD.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: Engage a professional land surveyor or engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities~~,~~ and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility company that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Refer to Division 01 Section “Project Communications”.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

C. Final Topographical and Property Survey: After the Work is completed, prepare a final topographical and property survey showing significant features (real property) for Project with one foot contour increments. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, contours, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights recommended by industry standards.
2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Control."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 017310

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.2 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures for major cutting and patching at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how it will be performed, and indicate why it cannot be avoided.
2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

C. Miscellaneous Elements: Do not cut and patch elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION

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SECTION 017700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Operation and maintenance manuals.
4. Warranties.
5. Instruction of Owner's personnel.
6. Final cleaning.
7. Final As-Built survey
8. Attic Stock Items

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and photographic negatives, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
15. Attic stock or extra materials for the Owner are not to be used for punchlist or warranty work, unless permission is given. In such case, the material is to be restocked and provided to the Owner.
16. Final Topographical and Property Survey: Submit one paper and electronic copy of the site, including all new and existing structures, sealed by a licensed surveyor, including a digital copy in AutoCAD.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures".
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Electronic File of Project Record Documents: Provide Architect with an independent electronic archive of accepted project record documents using electronic project management software as defined in Division 01 Section "Project Management and Coordination", in addition to the printed documents described below.

C. Record Drawings: Maintain and submit one set of reproducible Contract Drawings and one set of blue- or black-line white prints of Shop Drawings.

1. Mark Record Drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

    a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    b. Accurately record information in an understandable drawing technique.
    c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

D. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders, Record Drawings, and Product Data, where applicable.

E. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.

F. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.6 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

a. Emergency instructions and procedures.
b. System, subsystem, and equipment descriptions, including operating standards.
c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
d. Description of controls and sequence of operations.
e. Piping diagrams.

2. Maintenance Data:

a. Manufacturer's information, including list of spare parts.
b. Name, address, and telephone number of Installer or supplier.
c. Maintenance procedures.
d. Maintenance and service schedules for preventive and routine maintenance.
e. Maintenance record forms.
f. Sources of spare parts and maintenance materials.
g. Copies of maintenance service agreements.
h. Copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.7 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 REQUIRED DOCUMENTS TO BE PROVIDED TO THE OWNER

- 2 - Sets of As-Built Drawings (Hard Copy)
  - 1 Set is to be provided to IDEA HQ
  - 1 Set is to be provided to the Project Specific Campus
- 1 – CD of As-Built Drawings provided to IDEA HQ
- 2 - Sets of Close-Out Binders
  - 1 Set is to be provided to IDEA HQ
  - 1 Set is to be provided to the Project Specific Campus

<u>Required Electronic Documents sent to Owner’s Representative (PMSI)</u>

- Punch Lists
- Special Tests
- Special Inspector Sign-Off
- Asbestos Affidavit
- Certificate of Occupancy
- Certificate(s) of Substantial Completion
- Owner Training / System Demonstrations (Sign-In sheet w/ hours)
- Change Orders
- As-Built Drawings
- Spare Parts / Attic Stock (Transmittal of delivery to Campus & IDEA sign-off)
- Subcontractor / Supplier Contact List
- Warranties
- Elevation Certificates
- Final Release of Liens
- Consent of Surety

3.2 DEMONSTRATION AND TRAINING

A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Provide instructors experienced in operation and maintenance procedures.
2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
3. Schedule training with Owner with at least seven days' advance notice.
4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification

Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:

1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.3 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

C. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
4. Remove tools, construction equipment, machinery, and surplus material from Project site.
5. Remove snow and ice to provide safe access to building.
6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
7. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
8. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
9. Sweep concrete floors broom clean in unoccupied spaces.
10. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
11. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials.
12. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
13. Remove labels that are not permanent.
14. Touch up and otherwise repair and restore marred, exposed finishes and surfaces.
15. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
16. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
17. Wipe surfaces of mechanical, electrical, elevator, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
18. Replace parts subject to unusual operating conditions.
19. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
20. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

21. Clean ducts, blowers, and coils if units were operated without filters during construction.
22. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
23. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
24. Leave Project clean and ready for occupancy.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.4 ATTIC STOCK ITEMS

A. Provide the following items to Owner at the end of the project as Attic Stock. Prior to delivery of items, coordinate location with Owner for storage of items. Maintain log or transmittal letters identifying provided items and record of person receiving them on behalf of the Owner.

SECTION 09300 TILE

Ceramic Tile	(2) Cartons – 12x12 Floor Tile
	(1) Cartons – 4x12 Wall Tile
	(1) Cartons – 2x2 Floor Tile
Quarry Tile	(2) Cartons

SECTION 09510 ACOUSTICAL CEILINGS

Acoustical Ceiling	(4) Boxes – Type I
	(2) Boxes – Type II
	(2) Box – Type III
	(2) Box - Type IV
	(2) Box – Type V

SECTION 09650 RESILIENT FLOORING

Vinyl Composition Tile:	(3) Boxes – Field Color
	(1) Box- Each Accent Color
Rubber Flooring	(1) Box – Field Color
Rubber Base:	60 LF

SECTION 09900 PAINTING

Paint:	(3) 5-gallon - Field Color
	(2) 5-gallon – Each Accent Color

SECTION 10260 CLEAR CORNER GUARDS

Corner Guards	(10) with anchors

SECTION 211313 - WET-PIPE SPRINKLER SYSTEMS

Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler used on Project.

SECTION 224713 - DRINKING FOUNTAINS

Filter Cartridges: Equal to 10 percent of amount installed for each type and size indicated, but no fewer than 3 of each.

SECTION 233300 - AIR DUCT ACCESSORIES

Fusible Links: Furnish quantity equal to 10 percent of amount installed.

SECTION 233423 Power HVAC Ventilators

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Belts: One set for each belt-driven unit.

SECTION 237413 - PACKAGED, OUTDOOR, CENTRAL-STATION AIR-HANDLING UNITS

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fan Belts: **One set** for each belt-drive fan (if applicable)
2. Filters: **One set** of filters for each unit.

SECTION 237433 - DEDICATED OUTDOOR-AIR UNITS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fan Belts: One set for each belt-driven fan.
2. Filters: One set for each unit.

SECTION 238126 - SPLIT-SYSTEM AIR-CONDITIONERS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: **One** set for each air-handling unit.
2. Fan Belts: **One** set for each air-handling unit fan.

SECTION 230900 – INSTRUMENTATION AND CONTROLS

Adjustable Limited Range Wall Temperature Sensors (Thermostats): Provide extra thermostats: 5 of each type.

SECTION 260943.23 - RELAY-BASED LIGHTING CONTROLS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lighting Control Relays: Provide five (five).

SECTION 262413 SWITCHBOARDS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Potential Transformer Fuses: One of each type.
1. Control-Power Fuses: Three of each type.
2. Fuses and Fusible Devices for Fused Circuit Breakers: Three of each type.
3. Fuses for Fused Switches: Three of each size and type.
4. Fuses for Fused Power-Circuit Devices: One of each type.

5. Indicating Lights: One of each type.

SECTION 262416 - PANELBOARDS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

6. Keys: Provide five (five).
7. Circuit Breakers Including GFCI and GFEP Types: Two of each type.
8. Fuses for Fused Switches: Three of each type.

SECTION 262726 - WIRING DEVICES

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Service/Power Poles: One of each type
2. Floor Service-Outlet Assemblies: One of each type
3. Poke-Through, Fire-Rated Closure Plugs: One of each type

SECTION 262813 – FUSES

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: Three of each type.

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: Three of each type.
2. Fuse Pullers: Two for each size and type.

SECTION 262913 - ENCLOSED CONTROLLERS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses for Fused Switches: Three of each type.
2. Control Power Fuses: Three of each type.
3. Indicating Lights: Two of each type and color installed.
4. Auxiliary Contacts: Furnish one spare(s) for each size and type of magnetic controller installed.
5. Power Contacts: Furnish three spares for each size and type of magnetic contactor installed.

SECTION 265116 - INTERIOR LIGHTING

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Light Fixtures: Lamps: Three of each type.
2. Diffusers and Lenses: Five of each type.
3. LED-luminaire-mounted emergency battery pack: Five of each type.
4. Globes and Guards: Three of each type.

SECTION 265219 - EMERGENCY AND EXIT LIGHTING

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Light Fixtures: Two of each type.

2. LED-luminaire-mounted emergency battery pack: Five of each type.
3. Diffusers and Lenses: Two of each type.
4. Globes and Guards: Two of each type.

B.

SECTION 265621 - EXTERIOR LIGHTING

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Light fixtures: One of each type, no poles required.
2. Diffusers and Lenses: Two of each type.
3. Globes and Guards: Two of each type.

SECTION 267210 - FIRE ALARM SYSTEM

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fire Alarm Initiating Devices: Three of each type.
2. Fire Alarm Indicating Devices: Three of each type.

SECTION 267230 – SCHOOL INTERCOM AND PROGRAM EQUIPMENT

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

3. Speakers Devices: Three of each type.
4. Call-in switch devices: Three of each type.

SECTION 267240 - INTRUSION DETECTION

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

5. Intrusion Detection Devices: Three of each type.

END OF SECTION

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SECTION 019900

AVAILABLE PROJECT INFORMATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section references other information relevant to the construction of this Project that is available project information.

B. At the request of the Owner, the information identified below represents services that have been provided by others, not as an Architect's Consultant, regarding conditions that affect this Project that are beyond the responsibilities of the Architect and Architect's Consultants. Reference to such information herein is solely for the convenience of the Owner. Architect makes no representation, express or implied, as to the accuracy or validity of the information.

C. Bidders are expected to examine the site and the information available from the Owner to determine for themselves the conditions to be encountered.

D. If conditions other than those indicated in the information available from the Owner are encountered before or during construction, notify the Owner before work continues.

1.2 PROPERTY SURVEY

A. The Owner's Surveyor has performed a property survey and the some of the survey information is included on the Drawings for the convenience of the Contractor.

1.3 GEOTECHNICAL REPORT

A. The Owner's Geotechnical Consultant has made subsurface borings at the Project site, has performed an investigation of the geotechnical and site conditions, and has prepared a report of the investigation that contains specific requirements of the Contractor.

B. A copy of the report is provided following this section.

C. The information was obtained for use in preparing the foundation design, but is indicative only of the soil conditions where the borings are taken.

PRODUCTS (NOT USED)

PART 2 - EXECUTION (NOT USED)

END OF SECTION

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK:

1.1 Location: The project site for Idea Edinburg and IDEA Tres Lagos Security Fencing Improvements is located at 2553 N Roegiers Road, Edinburg, TX (IDEA Edinburg) and 5200 Tres Lagos Blvd., McAllen, TX. (IDEA Tres Lagos).

1.2 Approval of Working Surfaces: Any contractor performing work over the work of other contractors shall notify the Architect of any unsatisfactory condition. Beginning of work by any contractor shall constitute the acceptance of the previous work.

1.3 Checking Dimensions at Site: Before ordering any materials or doing any work, verify all measurements of the building and be responsible for the correctness of them. No extras will be allowed for variations from drawings in existing conditions or for work performed under this contract. Any discrepancies found shall be submitted to the Architect for instruction before proceeding. The Section shall be enforced diligently.

1.4 Cutting & Patching: No excessive cutting will be permitted, nor shall any structural members be cut without the approval of the Architect. Each contractor shall leave all chases and openings straight, true and of the proper size in his work as may be necessary for the proper installation of his and/or other contractor's work. After such work has been installed, he shall carefully fit around, close up, repair, patch and point up same as directed, to the entire satisfaction of the Architect.

1.5 Cooperation: The General Contractor, all other contractors and all sub-contractors shall coordinate their work with all adjacent work and shall cooperate with all other trades so as to facilitate the general progress of the work. Each trade shall afford all other trades every reasonable opportunity for installation of their work and storage of their materials.

1.6 Project Logbook: The project superintendent shall maintain a daily project logbook, indicating which subcontractors were on the job, time of arrival, and the number of workers. Statements as to the daily progress shall be logged. This logbook shall be made available to the Architect and shall be kept at the job site office.

1.7 Inspection and Tests: Architect and his representative shall at all times have access to the work whether it is in preparation or progress. Provide proper and safe facilities for such access and inspection. Make all inspections and tests in connection with this entire contract as required by the Architect. All material testing shall be paid for by the Testing Allowance and be done by an independent testing laboratory meeting the approval of the architect.

1.8 Security: Provide security fencing in all work areas. See Temporary Facilities.

1.9 Mockup Panel: Provide a mock-up for evaluation of product and application workmanship.

1. Install in area and of size designated by Architect.
    a. Construct mockup to illustrate backup wall, exterior sheathing, air barrier, cavity wall, connectors, weep holes, cavity vents, and through wall flashing.
    b. Construct mockup panel 72 inches by 72 inches to illustrate coursing,

anchorage, mortar joints and color, window opening and flashing system.
2. Do not proceed with work until finish color, texture, pattern, joint sizes, and installation workmanship are approved by Architect.
3. Correct mock-up area as required to produce acceptable work.

2. ALLOWANCES:
See Paragraph 4.8 of the General Conditions.

2.1 Testing Allowance: A recognized, independent material testing laboratory will be selected and paid for directly by the Owner.

2.2 Betterment Allowance: Include the sum set forth below as a Betterment Allowance which will, if needed, be expended on Betterment to the Project, as directed in writing by approved change orders.

Betterment Allowance: $25,000.00

SECTION 0110 - BID SCHEDULE
1. BID SCHEDULE: All proposals and alternate bid items shall be subject to the General and Special Conditions and all other related sections of the specifications and requirements of the drawings. The Owner shall have the right to accept or reject any or all alternates.

1.1 BASE BID: The Contractor shall state on the General Contract Bid Proposal under the Base Bid, the amount for all work, complete in all respects in accordance with plans and specifications, to construct Idea Camp Tres Lagos Security Fencing project. The scope of work is defined in the plans and specifications.

1.2 ALTERNATES: The Contractor shall state on this Bid Form, under each Alternate the amount to add to this bid to perform all work, complete in all respects, in accordance with the plans and specifications to construct work required by the Alternates.

ALTERNATE #1 – Remove existing chain link fencing and gates. Provide aluminum fencing, rolling gates and passenger gates. Refer to Sheet A1.04 – Edinburg for locations.

SECTION 0120 - AS BUILT DRAWINGS:
As the work proceeds, keep careful records of piping, electrical circuits, duct work and other concealed work whose installed location varies from that shown on plans. Refer to Section 01705 Project Closeout for additional requirements.

SECTION 0130 - REPORTS:
The Contractor will provide a written report to the Architect after each inspection conducted by the City Inspectors concerning their findings.

SECTION 0140 - QUANTITIES & WARRANTIES:
All guarantees and warranties expressed or implied shall be provided to the Architect in written form prior to final payment.

SECTION 0150 - PICTURES:
In addition to the required monthly progress photos, the Contractor will provide the following:

1. Aerial job photos.
2. Sequence photographs showing the flashing in place prior to application of roof. This is MANDATORY. Close-ups of all flashing are required.

The Contractor is required to submit progress photos with each month's application for payment.

SECTION 0160 - CERTIFICATION OF CONSTRUCTION:
The building contractor or construction manager shall certify in writing that the facility has been constructed in accordance with the construction documents and its specifications.

SECTION 0170 - CERTIFICATION OF NON-USE OF ASBESTOS PRODUCTS
The General Contractor shall provide the Architect with written certification letters from all sub-contractors and suppliers that no asbestos products shall be use on this project.

SECTION 0180 - SCOPE AND SEQUENCE OF CONSTRUCTION
1.1 General:
No time extensions shall be considered.

The successful bidder shall under no circumstances leave this project unsecured or unprotected at any time during construction. The General Contractor is to refer to Section 01505 Temporary Facilities for all requirements required by this project.

The General Contractor provides all necessary precautions and safeguards during construction for protection of any visitor who might visit the project site. The General Contractor shall provide in a neat format project monthly reports with photos showing progress of construction for their review.

SECTION 01300 – ADMINISTRATIVE REQUIREMENTS

Electronic Submittal Procedures

A. Summary:
   1. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using a website service designed specifically for transmitting submittals between construction team members.
   2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
   3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
   4. Providers: Submittal Exchange; Owner InSite; Procore; Viewpoint, etc.

B. Procedures:
   1. Electronic submittal preparation - Contractor may use any or all of the following options:
      a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the electronic submittal website.
      b. Subcontractors and Suppliers provide paper submittals to General Contractor who electronically scans and converts to PDF format.
      c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
   2. Contractor shall review and apply electronic stamp certifying that the electronic submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
   3. Contractor shall transmit each electronic submittal to Architect using the electronic submittal website.
   4. Architect / Engineer review comments will be made available on the electronic submittal website for downloading. Contractor will receive email notice of completed review.
   5. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.

C. Costs:
   1. General Contractor shall include the full cost of electronic submittal project subscription in their proposal. This cost is included in the Contract Amount. Contact electronic submittal service provider to verify cost prior to bid.
   2. At Contractor's option, training is available from electronic submittal service. regarding use of website and PDF submittals.
   3. Internet Service and Equipment Requirements:
      a. Email address and Internet access at Contractor's main office.

SECTION 01340 - SUBMITTALS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specifications, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:
The types of submittal requirements for specified in this section including shop drawings, product data, samples and miscellaneous work related Submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other Division 1 sections and other contract documents for requirements of administrative Submittals.

Definitions: Work related Submittals of this section are categorized for convenience as follows:

Shop drawings include specially prepared technical data for this project including drawings, diagrams; performance curves data sheets schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects.

Product data includes standard printed information on manufactured products that has not been specially prepared for this project, other than the designation of selections from among available choices printed therein.

Samples include both fabricated and un-fabricated physical examples of materials, products and units of work; both as complete units and as smaller portions of units of work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.

Mock ups are special forms of samples, which are too large or otherwise inconvenient for handling in the manner specified for transmittal of sample Submittals.

Miscellaneous Submittals related directly to the work (non administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records quality testing and certification reports, copies of industry standards, record drawings, field measurement data, operating and maintenance manuals, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

GENERAL SUBMITTAL REQUIREMENTS:

Scheduling: Where appropriate in administrative submittals, (listing of products, manufacturers, suppliers and sub-contractors, and in job progress schedule), show principal work related submittals and time requirements for coordination of submittal activity with related work in each instance.

Listing: Prepare a separate listing; organized by related specification section number sequence, showing principal work related submittals and their initial submittal dates as required for coordination of the work. Submit listing within 45 days of date of commencement of the work.

Coordination and Sequencing: Coordinate preparation and processing of submittals with the performance of the work so that work will not be delayed by submittals. Coordinate and sequence different categories of submittals for same work, and for interfacing units of work, so that one will not be delayed for coordination of A/E's review with another.

Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, subcontractor, Submittal name, and similar information to distinguish it from other submittals. Show Contractor’s executed review and approval markings and provide space for the Architect/Engineer's "Action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through Contractor's office will be returned by A/E "without action".

SPECIFIC CATEGORY SUBMITTAL REQUIREMENTS:

General: Except as otherwise indicated in the individual work sections, comply with the requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals, where required between initial and final, similar to initial submittals.

Shop Drawings: Provide newly prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and not which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action” markings by the Architect/Engineer to be used in connection with the work.

Initial Submittal: Provide one electronic print with requested testing data, ICC-ES reports and TDI reports, where applicable.

Product Data: Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data (for each submittal) at project site, available for reference by Architect/Engineer and others.

Submittals: Do not submit product data, or allow its use on the project, until compliance with requirements of contract documents has been confirmed by Contractor. Submittal is for information and record, unless otherwise indicated.

Initial submittal is final submittal unless returned promptly by Architect/Engineer, marked with an "Action” which indicates an observed non-compliance. Submit 3 copies where required for maintenance manuals.

Samples: Provide units identical with final condition of proposed materials or products for

the work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected, and described or identify variations between units of each set. Provide full set of optional samples where Architect's/Engineer's selection is required. Prepare samples to match Architect's/Engineer's sample where so indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by Architect/Engineer. Architect/Engineer will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of Contractor.

Submittal: Provide a single set of samples for Architect's/Engineer's review and "Action".

Mock Ups and similar samples specified in individual work sections recognized as a special type of sample. Comply with requirements for "samples" to greatest extent possible, and process transmittal forms to provide a record of activity.

Inspection and Test Reports: Classify each as either "shop drawings" or "product data" depending upon whether report is uniquely prepared for project, or a standard publication of workmanship control testing at point of production and process accordingly.

Warranties: Refer to "Products" section for specific general requirements on warranties, product/workmanship bonds and maintenance agreements. In addition to copies desired for the Contractor's use, furnish 2 executed copies except furnish 2 additional (conformed) copies where required for maintenance manuals.

Closeout Submittals: Refer to Section 01705 Project Closeouts and to individual work sections for specific requirements on submittal of closeout information, materials, tools, and similar items.

Materials and Tools: Refer to individual work sections of for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.

General Distribution: Provide additional distribution of submittals (not included in foregoing copy submittal requirements) to subcontractors, suppliers, fabricators, installers, governing authorities, and others as necessary for the proper performance of the work. Include such additional copies in transmittal to the Architect/Engineer where the submittals are required to receive "Action" marking before final distribution. Record submittal distributions on transmittal forms.

ACTION ON SUBMITTALS

Architect/Engineer's Action: Where action and return is required or requested, the Architect/Engineer will review each submittal, mark with “Action", and where possible return within 2 weeks of receipt.

Where the submittal must be held for coordination, Contractor will be so advised by A/E without delay.

Final Unrestricted Release: Work may proceed, provided it complies with the contract

documents, when submittal is returned with the following:

Marking: "Accepted".
Marking: "Reviewed".

Final But Restricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with contract documents, when submittal is returned with the following:

Marking: "Accepted as Noted".
Marking: "Reviewed as Noted".

Returned for Resubmittal: Do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain a different action marking. Do not allow submittals with the following marking (or unmarked submittals where a marking is required) to be used in connection with performance of the work:

Marking: "Not Accepted, Resubmit".
Marking: "Revise and Resubmit".

Other Action: Where the submittal is returned, for other reasons, with Architect/Engineer's explanation included, it will be marked as follows:

Marking: "Action Not Required".
Marking: "No Action".

Action Stamp: Architect's/Engineer's action stamp, for use on submittals to be returned to Contractor, is self explanatory as marked.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

SECTION 01505 - -TEMPORARY FACILITIES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to the work of this section.

DESCRIPTION OF REQUIREMENTS:

Definitions: Specific administrative and procedural minimum actions are specified in this section, as extensions of provisions in General Conditions and other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Architect or Engineer that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, support facilities, security/protection provisions, and support facilities.

QUALITY ASSURANCE:

General: In addition to compliance with governing regulations and rules/recommendation of franchised utility companies, comply with specific requirements indicated and with applicable local industry standards for construction work (published recommendations by local consensus "building councils").

ANSI Standards: Comply with applicable provisions of ANSI Al Series standards on construction safety, including A.10.3, A.10.4, A10.5, A10.6, A10.7, A10.8, A10.9, A10.10, A10.11, A10.12, A10.13, A10.14, A10.15, A10.17, A10.18, A10.20, and A10.22.

NFPA Code" Comply with NFPA Code 241 "Building Construction and Demolition Operations."

JOB CONDITIONS:

General: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.

Conditions of Use: Install, operate, maintain and protect temporary facilities in a manner and at locations which will be safe, non hazardous, sanitary and protective of persons and property, and free of deleterious effects.

PART 2 AND 3 - PRODUCTS AND EXECUTION

TEMPORARY UTILITY SERVICES:

The types of services required include, but not by way of limitation, water, sewerage, surface drainage, electrical power and telephones. Where possible and reasonable, connect to existing franchised utilities for required services; and comply with service

companies' recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.

TEMPORARY CONSTRUCTION FACILITIES:

The types of temporary construction facilities required include, but not by way of limitation, water distribution, drainage, enclosure of work, heat, ventilation, electrical power distribution, lighting, hoisting facilities, stairs, ladders, and roads. Provide facilities reasonably required to perform construction operations properly and be large enough to accommodate meetings for 10 persons.

Water Distribution: Provide hose lengths sufficient to reach entire area of construction work, not less than 3/4" hose size. Prevent freezing of water distribution by either prompt drainage after each use, or by suitable protection.

Electrical Power: Provide weatherproof, grounded, power distribution system sufficient to accommodate construction operations requiring power, use of power tools, electrical heating, lighting, and start up testing of permanent electric powered equipment prior to its permanent connection to electrical system. Provide overload protection. Locate multiple outlets (not less than 4 gang boxes) at each story of construction, spaced so that entire area of construction can be reached by power tools on a single extension cord of 100' maximum length.

> Supply power for electric welding, if any, from either temporary power distribution system or by engine driven power generator sets, at Contractor's option.

Lighting: Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug in task lighting. Provide general lighting with local switching which will enable energy conservation during periods of varying activity (work in progress, traffic only security check, lock up, etc.).

> Provide uniformly spaced general lighting equivalent to not less than one 200 watt incandescent lamp per 1000 sq. ft. of floor area, and one 100 watt lamp per 50' of corridor and per flight of stairs.

Access Provisions: Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the work and facilitate its inspection during installation. Comply with reasonable requests of governing authorities performing inspections. When permanent stairs are available for access during construction, cover finished surfaces with sufficient protection to ensure freedom from damage and deterioration at time of substantial completion.

SECURITY/PROTECTION PROVISION:

The types of temporary security and protection provision required include, but not by way of limitation, fire protection, barricades, fencing (wire), warning signs/lights, and similar provision intended to minimize property losses, personal injuries and claims for damages at project site.

Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A extinguishers at locations of low potential for either electrical or grease oil

flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick instructions at each extinguisher location, and instruct proper use of extinguishers and other available facilities at project site. Post local fire department call number on each telephone instrument at project site.

Permanent Fire Protection: Complete each fire protection facility at earliest reasonable date, make ready for emergency use, and instruct personnel at site on availability and proper use.

Building Enclosure and Lockup: At earliest possible date, secure building against unauthorized entrance at times when personnel are not working.

Temporary Fencing is required at all work areas (Building Addition, walk-way canopies, soccer field, new parking areas etc.) to provide protection for building occupants using the portion of the building being used. Coordinate locations with Owner.

TEMPORARY SUPPORT FACILITIES:

The types of temporary support facilities required include, but not by way of limitation, field offices, storage sheds, fabrication sheds, sanitary facilities, drinking water, first aid facilities, bulletin board, private telephones, project identification signs, clean up facilities, waste disposal service, and similar miscellaneous general services, all as may be reasonably required for proficient performance of the work and accommodation of personnel at the site including Owner's and Architect's/Engineer's personnel.

Discontinue and remove temporary support facilities, and make incidental similar use of permanent work of the project, only when and in manner authorized by Architect/Engineer; and, if not otherwise indicated, immediately before time of substantial completion. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities.

Contractor's Field Offices: Provide adequate office space for field office personnel plus one spare work station for incidental use by subcontractor's personnel, suitably finished, furnished, equipped and conditioned.

Sanitary Facilities: At contractor's option, provide either piped (wet) toilets facilities or self contained toilet units of type acceptable to governing authorities, adequate (at all stages of construction) for use of personnel at job site. Provide separate facilities for male and female personnel when both sexes are working (in any capacity) at project site.

Project Identification Sign: At locations(s) shown on site plans provide project identification sign complying with sketch/data sheet included at end of this section. Engage an experienced sign painter to paint graphics on sign as indicated. Construct sign of treated wood framing and posts, and 3/4" plywood panels of exterior type Grade B C sanded 2 sides.

END OF SECTION 01505

SECTION 01605 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

Definitions: "Products" is defined to include purchased items for incorporation into the work, regardless of whether specifically purchased for project or taken from Contractor's stock of previously purchased products. "Materials", is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of work. "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of other terms used in contract documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," "special construction," and similar terms, which are self explanatory and have recognized meanings in the construction industry.

Substitutions: The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Revisions to contract documents, where requested by Owner, Architect or Engineer, are "changes" not "substitutions." Substitutions requested during bidding period, which have been accepted prior to Contract Date, are included in contract documents and are not subject to requirements for substitutions as specified herein. Contractor's determination of an compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions;" and do not constitute a basis for change orders, except as provided for in contract documents. Otherwise, Contractor's requests for changes in products, materials and methods of construction required by contract documents after the bidding period are considered requests for "substitutions," and are subject to requirements hereof.

Standards: Refer to Division 1 section "Definitions and Standards" for applicability of industry standards to products of project, and for acronyms used in text of specification sections.

QUALITY ASSURANCE:

Source Limitations: To the greatest extent possible, for each unit of work, provide products, materials or equipment of a singular generic kind and from a single source.

Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or material, select an option which is compatible with other products and materials already selected (which may have been from among options for those other products and materials). Total compatibility among options is not assured by limitations within contract documents, but must be provided by Contractor. Compatibility is a basic general requirement of product/material selections.

SUBMITTALS:

Requests for Substitutions: Submit 3 copies, fully identified for product or method being replaced by substitution, including related specification section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitution will result in overall work equal to or better than work originally indicated.

PRODUCT DELIVER STORAGE HANDLING:

General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Control delivery schedules to minimize long term storage of products at site and overcrowding of construction spaces. In particular, provide delivery/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

WARRANTIES (GUARANTEES):

Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 16 of these specifications:

Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by Contractor.

Specified Product Warranty: A warranty which is required by contract documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of a product into the work, or has written and executed a special product warranty as a direct result of contract document requirements.

Coincidental Product Warranty: A warranty which is not specifically required by contract documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications except as otherwise limited by terms of warranty.

Refer to individual sections of Divisions 2 through 16 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).

General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties do not cover failures in the work which result from: 1.) Unusual and abnormal phenomena of the elements, 2.) The Owner's misuse,

maltreatment or improper maintenance of the work, 3.) Vandalism after time of substantial completion, or 4.) Insurrection or acts of aggression including war.

Related Damages and Losses: In connection with Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.

Consequential Damages: Except as otherwise indicated or required by governing regulation, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.

Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the following time period, starting on date of acceptance of replaced or restored work.

A period of time is equal to original warranty period of time.

Replacement Cost, Obligations: Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful service lives.

Rejection of Warranties: Owner reserves the right, at time of substantial completion or thereafter, to reject coincidental product warranties submitted by Contractor, which in opinion of Owner tend to detract from or confuse interpretation of requirements of contract documents.

Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub subcontract for materials or units of work for materials or units of work for project where a special project warranty, specified product warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

Specific Warranty Forms: Where a special project warranty (guarantee) or specified project warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution by required parties. Submit draft to Owner (through Architect/Engineer) for approval prior to final executions.

PART 2 PRODUCTS

GENERAL PRODUCT COMPLIANCES:

General: The compliance requirements, for individual products as indicated in contract documents, are multiple in nature and may include generic, descriptive, proprietary, performance, prescriptive, compliance with standards, compliance with codes, conformance with graphic details and other similar forms and methods of indicating requirements, all of which must be complied with. Also "allowances" and similar provisions of contract documents will have a bearing on selection process.

Procedures for Selecting Products: Contractor's options for selecting products are limited by contract document requirements, and governing regulations, and are not controlled by industry and governing regulations, and are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects.

Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying:

Single Product/Manufacturer Name: Provide product indicated, except advice Architect/Engineer before proceeding, where known that named product is not a feasible or acceptable selection.

Two or More Product/Manufacturer Names: Provide one of the named products, at Contractor's option; but excluding products which do not comply with requirements. Do not provide or offer to provide an unnamed product, except where none of named products comply with requirements or are a feasible selection; advise Architect/Engineer before proceeding.

"Or Equal": Where named products in specifications text are accompanied by the term "or equal", or other language of similar effect, comply with those contract document provisions concerning "substitutions" for obtaining Architect/Engineer's approval (by change order) to provide an unnamed product. This product must meet or exceed the original specified product specifications.
"Named", except as otherwise indicated, is defined to mean manufacturer's name for product, as recorded in published product literature, of latest issue as of date of contract documents. Refer requests to use products of a later (or earlier) model to Architect/Engineer's for acceptance before proceeding.

Standards, Codes and Regulations: Where only compliance with an imposed standard, code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is Contractor's option.

Performance Requirements: Provide products which comply with specific performances indicated, and which are recommended by manufacturer (in published product literature or by individual certification) for application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.

Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.

SUBSTITUTIONS:
Conditions: Contractor's request for substitution will be received and considered when extensive revisions to contract documents are not required and changes are in keeping with general intent of contract documents; when timely, fully documented and properly submitted; and when one or more of following conditions is satisfied, all as judged by Architect/Engineer. Otherwise, requests will be returned without action except to record non compliance with these requirements.

Where required product, material or method cannot be provided in a manner which is compatible with other materials of the work, or cannot be properly coordinated therewith,

or cannot be warranted as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial non compliance which are not possible to otherwise overcome except by making requested substitution, which Contractor thereby certifies to overcome such non compatibility, non coordination, non warranty, non insurability or other non compliance as claimed.

Work Related Submittals: Contractor's submittal of (and Architect/Engineer's acceptance of) shop drawings, product data or samples which relate to work not complying with requirements of contract documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

GENERAL PRODUCT REQUIREMENTS:

General: Provide products which comply with requirements, and which are undamaged and unused at time of installation, and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for intended use and effect.

Standard Products: Where available, provide standard products of types which have been produced and used previously and successfully on other projects and in similar applications.

Nameplates: Except as otherwise indicated for required approval labels, and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on exterior of the work.

Labels: Locate required labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.

Equipment Nameplates: Provide permanent nameplate on each item of service connected or poser operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings and similar essential operating data. Locate nameplates on an easily accessed surface which, in occupied spaces, is not conspicuous.

PART 3 EXECUTION (not applicable)

END OF SECTION 01605

SECTION 01705 - PROJECT CLOSEOUTS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

Definitions: Closeout is hereby defined to include general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Divisions 2 through 16. Time of closeout is directly related to “Substantial Completion", and therefore may be either a single time period for entire work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

PREREQUISITES TO SUBSTANTIAL COMPLETION:

General: Prior to requesting the Architect/Engineer's inspection for certification of substantial completion, (for either the entire work or for portions thereof), complete the following and list known exceptions in the request:

Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

Obtain and submit releases enabling Owner’s full, unrestricted use of the work and access to services and utilities (where required), include occupancy permits, operating certificates, and similar releases.

Deliver tools, spare parts, extra stocks of materials, and similar physical items to the Owner.

Attic stock or extra materials for the Owner are not to be used for punchlist or warranty work, unless permission is given. In such case, the material is to be restocked and provided to the Owner.

Make final changeover of locks and transmit the keys to the Owner, and advise the Owner's personnel of change over in security provisions.

Complete start up testing of systems, and instructions of the Owner’s operating and maintenance personnel. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock ups, and similar elements.

Complete final cleaning up requirements, including touch up of painting of marred surfaces.

Inspection Procedures: Upon receipt of the Contractor's request Architect/Engineer will either proceed with inspection or advise Contractor of unfilled prerequisites. Following the initial inspection, the Architect/Engineer will either prepare the certificate of

substantial completion, or will advise the Contractor of work which must be performed prior to the issuance of certificate; and repeat the inspection when requested and when assured that the work has been substantially completed. Results of the completed inspection will form the initial "punch list" for final acceptance.

Attic Stock Quantities:

Vinyl Composition Tile:	(2) Boxes – Each Color
Rubber Base:	60 LF
Paint:	(1) 5-gallon - Each Color
	(1) 5-gallon – Each Accent Color
Acoustical Ceiling	(2) Boxes – Type I
	(1) Boxes – Type II

SECTION 262726 - WIRING DEVICES

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Service/Power Poles: One for every 10, but no fewer than one.
- Floor Service-Outlet Assemblies: One for every 10 but no fewer than one.
- Poke-Through, Fire-Rated Closure Plugs: One for every five floor service outlets installed, but no fewer than two.

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
- Fuse Pullers: Two for each size and type.

SECTION 262913 - ENCLOSED CONTROLLERS

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
- Control Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than two of each size and type.
- Indicating Lights: Two of each type and color installed.
- Auxiliary Contacts: Furnish one spare(s) for each size and type of magnetic controller installed.
- Power Contacts: Furnish three spares for each size and type of magnetic contactor installed.

SECTION 265116 - INTERIOR LIGHTING

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Lamps: Ten for every 100 of each type and rating installed. Furnish at least one of each type.
- Diffusers and Lenses: One for every 100 of each type and rating installed. Furnish at least one of each type.
- Fluorescent-luminaire-mounted emergency battery pack: One for every 40 emergency lighting unit.
- Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

SECTION 265219 - EMERGENCY AND EXIT LIGHTING

Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Lamps: 10 for every 100 of each type and rating installed. Furnish at least one of each type.
- Luminaire-mounted, emergency battery pack: One for every 20 emergency lighting units. Furnish at least one of each type.
- Diffusers and Lenses: two for every 100 of each type and rating installed. Furnish at least one of each type.
- Globes and Guards: One for every 20 of each type and rating installed. Furnish at least one of each type.

SECTION 267240 - INTRUSION DETECTION

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- Intrusion Detection Devices: Furnish quantity equal to two percent of the number of units of each type installed, but no less than one of each type.

PREREQUISITES TO FINAL ACCEPTANCE:

General: Prior to requesting Architect/Engineer's final inspection for certification of final acceptance, and final payment, as required by the General Conditions, complete the following and list known exceptions, (if any), in request.

Submit the final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit an updated final statement, accounting for final additional changes to the Contract Sum.

Submit certified copy of the Architect/Engineer’s final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Architect.

Submit consent of surety.

Re-inspection Procedure: Upon receipt of the Contractor's notice that the work has been completed, including punch list items resulting from earlier inspections, and excluding incomplete items delayed because of acceptable circumstances, the Architect/Engineer will re-inspect the work.

Upon completion of re-inspection, the Architect/Engineer will either prepare a certificate of final acceptance, or will advise the Contractor of work that is incomplete or obligations not fulfilled, as required for final acceptance. If necessary, procedure will be repeated.

RECORD DOCUMENT SUBMITTALS:

General: Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in the General Conditions. General submittal requirements are indicated in the "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire resistive location; provide access to record documents for Architect/Engineer's reference during normal working hours.

Record Drawings: Maintain a white print set (blue line or white prints of contract drawings and shop drawings in a clean, undamaged condition with mark up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing the actual "field" condition fully and accurately; however, where shop drawings are used for mark up, record a cross reference at the corresponding location on the working drawings. Mark with legible erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Verify colors will be visible during scanning of record drawings. Mark up new information which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work that would be difficult to measure and record at a later date. Note related change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.
Provide two electronic copies on CD of the record drawings to the Owner.

Record Specifications: Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and mark up variations (of substance) in the actual work in comparison with the text of the specifications and modifications as issued. Give particular attention to substitutions, selection of options and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark up, submit to Architect/Engineer for Owner’s records.

Record Product Data: Maintain one copy of each product data submittal, and mark up significant variations in actual work in performed in comparison with the submitted information. Include both variations in product as delivered to site, and variations from the manufacturer's instructions and recommendations for installation. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark up of record drawings and specifications. Upon completion of mark up, submit complete set to Architect/Engineer for the Owners' records.

Miscellaneous Record Submittals: Refer to other sections of these specifications for

requirements of miscellaneous record keeping and submittals in connection with the actual performance of the work. Immediately prior to the date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect/Engineer for the Owner's records.

Maintenance Manuals: Organize maintenance and operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb tabbed). Include emergency instructions, spare parts listing, and copies of warranties, wiring diagrams, recommended "turn around" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set of data in a heavy duty 2", 3 ring vinyl covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

PART 2 PRODUCTS (not applicable)

PART 3 EXECUTIONS

CLOSEOUT PROCEDURES:

General Operating and Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at the project site, to provide basic instruction needed for proper operation and maintenance of the entire work. Include instructions by the manufacturer's representatives where installers are not experts in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start up, shut down, emergency operations, noise and vibration adjustments, safety, economy and efficiency adjustments energy effectiveness, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds and similar continuing commitments.

FINAL CLEANING:

General: Special cleaning for specific units of work is specified in sections of Divisions 2 through 16. General cleaning during the progress of the work is specified in General Conditions and as "Temporary Facilities” section of this Division. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal “clean" condition expected for a first class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples but not by way of limitation, of cleaning levels required.

Remove labels which are not required as permanent labels.

Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision obscuring materials. Replace broken glass and damaged transparent materials.

Clean exposed exterior and interior hard surface finishes to a dirt free condition, free of dust, stains, films and similar noticeable distracting substances. Except as other-wise indicated, avoid disturbance of natural weathering of exterior surface. Restore reflective surfaces to their original reflective condition.

Wipe surfaces of mechanical and electrical equipment clean, including elevator equipment and similar equipment; remove excess lubrication and other substances.

Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

Clean concrete floors in non-occupied spaces broom clean. Vacuum clean carpeted surfaces and similar soft surfaces.

Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.

Clean food service equipment to a condition of sanitation ready and acceptable for intended food service use.

Clean light fixtures and lamps so as to function with full efficiency.

Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances.

Sweep paved areas to a broom clean condition; remove stains, petro chemical spills and other foreign deposits. Rake ground which are neither planted nor paved, to a smooth, even textured surface.

Pest Control: Engage an experienced exterminator to make a final inspection of project and to rid project of rodents, insects, and other pests.

Removal of Protection: Except as otherwise indicated or requested by the Architect/Engineer, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction period.

Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from site and dispose of in a lawful manner.

Close-Out Required Documents

Required Documents provided to Owner:

- 2 - Sets of As-Built Drawings (Hard Copy)
  - 1 Set is to be provided to Central Administration Facilities Manager
  - 1 Set is to be provided to the Project Specific Campus Facility Manager

- 1 – CD of As-Built Drawings provided to Central Administration Facilities Manager

- 2 - Sets of Close-Out Binders
  - 1 Set is to be provided to Central Administration Facilities Manager
  - 1 Set is to be provided to the Project Specific Campus Facility Manager.

Required Electronic Documents sent to Owner's Representative:

- Punch Lists
- Special Tests
- Special Inspector Sign-Off
- Asbestos Affidavit
- Certificate of Occupancy
- Certificate(s) of Substantial Completion
- Owner Training / System Demonstrations (Sign-In sheet w/ hours)
- Change Orders
- As-Built Drawings
- Spare Parts / Attic Stock (Transmittal of delivery to Campus & IDEA sign-off)
- Subcontractor / Supplier Contact List
- Warranties
- Elevation Certificates
- Final Release of Liens
- Consent of Surety

END OF SECTION 01705

SECTION 02110 - SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. Site preparation shall include furnishing necessary equipment and labor to remove vegetation and rubbish and the placement of approved excess excavation in conformity with the lines, grades, dimensions, and details shown on the Contract Documents.

B. Within limits shown on the Contract Documents, or in areas where existing grade is altered, strip existing topsoil to a depth of 6-inches and stockpile in approved areas for subsequent replacement. Contractor to remove and dispose of all excess materials.

1.2 RELATED SECTIONS

A. Section 02060 - Demolition

1.3 REFERENCES

A. ASTM D698-1991: Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft [600 kN-m/m]).

1.4 DEFINITIONS

A. Borrow. Material taken from designated areas to make up any deficit of excavated material.

1.5 SUBMITTALS AND WORK

A. Coordinate activities with other work being performed so as not to cause any interruption of activities being completed under other Sections of the Contract Documents.

1.6 REGULATORY REQUIREMENTS

A. Work under this Section shall conform to applicable City Regulations for disposal of debris, including safety requirements during performance of the work.

B. Work under this Section shall be coordinated with utility companies and any the management of any existing facilities in order to prevent any disruption in operation and/or utility service.

C. Permits, fees, disposal charges and licenses shall be secured and paid by Contractor.

PART 2 - PRODUCTS

2.1 MANUFACTURER(S) (not used)

2.2 EQUIPMENT

A. The Contractor may use equipment and materials necessary to properly complete the tasks described under this Section.

2.3 MATERIALS

A. Fill:

1. Source: Obtain embankment fill from required excavation or, if excavated material is insufficient, from borrowed areas approved by the Geotechnical Engineer.

2. Suitability: Use the best material available from excavation or borrow. Suitability of fill material is subject to the Geotechnical Engineer's approval.

3. Quality: Fill material must be free of excessive silts. Do not use soil containing brush, roots, sod or similar perishable material.

4. Excess Excavation: Use excess excavation or borrowed material with prior approval of the Engineer. Borrow material from the approved source and excavate. On completion of work borrowed area to be cleaned and dressed. Reuse of material stripped from borrow site is not allowed unless specifically indicated on the Drawings.

2.4 FABRICATION (not used)

2.5 QUALITY CONTROL

A. Fill materials to be acquired as specified in Plans and/or by the Geotechnical Engineer.

PART 3 - EXECUTION

3.1 GENERAL

A. Verify existing plant life designated to remain and tag as such.

B. Locate, identify and protect all utilities.

C. Locate, identify and protect bench marks and existing structures.

D. Maintain surface drainage on site during construction. Remove unsatisfactory fill material and waste vegetation from jobsite and dispose of properly.

3.2 PRESERVATION AND RESTORATION

A. Protect trees that are to remain in the project area or in adjacent areas. Take special care not to damage trees outside limits of construction.

B. Fill depressions made by grubbing with suitable material to make new surface conform to the existing adjacent ground surface.

C. Final Cleanup: Level washes, ruts, depressions, and mounds to give areas smooth finish.

3.3 CLEARING

A. Remove designated trees and shrubs along with stumps, roots, rubbish and other objectionable material from the designated areas.

B. Remove grass and weeds to a depth of two (2) inches below existing soil line.

C. Remove stumps, roots, muck and spongy materials within the area to a depth of eighteen (18) inches.

D. For areas where paving will be built remove stumps and roots within pavement section to depth of two feet below finish subgrade elevation.

E. Provide demolition as required and specified in Section 02115 and the Drawings.

3.4 REMOVING MATERIAL

A. Unless otherwise specified, cleared and grubbed material shall become property of the Contractor and be removed from the work site or disposed of in manner not to damage the Owner.

B. Burning of cleared and grubbed material on the Owner's property is not permitted.

END OF SECTION

SECTION 02200 EARTHWORK

PART 1 GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of earthwork is indicated on drawings.

Preparation of subgrade for building slabs, walks, and pavements is included as part of this work.

Backfilling of trenches within building lines is included as part of this work.

Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

QUALITY ASSURANCE:

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service:

Employ, at Contractor's expense, testing laboratory to perform soil testing and inspection service for quality control testing during earthwork operations.

SUBMITTALS:

Test Reports Excavating: Submit following reports directly to Architect/Engineer from the testing services, with copy to Contractor:

Field density test reports.

One optimum moisture maximum density curve for each type of soil encountered.

Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

JOB CONDITIONS:

Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for convenience of Contractor.

Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

Perform excavation within drip line of large trees to remain by hand, and protect the root system from damage or dry out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with burlap. Paint root cuts of 1" diameter and larger with emulsified asphalt tree paint.

PART 2 PRODUCTS

SOIL MATERIALS:

General:

Backfill and Fill Materials: Provide satisfactory soil materials for backfill and fill, free of clay, rock or gravel larger than 3" in any dimension, debris, waste, frozen materials, vegetable matter, and other deleterious matter. Uses excavated or borrow material that has been sample, tested and approved as satisfactory material. Backfill excavations as promptly, as the work permits, but not backfill until completion of all inspections, testing, approvals, and recording locations of underground utilities.

Select Fill: Fill under all floor slabs (and Extending 5'-0" beyond the building area), walks, and paved areas to consist of low plasticity index materials (12 or less) as approved by the Architect which is to be placed in 8" layers and compacted by use of sheep foot rollers, pneumatic tired roller, tamp rollers or other compaction equipment capable of obtaining the required density thru out the entire layer. This material shall be predominately sandy in nature, ideally with enough binder to facilitate trenching operations, and with more than 50% retained on a #200 sieve. On site materials are generally acceptable for use, but should be laboratory tested for compliance.

Sand Cushion: Material immediately below sidewalks and at other locations indicated on the drawings shall consist of a clean sand, free of silts, fines, or other organic impurities capable of supporting the migration of water, as approved by the Architect. This material shall be loosely compacted as in typical screeding and placement operations.

Dirt Fill: Fill dirt approved by the Architect shall be furnished, hauled, and spread on the site by this Contractor at all locations where other materials are not specified, and in accordance with drawings. High PI soils are not to be used for dirt fill.

All other materials, not specifically described but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 EXECUTION

GENERAL:

Ground Surface Preparation: remove vegetation, debris unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When the existing ground surface is a density less than that specified under "Compaction" for the particular area classification, break up the optimum moisture content, and compact to the required depth and percentage of maximum density.

EXCAVATION:

Excavation to grades shown on drawings, if grades not shown excavate as required to accommodate installation.

Excavation consists of the removal and disposal of all materials encountered to obtain the required subgrade elevations, including earth, rock, etc., necessary for footings, columns, beams, slabs, etc.

Unauthorized Excavation: Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations without the specific direction of the Architect.

Backfill and compact unauthorized excavations as specified for authorized excavations of the same classification, unless otherwise directed by the Architect.

Excavation for Pavements: Cut the ground under pavements to comply with the cross sections, elevations, and grade as shown on the drawings.

Excavation for Ditches: Cut ditches to the cross sections and grades as shown on the drawings. Deposit excavated materials a sufficient distance from the edges of ditches to prevent cave ins or material falling or sliding into ditch. Keep ditches free of an accumulation of leaves, sticks and other debris until final acceptance of work.

Removal of Unsatisfactory Soil Materials: Excavate unsatisfactory soil materials encountered that extend below the required elevations, to the additional depth directed by the Architect. Such additional excavation, provided it is not due to the fault or neglect of the Contractor, will be measured as directed by the Architect and paid for by the Owner as a change in the work. Where the removal of unsatisfactory soil materials, is due to the fault or negligence of the Contractor in his performance of earthwork ad site grading operations, excavate the resulting unsatisfactory soil material and replace with compacted satisfactory soil material as required.

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be at Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required too elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.

Additional Excavation: When excavation has reached required subgrade elevations, notify Architect who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Architect.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross braces, in good serviceable condition.
Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run off areas. Do not use trench excavations as temporary drainage ditches.

Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

Dispose of excess soil material and waste materials as herein specified.

Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect. Use care in backfilling to avoid damage or displacement of pipe systems.

Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35° F. (1°C).

COMPACTION:
General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.
Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well defined moisture density relationship (cohesive soils) determined in accordance with ASTM D 1557; and not less than the following percentages of relative density, determined in accordance with ASTM D 2049, for soils which will not exhibit a well defined moisture density relationship (cohesion-less soils).

Structures, Building Slabs: Compact subgrade and each layer of backfill or fill material at 95% relative density.

Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 85% maximum density for cohesive materials and 90% relative density for cohesion-less soils.

Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 90% relative density.

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

BACKFILL AND FILL:

General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.

In excavations, uses satisfactory excavated or borrow material.

Under grassed areas, use satisfactory excavated or borrow material.

Under walks and pavements, use subbase material or satisfactory excavated or borrow material, or combination of both.

Under building slabs, use drainage fill material.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
Inspection, testing, approval, and recording locations of underground utilities.

Removal of concrete formwork.

Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

Removal of trash and debris.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.

Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture condition to optimum moisture content, and compact to required depth and percentage of maximum density.

Placement and Compaction: Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

GRADING:

ROUGH GRADING

After excavation is made to lines shown on the Drawings, and under proposed embankments and structures, as adjusted for topsoil and landscaping depths, remove soft or undesirable material as specified in this Section. Break down sides or holes or depressions to flatten the slopes.

Locate and correct any irregularities in the subsoil, filling each depression with the appropriate subsoil resulting in a level surface. Place any fill necessary in layers moistened and compacted as specified in this Section.

Shape all areas designated for grading, including cut and fill areas, to receive a minimum of 4-inches of topsoil. Topsoil depth at areas receiving landscaping, shrubs or trees shall be coordinated through Landscaping Sections and Drawings

Scarify subsoil to a depth of 4 inches where topsoil is scheduled and in areas where subsoil has been compacted due to equipment activity. Shape all areas designated for grading, including cut and fill areas, to receive a minimum of four inches of topsoil.

Verify that subsoil has been appropriately contoured and shaped.

Tolerance on top surface of subgrade is plus/minus 1/10 foot.

FINISH GRADING

Place topsoil in areas where seeding, sodding and planting is indicated on Drawings or otherwise scheduled.

Place topsoil while soil is dry and during dry weather. Perform topsoil spreading so that planting can proceed with little additional tillage or soil preparation. Fine grade topsoil, eliminating rough or low rough areas. Manually place topsoil around trees, plants, and building to prevent any damage. Lightly compact topsoil.

Verify that finish grades and contours as indicated on Drawings have been maintained after placement of topsoil and any landscape soil.

Tolerance of finish grade is plus/minus 1/2”.

FIELD QUALITY CONTROL

Quality Control Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

Perform field density tests in accordance with ASTM D 1556 (sand cone method), ASTM D2922-81 (nuclear density method), ASTM D 2167 (rubber balloon method), as applicable.

Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect.

Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of building slab, but in no case less than 3 tests. In each compacted fill layer,

make one field density test for every 2000 sq. ft. of overlaying building slab but in no case less than 3 tests.

If in opinion of Architect, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

MAINTENANCE:
Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and re establish grades in settled, eroded, and rutted areas too specified tolerances.

Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re shape, and compact to required density prior to further construction.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

DISPOSAL OF EXCESS AND WASTE MATERIALS:

Removal to Designated Areas on Owner's Property: Transport acceptable excess excavated material to designated soil storage areas on Owner's property. Stockpile soil or spread as directed by Architect.

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property.

END OF SECTION 02200

SECTION 02825 - ORNAMENTAL FENCES AND GATES

2.01 MANUFACTURER:

The fencing system shall be Industrial Aluminum Fence #202 Series as manufactured by Jerith Manufacturing Co., Inc., 14400 McNulty Road, Philadelphia, PA 19154. (Telephone: 800-344-2242; Fax: 215-676-9756; email: sales@jerith.com.)

Elite Fence Products, Inc., 835 Scott St, Murfreesboro, TN 37129; (615) 849-1886, Industrial EFF-20 is an approved manufacturer.

2.02 MATERIALS:

A. Aluminum Extrusions: All posts and rails used in the fence system shall be extruded from HS-35™ aluminum alloy having minimum yield strength of 35,000 psi. All pickets shall have minimum yield strength of 25,000 psi. 6063-T5 Alloy is not acceptable for any components.

B. Fasteners: All fasteners shall be stainless steel. Square drive screws shall be used to connect the pickets to the horizontal rails. Rail to post connections shall be made using self-drilling hex-head screws.

C. Accessories: Aluminum sand and die castings shall be used for all scrolls, post caps, finials, and miscellaneous hardware. Die castings shall be made from Alloy 360.0 for superior corrosion resistance. Alloy 380.0 is not acceptable.

2.03 FINISH:

A. Pretreatment: A three stage non-chrome pretreatment shall be applied. The first step shall be a chemical cleaning, followed by a water rinse. The final stage shall be a dry-in-place activator which produces a uniform chemical conversion coating for superior adhesion.

B. Coating: Fence materials shall be coated with FencCoat™, a Super-Durable TGIC polyester powder-coat finish system applied by Jerith Manufacturing Company. Epoxy powder coatings, baked enamel or acrylic paint finishes are not acceptable. The FencCoat finish shall have a cured film thickness of at least 2.0 mils. In addition, the screw heads shall be painted to match the color of the fence. The color of the fence system shall be selected from standard colors.

C. Tests: The cured FencCoat finish shall meet AAMA 2604 “Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels”, which includes the following requirements:

1. Humidity resistance of 3,000 hours using ASTM D2247.
2. Salt-spray resistance of 3,000 hours using ASTM B117.
3. Outdoor weathering shall show no adhesion loss, checking or crazing, with only slight fade and chalk when exposed for 5 years in Florida facing south at a 45 degree angle.

Finishes which only meet AAMA 2603 (or the previous version - AAMA 603) are not acceptable.

2.04 CONSTRUCTION:

A. Horizontal rails shall be 1 5/8” x 1 5/8” channels formed in a modified “U” shape. Pickets shall pass through holes punched in the top of the rail. The top wall shall be .072” thick and the side walls .082” thick for superior vertical load strength. There shall be 3 horizontal rails in each section.

B. Pickets shall be fastened to the rails using painted stainless steel screws. Screws shall be used on only one side of the rail, leaving the other side with a clean appearance. Pickets shall be 1” square and have a wall thickness of .062”. Welding the pickets to the rails is not permitted.

C. Posts shall be 2 1/2” square extrusions with pre-punched holes which allow the fence section rails to slide in. Posts shall be spaced 72” on center and have .075 walls. Gate posts shall be 4” square with .125” walls and used on both sides of a gate. Die cast aluminum caps shall be provided with all posts.

D. Gates shall have welded frames and shall support a 250 lb. vertical load on the latch side of the gate without collapsing. Walk gates shall be self-closing and self-latching.

E. Assembled sections shall support a 1,000 lb. vertical load at the midpoint of any horizontal rail.

2.05 ADDITIONAL GATE HARDWARE:

Provide Panic Hardware equal to DAC Industries, Inc.(800.888-9768), Model 6045-B48 Superior Exit Bar Kit with Lockey Model 115p Keypad Lockset.

2.06 WARRANTY:

The entire fence system shall have a written Limited Lifetime Warranty against rust and defects in workmanship and materials. In addition, the FencCoat finish shall be warranted not to crack, chip, peel, or blister for the same period.

PART 3 - EXECUTION

Installation: All material must be checked upon receipt at the job site prior to installation to check for any damage that may have occurred during transport. The fence system must be stored in a safe and dry environment so as to protect if from any potential damage. This aluminum Ornamental Fence system must be installed in accordance with manufacturer’s standard procedures.

END OF SECTION 02825

Section - 02829 Slide Gate Operator

PART I – GENERAL

1.01. INCLUDED IN THIS SECTION
- A. Pre-wired, self-contained, slide gate operator for horizontal sliding gates, including all selected attachments and accessory equipment.
- B. For further information, call the factory at (800) 321-9947.

1.02. RELATED WORK SPECIFIED ELSEWHERE
- A. Fencing: See section 02815.
- B. Cast in place concrete: See section 03010.
- C. Electrical service and connections: See Electrical.

1.03. SUBMITTALS
- A. Shop drawings: Submit shop drawings under the provisions of Section 01300. Submit drawings showing connections to adjacent construction, range of travel, and all electrical and mechanical connections to the operator. Drawings shall also show the size and location of the concrete mounting pad. Underground electrical runs and inductive vehicle obstruction loop locations shall be shown on shop drawings.
- B. Installation instructions: Submit two copies of manufacturer's installation instructions for this specific project.
- C. Test reports:
  - a) Submit affidavits from the manufacturer demonstrating that the gate mechanism has been tested to 200,000 cycles without breakdown.
  - b) Each operator shall bear a label indicating that the operator mechanism has been tested for full power and pressure of all hydraulic components, full stress tests of all mechanical components and electrical tests of all overload devices.

1.04. QUALITY ASSURANCE
- A. Manufacturer: A company specializing in the manufacture of hydraulic gate operators of the type specified, with a minimum of ten years experience.
- B. Installer: A minimum of three years experience installing similar equipment, provide proof of attending a HySecurity factory technical training within previous three years, or obtain other significant manufacturer endorsement of technical aptitude, if required, during the submittal process.

1.05. CODES AND REGULATORY REQUIREMENTS
- A. Operators shall be built to UL 325 standards and be listed by a testing laboratory. Complete all electrical work according to local codes and National Electrical Code. All fieldwork shall be performed in a neat and professional manner, completed to journeyman standards.
- B. Current safety standards require the use of multiple external sensors to be capable of reversing the gate in either direction upon sensing an obstruction. See also 2.02D.
  - a) Vehicle gates should never be used by pedestrians. Separate pedestrian gates must always be provided when foot traffic is present.
  - b) Current safety standards require gate operators to be designed and labeled for specific usage classes. HySecurity Model SlideDriver 15 UPS (222 DS ST) is listed for use in all UL 325 Usage Classes: I, II, III, and IV.

1.06. PRODUCT DELIVERY AND STORAGE

A. Comply with 01600.

B. Store products upright in the original shipping containers, covered, ventilated and protected from all weather conditions.

1.07. WARRANTY

A. Provide a five-year limited warranty against all defects in materials or workmanship; except batteries, which are covered under a one-year warranty. Defective materials shall be replaced with comparable materials furnished by the manufacturer, at no cost to the owner. Freight, labor and other incidental costs are not covered under the factory warranty, but may be covered by a separate service agreement between installing company and the owner.

a) To ensure validation of warranty, return completed warranty registration form (included in Installation and Reference manual) to manufacturer.

PART II – PRODUCTS

2.01. GATE OPERATORS

A. HySecurity gate operator model SlideDriver 15 UPS (222 DS ST) with Smart Touch Controller, or other comparable operator, as approved by the architect or specifier. Substitute operators that are approved will be published in an addendum, not less than ten days prior to bid opening. Requests for substitution will include the amount of savings to be passed on to the owner.

2.02. OPERATION

A. Operation shall be by means of a metal rail passing between a pair of solid metal wheels with polyurethane treads. Operator motors shall be hydraulic, geroller type, and system shall not include belts, gears, pulleys, roller chains or sprockets to transfer power from operator to gate panel. The operator shall generate a minimum horizontal pull of 300 (136 kg) pounds without the drive wheels slipping and without distortion of supporting arms. Operator shall be capable of handling gates weighing up to 1500 pounds (680 kg). Gate panel velocity shall not be less than 1.0 feet (.30 m) per second and shall be stopped gradually to prevent shock loads to the gate and operator assembly

B. Standard mechanical components shall include as a minimum:

1. Supporting arms: Cast aluminum channel. Arms shall incorporate a fully bushed, 1-1/2" (38 mm) bronze bearing surface, acting on arm pivot pins. (item 2 below)
2. Arm pivot pins: 3/4" (19 mm) diameter, stainless steel, with integral tabs for ease of removal.
3. Tension spring: 2-1/2" (63.5 mm) heavy duty, 800 pound (363 kg) capacity.
4. Tension adjustment: Finger tightened nut, not requiring the use of tools.
5. Drive release: Must instantly release tension on both drive wheels, and disengage them from contact with drive rail in a single motion, for manual operation.
6. Limit switches: Fully adjustable, toggle types, with plug connection to control panel.
7. Electrical enclosure: Oversized, metal, with hinged lid gasketed for protection from intrusion of foreign objects, and providing ample space for the addition of accessories.

8. Chassis: 1/4" (6.35 mm) steel base plate, and 12 Ga. (2.66 mm) sides and back welded and ground smooth.
9. Cover: 16 Ga. (1.52 mm) zinc plated steel with textured TGIC polyester powder coat finish. All joints welded.
10. Finish: Zinc plated steel with textured TGIC polyester powder coat finish, proven to withstand 1000-hour salt spray test.
11. Drive wheels: Two 6" (152 mm) Dia. metal hub with polyurethane tread.
12. Drive rail: Shall be extruded 6061 T6, not less than 1/8" (3.175 mm) thick. Drive rail shall incorporate alignment pins for ease of replacement or splicing. Pins shall enable a perfect butt splice.
13. Hydraulic hose: Shall be 1/4" (6.35 mm) synthetic, rated to 2750 PSI (19 MPa).
14. Hydraulic valves: Shall be individually replaceable cartridge type, in an integrated hydraulic manifold.
15. Hose fittings: At manifold shall be quick-disconnect type, others shall be swivel type.
16. Hydraulic fluid: High performance type with a viscosity index greater than 375 and temperature range -40F to 167F (-40C to 75C) degrees.
17. A zero to 2000 PSI (14 MPa) pressure gauge, mounted on the manifold for diagnostics, shall be a standard component.
18. The hydraulic fluid reservoir shall be formed from a single piece of metal, non-welded, and shall be powder painted on the inside and the outside, to prevent fluid contamination.

C. Minimum standard electrical components:
1. Pump motor: Shall be minimum 2 HP, 56C, 24 V DC motor.
2. All components shall have overload protection.
3. Controls: Smart Touch Controller Board with 256K or program memory containing:
   a) inherent entrapment sensor;
   b) built in “warn before operate” system;
   c) built in timer to close;
   d) liquid crystal display for reporting of functions;
   e) 26 programmable output relay options;
   f) anti-tailgate mode;
   g) built-in power surge/lightning strike protection;
   h) menu configuration, event logging and system diagnostics easily accessible with a PC and HySecurity’s free START software;
   i) RS232 port for connection to laptop or other computer peripheral and RS485 connection of Master/Slave systems or network interface.
4. Low voltage sensor to protect batteries from over discharge. Last operation can be programmed for fail secure or fail open
5. AC power loss operation: the operation can be programmed to open immediately or stay open after next normal operation, or remain in normal operation until batteries are low.
6. Control circuit: 24VDC.
7. Permanently sealed, maintenance free, lead acid batteries in separate insulated and ventilated enclosure.
8. Battery enclosure is NEMA 3R, pre-galvanized and painted dark gray enamel.
9. 20 amp, fully automatic, regulated battery charger,

D. Required external sensors: See 1.05B. Specify photo eyes or gate edges or a combination thereof to be installed such that the gate is capable of reversing in either direction upon sensing an obstruction.

E. Provide control devices: pushbuttons, vehicle detectors, keypads and seven-day timers.
F. Provide the following options:
    1. Lock for operator cover.
    2. Electric Solenoid gate panel deadbolt lock.
    3. Drive wheel manual release indicator switch.
    4. Gate edge and transmitter radio reversing device.
    5. Seven Day Timer: Able to set schedule for 365 Days including Holidays.
    6. Knox Gate and Key Switch (Single Switch Model 3502) for Emergency Access at each operator.
       Or
    7. Siren Gate Actuator at each operator, as required by Fire Official.

2.03. FACTORY TESTING
A. Fully assemble and test, at the factory, each gate operator to assure smooth operation, sequencing and electrical connection integrity. Apply physical loads to the operator to simulate field conditions. Tests shall simulate physical and electrical loads equal to the fully rated capacity of the operator components.
B. Check all mechanical connections for tightness and alignment. Check all welds for completeness and continuity. Check welded corners and edges to assure they are square and straight.
C. Inspect painted finish for completeness. Touch up imperfections prior to shipment.
D. Check all hydraulic hoses and electrical wires to assure that chafing cannot occur during shipping or operation.

PART III – EXECUTION

3.01. SITE EXAMINATION
A. Locate concrete mounting pad in accordance with approved shop drawings.
B. Make sure that gate is operating smoothly under manual conditions before installation of gate operators. Do not proceed until gate panel is aligned and operates without binding.

3.02. INSTALLATION
A. Install gate operator in accordance with the manufacturer's printed instructions, current at the time of installation. Coordinate locations of operators with contract drawings, other trades and shop drawings.
B. Installer shall insure that the electric service to the operator is at least 20 AMPS. Operator wattage is 1000.

3.03. FIELD QUALITY CONTROL
A. Test gate operator through ten full cycles and adjust for operation without binding, scraping or uneven motion. Test limit switches for proper "at rest" gate position.
B. All anchor bolts shall be fully concealed in the finished installation.
C. Owner, or owner’s representative, shall complete “punch list” with installing contractor prior to final acceptance of the installation and submit completed warranty documentation to manufacturer.

3.04. CONTINUED SERVICE AND DOCUMENTATION
A. Train owner's personnel on how to safely shut off electrical power, release and

manually operate the gate. Additionally, demonstrate the general maintenance of the gate operator and accessories and provide one copy of "Installation and Reference" manual for the owner's use (a second manual is available upon request). Manuals will identify parts of the equipment for future procurement. Direct maintenance personnel to HySecurity’s website, specifically the technical support sections.

SECTION 03010 CONCRETE WORK

PART 1 GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.

DESCRIPTION OF WORK:

Extent of concrete work shown on drawings.

Concrete paving and walks are specified in Division 2.

Precast concrete is specified in other Division 3 sections.

QUALITY ASSURANCE:

Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

ACI 301 "Specifications for Structural Concrete for Buildings".

ACI 318 "Building Code Requirements for Reinforced Concrete."

Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

Concrete Testing Service: The Owner shall employ a testing laboratory to perform material evaluation tests and to design concrete mixes.

Materials and installed work may require testing and retesting, as directed by Architect, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

SUBMITTALS:
Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry shake finish materials, and others as requested by Architect.

Shop Drawings; Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required at openings through concrete structures.

Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test as specified.

PART 2 PRODUCTS

FORM MATERIALS:
Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal framed plywood faced or other acceptable panel type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.

Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

Form Coatings: Provide commercial formulation form coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

REINFORCING MATERIALS:

Reinforcing Bars (Rebar): ANSI/ASTM A 615, Grade 60, deformed. No. 3 bars may be grade 40.

Welded Wire Fabric (WWF): ANSI/ASTM A 185, welded steel wire fabric.

Supports for Reinforcement: Provide brick bat supports for reinforcement for supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

For slabs on grade: Use Brick bats (1/2 of full brick) to support slab and beam reinforcing.

For exposed to view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 2).

CONCRETE MATERIALS:

Portland Cement: ANSI/ASTM C 150, Type I.

Use one brand of cement throughout project, unless otherwise acceptable to Architect.

Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

Water: Potable.

Moisture Barrier: Provide moisture barrier cover over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with ANSI/ASTM E 154, as follows:

Clear Polyethylene Sheet not less than 6 mils thick.

Chemical Hardener (ChHd Fn): Colorless aqueous solution containing a blend of magnesium flousilicate and zinc flousilicate combined with a wetting agent, containing not less than 2 lbs. of flousilicates per gal.

Non slip Aggregate Finish (NSAg Fn): Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non slip finish with emery aggregate containing not less than 40% aluminum oxide and not less than 25% ferric oxide. Use material that is factory graded, packaged, rust proof and non glazing, and is unaffected by freezing, moisture and cleaning materials.

Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

Moisture Retaining Cover: One of the following, complying with ANSI/ASTM C 171.

10 mil polyethylene vapor barrier (clear).

Liquid Membrane Forming Curing Compound: (Typical): ASTM C309 Type 1; approved by Asphalt and Vinyl Composition Tile Institute; 30% minimum solids content.

Products: offered by manufacturers to comply with the requirements for membrane forming curing compounds include the following:

"Klearseal:; Setcon Industries.
"Floor Coat"; The Eeuclid Chemical Corp.
"MB 429"; Master Builders
"Kure N Seal 800"; Sonneborn Contech.
"Klorkure 800"; Setcon Industries.
"Clear Seal 800"; W. R. Grace
"Dress and Seal"; L & M Construction Chemicals.
"Sealco 800"; Gifford Hill.

Note: Verify that selected product will not affect bonding of subsequent wall finishes or floor coverings.

PROPORTIONING AND DESIGN OF MIXES:
Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.

Design mixes to provide normal weight concrete with the following properties unless otherwise noted on the structural drawings, as indicated on drawings and schedules:

All concrete, except curb concrete, shall be flowable concrete comprised of:

1. Not less than 470# (5 sacks) of cement Type I per yard of concrete. (Unless water reducing agent is provided.)

2. Water reducer shall be used equal to WRDA No. 79, 20 oz. per yard by manufacturer by Grace Chemical.

3. Air 2% to 5 %.

4. 5" max. slump after additive placed in mix.

5. All concrete shall have a minimum compressive 28 day strength of 3,000 PSI. (Unless noted otherwise on construction drawings.)

Design Test cylinders and compression breaks of the above mix shall be submitted to the Architect/Engineer for approval. Should cylinders fail to meet specifications, the cement added shall be increased to satisfy the required strength.

Curb concrete shall be 4 sack per yard minimum cement factor and have a w/c maximum ratio of 0.65 with a minimum 28 day compressive strength of 2,500 PSI. Max slump shall be 3".

CONCRETE MIXES:

Ready Mix Concrete: Comply with requirements of ANSI/ASTM C 94, and as herein specified.
Addition of water to the batch will not be permitted.

During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C),reduce mixing and delivery time to 60 minutes. Ice or other means of cooling shall be added to mix should concrete exceed 95 deg. F.

Admixtures:

Use air entraining in all concrete, unless otherwise shown or indicated. Add air entraining admixture at the manufacturer's prescribed rate to result in concrete at point of placement having air content within the following limits: 2% to 5% air.
When air entrainment is used, reduce the maximum water content of the design mixes.

A water reducing additive such as Master Builders' Pozzolith or Gifford Hills' PSI shall be used for all concrete. Such shall be used in strict compliance with manufacturer's recommendations, such as to provide a flowable mix.

Use amounts of admixtures as recommended by the manufacturer for climate conditions prevailing at the time of placing. Adjust quantities of admixtures as required to maintain quality control. All such shall be subject to approval of the Engineer and Architect.

Calcium Chloride: Do not use calcium chloride in concrete, except as otherwise authorized in writing by the Architect. Do not use any admixtures containing calcium chloride where concrete is placed against any galvanized steel, post tension steel or in any mix using high early strength cement.

PART 3 EXECUTION

FORMS:
Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position. Use wood forming for the full surfaces of the exterior side of all grade beams.

Design formwork to be readily removable without impact, shock or damage to cast in place concrete surfaces and adjacent materials.
Construct forms to sizes shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

PLACING REINFORCEMENT:
Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support

reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

Chuting of concrete in excess of 25' (twenty five feet) of slab perimeter is not approved. "Pumping Placement" of all concrete shall be required of all foundation work beyond 25' (twenty five feet) of perimeter.

JOINTS:

Construction Joints: Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to Architect.

Provide keyways at least 1 1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

Joint sealant materials are specified in Division 7 sections of these specifications.

INSTALLATION OF EMBEDDED ITEMS:

General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast in place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike off templates or accepted compacting type screeds.

PREPARATION OF FORM SURFACES:
Coat contact surfaces of forms with a form coating compound before reinforcement is placed.

Thin form coating compounds only with thinning agent of type, and in amount, and under conditions of form coating compound manufacturer's directions. Do not allow excess form coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

CONCRETE PLACEMENT:
Contractor shall notify Architect's office 48 hours prior to placement of concrete for on-

site visual inspection by Structural Engineer.

Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

General: Comply with ACI 304and as herein specified.

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

Consolidate placed concrete by mechanical vibrating equipment supplemented by hand spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

Maintain reinforcing in proper position during concrete placement operations.

Cold Weather Placing: Place no concrete when temperature is less than 40 degrees F or 45 degrees F and falling.

Hot Weather Placing: When hot weather conditions exist that would seriously impair

quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

Cover reinforcing steel with water soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

Wet forms thoroughly before placing concrete.

FINISH OF FORMED SURFACES:

Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

Smooth Form Finish: For formed concrete surfaces exposed to view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting or other similar system. This is as cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment, not later than one day after form removal.

Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
Related Uniformed Surfaces: At tops of walls, horizontal offsets surfaces occurring 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.

MONOLITHIC SLAB FINISHES:
Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

After placing slabs, plane surface to a tolerance not exceeding 1/2" in 10' when tested with a 10' straightedge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms or rakes.

Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand bed terrazzo, and as otherwise indicated.

After screening, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power driven floats, or both. Consolidate

surface with power driven floats, or by hand floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/4" in 10' when tested with a 10' straight edge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed to view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thinfilm finish coating system.

After floating, begin first trowel finish operation using a power driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding

1/8" in 10' when tested with a 10' straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.

Non Slip Broom Finish: Apply non slip broom finish to exterior concrete platforms, steps and ramps, and elsewhere as indicated.

Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

Chemical Hardener Finish: Apply chemical hardener finish to interior concrete floors where indicated. Apply liquid chemical hardener after complete curing and drying of the concrete surface. Dilute liquid hardener with water, and apply in 3 coats; first coat, 1/3 strength; secondcoat, 1/2 strength; third coat, 2/3 strength. Evenly apply each coat, and allow 24 hours for drying between coats.

Apply proprietary chemical hardeners, in accordance with manufacturer's printed instructions.

After final coat of chemical hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

Non slip Aggregate Finish: Apply non slip aggregate finish to concrete stair treads, platforms, ramps, and elsewhere as indicated.

After completion of float finishing, and before starting trowel finish, uniformly spread 25 lbs. of dampened non slip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.

After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose non slip aggregate.

CONCRETE CURING AND PROTECTION:

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.

Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

Curing Methods: Perform curing of concrete by moist curing, by moisture retaining cover curing, by curing compound, and by combinations thereof, as herein specified.

Provide moisture curing by following methods.

Keep concrete surface continuously wet by covering with water.

Continuous water fog spray.

Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

Provide moisture cover curing as follows:
Cover concrete surfaces with moisture retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Provide curing compound to slab as follows:
Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas immediately after initial application. Maintain continuity of coating and repair damage during curing period. Apply 2 separate coatings of spray cure. Second coat shall be applied in a pattern at 90 deg. to the first coat.

Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to Architect.
Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing compound. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture retaining cover, unless otherwise directed.

REMOVAL OF FORMS:

Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F. (10 degrees C) for 24 hours after placing concrete, provided concrete is

sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of inplace concrete by testing field cured specimens representative of concrete location or members.

Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

RE USE OF FORMS:

Clean and repair surfaces of forms to be re used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

MISCELLANEOUS CONCRETE ITEMS:

Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in place construction. Provide other miscellaneous concrete filling shown or required to complete work.

Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

CONCRETE SURFACE REPAIRS:

Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

For exposed to view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.

Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non reinforced sections regardless of width, spalling, pop outs, honeycomb, rock pockets, and other objectionable conditions.

Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

Repair isolated random cracks and single holes not over 1" in diameter by dry pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry pack, consisting of one part portland cement to 2 1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

Use epoxy based mortar for structural repairs, where directed by Architect.
Repair methods not specified above may be used, subject to acceptance of Architect.

QUALITY CONTROL TESTING DURING CONSTRUCTION:
The Owner will employ a testing laboratory to perform other tests and to submit test reports.

Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.

Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

Slump: ASTM C 143; the first three trucks will be tested for adequate slump, and every fifth truck thereafter. Those trucks exceeding the maximum 5" slump WILL NOT BE ACCEPTED.

Compression Test Specimen: ASTM C 31; one set of 3 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field cure test specimens are required. All making and handling of test specimens shall be by Laboratory personnel.

Compressive Strength Tests: ASTM C 39; one set for each 50 cu. yds.or fraction thereof, of each concrete class placed in any one day for each 5,000 sq. ft. of surface area placed: 1 specimen tested at 7 days, 1 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive by more than 500 psi.

Test results will be reported in writing to Architect and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7 day tests and 28 day tests.

Additional Tests: The testing service will make additional tests of in place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

END OF SECTION 03010

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

SUMMARY

This section includes the following metal fabrications:
Swinging Gate
Knox Box

Miscellaneous framing and supports for the following:

Related Sections: The following sections contain requirements that relate to this section.

DEFINITIONS

SUBMITTALS:

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product Data: for products used in miscellaneous metal fabrications, including paint products and grout.

Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation by other sections.

Samples: representative of materials and finished products as may be requested by Architect.

QUALITY ASSURANCE

Fabricator Qualifications: Firm experienced in successfully producing metal fabrications similar to that indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.

Installer Qualifications: Arrange for installation of metal fabrications specified in this section by same firm that fabricated them.

Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel," D1.3 "Structural Welding Code - Sheet Steel", and D1.2 "Structural Welding Code - Aluminum."

Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

PROJECT CONDITIONS

Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work.

Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

PART 2 - PRODUCTS:

FERROUS METALS:

Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom form surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.

A. Structural-Steel Shapes: ASTM A 572 or ASTM A 992 (Fy=50 ksi)
B. Structural steel pipe: ASTM A53, standard weight (Schedule 40), black finish.
C. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500, GR B.
D. Plates, bars and angles: ASTM A36.
E. Anchor Rods, Bolts, Nuts: ASTM A 36.
F. Bolts, Nuts, and Washers: ASTM A 325, Type 1, high-strength heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers, uncoated.
G. Primer: Lead- and chromate-free, nonasphaltic, rust-inhibiting primer.

For exterior installations and where indicated, provide fabrications with hot-dip galvanized coating.

Uncoated Structural Steel Sheet: Product type (manufacturing method), quality, and grade, as follows:

A. Cold-Rolled Structural Steel Sheet: ASTM A 611, grade as follows:
B. Grade A, unless otherwise indicated or required by design loading.
C. Hot-Rolled Structural Steel Sheet: ASTM A 570, grade as follows:
D. Grade 30, unless otherwise indicated or required by design loading.

Uncoated Steel Sheet: Commercial quality, product type (method of manufacture) as follows:

A. Cold - Rolled Steel Sheet: ASTM A 366.
B. Hot - Rolled Steel Sheet: ASTM A 569

Galvanized Steel Sheet: Quality as follows:

A. Structural Quality: ASTM A 446; Grade A, unless another grade required for design loading, and G90 coating designation unless otherwise indicated.
B. Commercial Quality: ASTM A 526, G90 coating designation unless otherwise indicated.
C. Type S, Grade A standard weight (schedule 40), unless otherwise indicated, or another grade or weight or both required by structural loads.

Provide Hot Dipped Galvanized finish for exterior installations and where indicated.

Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

GROUT AND ANCHORING CEMENT

Non-shrink Nonmetallic Grout: ASTM C 1107; recommended by manufacturer for exterior applications.

Available Products: Subject to compliance with requirements, products that may be incorporated in the work include but are not limited to the following:

Products: Subject to compliance with requirements, provide one of the following:

Non-shrink Nonmetallic Grouts:

"Basal Construction Grout"; W. R. Bonsal Co.
"Euco N-S Grout"; Euclid Chemical Co.
"Kemset"; Chem-Masters Corp.
"Masterflow 713"; Master Builders.
"Sealtight 588 Grout"; W. R. Meadows, Inc.
"Sonogrout"; Sonneborn Building Products Div., Rexnord Chemical Products, Inc.
"Five Star Grout"; U. S. Grout Corp.
"Vibropruf #11"; Lambert Corp.

Fasteners:

General: Provide zinc coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

A. Bolts and Nuts: Regular Hexagon head type, ASTM A 307, Grade A.
B. Lag Bolts: Square head type, FS FF-B-561.
C. Machine Screws: Cadmium plated steel, FS FF-S-92.
D. Wood Screws: Flat head carbon steel, FS FF-W-92.
E. Plain Washers: Round, carbon steel, FS FF-W-92.
F. Drilled- In Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group VIII (anchors, expansion, (non-drilling), Type I(internally threaded tubular expansion anchor); and machine bolts complying with FS FF-B-575, Grade 5.
G. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class, and style as required.
H. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

Paint:

Shop Primer for Ferrous Metal: Manufacturer's or fabricator's standard, fast-curing,

lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure complying with performance requirements of FS TT-P-645.

Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD - P- 21035 or SSPC-Paint-20.

Bituminous Paint: Cold-applied asphalt mastic complying SSPC-Paint 12 except containing no asbestos fibers.

Zinc Chromate Primer: FS TT-P-645.

Fabrication:

Fabrication shop shall have a minimum of three years experience in the field of steel fabrication. Steel erector shall have same minimum experience.

Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.

Temperature Change (Range): 100 deg F (55.5 deg C).

General: Shear and punch metals cleanly and accurately. Remove burrs and ease exposed edges. Form bent-metal corners to smallest radius possible without impairing work.

Submit shop drawings of all structural steel members. Shop drawings shall include fabrication piece drawings and field erection drawings. Structural construction drawings shall not be photocopied and submitted. Contractor to provide electronic copies for engineering review.

Welding: Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. At exposed connections, finish welds and surfaces smooth with contour of welded surface matching those adjacent. Fabrication shop shall provide AWS welder certifications as requested by owner's engineer.

Fabricate loose lintels from steel angles. Loose lintel angles shall be hot dipped galvanized unless noted other wise.

Fabricate steel pipe columns with steel top plates drilled for connection bolts and welded to pipe with continuous fillet weld same size as pipe wall thickness.

1. Provide base plates as scheduled on construction documents.

Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

Provide for anchorage of type indicated, coordinated with supporting structure.

Fabricate and space anchoring devices to provide adequate support for intended use.

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. 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.

Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

ERECTION

Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack.

Fit exposed connections accurately together to form hairline joints.

All bolted moment conection shall have high strength bolts using “Turn-of-Nut” method according to RCSC’s specification structural joints using ASTM A325 or A490 Bolts and AISC “Manual of Steel Construction”.

A qualified independent inspector shall be hired by the contractor to provide inspection of all bolted and welded connections.

Tubular Double Swinging Gate:
Hoover Fence Company; Model No. HCG-Z-4X24DB-KIT-A with Industrial Box/Butt Hinges

Knox Box: Provide Knox Box Model 3255 with Model 3240 Backbox at each access point to be located by Fire Department.

END OF SECTION 05500

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:
Extent of each form and type of joint sealer is indicated on drawings and by provisions of this section.

Refer to Division 8 sections glazing requirements; not work of this section.

Refer to sections of Division 15 and 16 for joint sealers in mechanical and electrical work; not work of this section.

General Performance: Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

SUBMITTALS:
Product Data: Submit manufacturer's product specifications, handling/installation/curing instructions, and performance tested data sheets for each elastomeric product required.

JOB CONDITIONS:
Weather Conditions: Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

PART 2 - PRODUCTS

MATERIALS:
General Sealer Requirements: Provide colors indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors. Select materials for compatibility with joint surfaces and other indicated exposures, and except as otherwise indicated select modules of elasticity and hardness or grade recommended by manufacturer for each application indicated. Where exposed to foot traffic, select non-tracking materials of sufficient strength and hardness to withstand stiletto heel traffic without damage or deterioration of sealer system.

Sealant: (with expansion and compression capability of plus or minus 50%).
Silpruf Silicone weatherproofing sealant: General Electric
790 Building Sealant: Down Corning

Caulking:
NP -2 Sonneborn. Polyurethane
Install at all locations where notes as "caulk" or required to provide a neat joint.

Expansion Joint Sealer:
ACMA Seal: ACME Highway Products Corp., Buffalo, N.Y. 14207

System: Series “J”, Style No. 2-602, 1-3/4" wide x 2" high.
Install with manufacturer’s ACMA Lubricant Adhesive.

Wall Penetration Sealant:
FireBarrier Silicone Sealant - 3M™ Fire Barrier Silicone Sealant 2000+ or approve equal.
Fire Barrier Foam Sealant - 3M™ Fire Barrier Rated Foam FIP 1-Step or approve equal.

Foam Joint Filters:
Expanded Polyethylene Joint Filler (ExPe -JF): Provide flexible, compressible, closed - cell, polyethylene of not less than 10 psi compression deflection (25%) except provide higher compression deflection strength as may be necessary to withstand installation forces and provide proper support for sealants; surface water absorption of not more than 0.1 lbs. per sq. ft.

MISCELLANEOUS MATERIALS:
Sealant backer Rod (S -Br): Provide compressible rod stock of polyethylene foam, polyurethane foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable non-absorptive material as recommended by sealant manufacturer for backup of an compatibility with sealant. Where used with hot -applied sealant, provide heat -resistant type which will not be deteriorated by sealant application temperature as indicated.

PART 3 - EXECUTION

INSPECTION:
Installer must examine substrates, (joint surfaces) and conditions under which joint sealer work is to be performed, and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

JOINT PREPARATION:
Clean joint surfaces immediately before installation of gaskets, sealant or caulking compounds. Remove dirt, insecure coatings, moisture and other substances which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry join surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
INSTALLATION:
Install at exterior doors, glass frames (both interior and exterior of frames), exterior louvers, windows, exterior joints in walls and other locations where indicated or required to provide weather tight joints. Indicated for floor or wall assembly in which penetration occurs.

Install in accordance with manufacturer's recommendations.
Produce beads of proper width and depth.
Tool as recommended by manufacturer.
Remove surplus materials.

Study drawings and furnish and install proper materials at each point where called for on the drawings plus all other points essential to continued integrity of the watertight barrier.

CURE AND PROTECTION

Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise the Contractor of procedures required for cure and protection of joint sealer during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion. Cure and protect sealants in a manner which will minimize increases in modules of elasticity and other accelerated aging effects. Replace or restore sealant which are damaged or deteriorated during construction period.

END OF SECTION 07900

SECTION 260010 - SUMMARY OF ELECTRICAL WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1 Specification Sections and other Division 26 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The following Summary of Work is intended as an aid to achieve an understanding of the various elements of work included in the project, as is not intended to be all-inclusive. Detailed descriptions of work and requirements are given in drawings and specifications.

B. Scope of Work:

1. General: The "IDEA Tres Lagos Campus Fencing" consists of an existing single-story building. This building will generally be operated from 7:00am to 6:00pm. (Monday through Friday) with occasional after hours and weekends use.
2. Electrical: Provide all materials and labor associated with complete operational electrical distribution system. Major items of work include, but are not limited to:

   (a) Electrical service: Connect to existing panelboard(s).

   (b) Power Systems: Provide power for gates equipment.

   (c) Gate Access System: Remove existing system and provide new as noted on drawings.

1.3 ALLOWANCES

A. Electrical: See Division 1 for electrical allowances.

1.4 COORDINATION

A. All electrical work shall be done under sub-contract to a General Contractor, who ultimately responsible for the entire project. Electrical Contractor shall coordinate all work through General Contractor, even in areas where only electrical work is to take place.

B. All questions, requests for information, submittals, and correspondence from the Electrical Contractor shall be submitted via the General Contractor, who will forward to the Architect, who will then forward to the Engineer.

C. Electrical Contractor shall not make any changes to design without written authorization from the Engineer. If changes are requested by the Owner, Architect, General Contractor, Suppliers, Manufacturers, or any others, Contractor should issue a written RFI for response by the Engineer.

D. Electrical Contractor shall issue seven (7) days written notice prior to any activities that require the presence of the Engineer at the job-site. This applies to all inspections required by specifications, and particularly to those where work will be covered (underground raceways, electrical raceways above ceiling).

E. Cooperate fully with other contractors so that work under those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

F. Fully coordinate with Gate Contractor for providing power to equipment.

G. Issue written notification of the following tasks and allow five (5) days for Engineer to respond and schedule an inspection as required:

1. Upon completion of underground raceways installation and prior to covering up.
2. Upon completion of installing all raceways, labeling all j-boxes and prior to suspended ceiling installation.
3. Upon completion of pulling all wiring, making all terminations, labeling and color-coding wires at the panelboards and prior to installing their covers.
4. When ready to request manufacturer's start-up of each piece of equipment.
5. When ready to conduct complete Gate Access demonstration.
6. When ready for Substantial Completion Inspection.
7. When ready for Final Inspection.

Failure to issue written notification may result in work having to be redone to allow for proper inspection. It is this contractor's responsibility to make sure Engineer receives notification.

1.5 UTILITIES

1. Coordinate with power, water, telephone, cable and gas utilities to locate all utilities prior to digging in any area.
2. Obtain any approvals required from utilities to relocate utilities.
3. Cost of relocating or bypassing utilities indicated on drawings shall be included in Base Bid.
4. Coordinate with utility for electrical service. Base bid shall include all costs associated with service connection, including permit fees.

1.6 CONTRACTOR USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: Allow for Owner occupancy and use by the public.
2. Driveways and Entrances: Keep driveways and entrances serving the premises, clear and available to the Owner, the Owner's employees, and emergency vehicles at all time. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Site Safety: Take every precaution to ensure the site does not present a threat to the safety of occupants and/or workers. Minimal safety requirements include, but are not limited to the following:

1. Temporary fencing around construction areas.
2. Yellow caution tape and construction barricades along open trenches during the day. Trenches shall be covered at night and warning lights provided on construction barricades.
3. Temporary fencing around equipment while site work is in progress.

C. Work shall take place with minimal disruption to Owner's operations in areas surrounding the job site.

1.7 SUBMITTALS - Special Requirements

A. All submittals need to comply with submittal requirements as outlined on this Pre-Construction Meeting Agenda & specifications.

B. Plumbing, Mechanical & Electrical Submittals shall be submitted electronically. Please organize the files as noted below (Native PDF format & searchable format). Files would need to be properly identified (cover letter, stamped, etc.) from the general contractor.

C. All submittals to be separated by sections and identified by section #s, in native and searchable pdf format. All selections/markings or highlighting made on the submittal shall be specific for project requirements and exactly for what the Contractor is intending to provide on the project. If submittal does not specify as to which model/options will be used by highlighting or marking the submittal, then submittal will be returned as rejected.

D. Manufacturer's standard dimensioned drawings, performance and product data shall be edited to delete reference to equipment, features, or information which is not applicable to the equipment being supplied for this project. Including Bill or List of Materials.

E. Individual submittals shall not be reviewed until a complete package is received.

F. Allow two weeks for initial review by Engineer, from the day it is received.

G. After released by GC, Subcontractor shall have one week to respond to our submittal/re-submittal review comments.

H. Allow one week for review of resubmittals by Engineer, from the day it is received.

I. All submittal review comments shall be forwarded by Engineer to Architect, who will then distribute as per Division 1.

J. Provide detailed coordination drawings showing how mechanical, electrical & plumbing system components will be installed in coordination with work by others. Engineer’s drawing files will be made available to Contractor for producing coordination and as-built drawings upon request.

1. Miscellaneous Electrical – Submittal #1

a. 260519 Low-Voltage Electrical Power Conductors and Cables
b. 260526 Grounding and Bonding for Electrical Systems
c. 260529 Hangers and Supports for Electrical Systems
d. 260533 Raceways and Boxes for Electrical Systems
e. 260553 Identification for Electrical Systems
f. 269740 Aiphone Access Control System
g. 269750 Voice and Data Communication Cabling Equipment

1.8 SCHEDULE OF VALUES -Special Requirements

A. Electrical Contractor shall submit a Schedule of Values reflecting the total value of Electrical Work in the Contract and broken down into the following items as a minimum, with a line item for Materials/Equipment and another for Labor.

ELECTRICAL

1. Raceways including wiring.
2. Gate Access System
3. Allowances.
4. Miscellaneous.
5. Administrative and project management.

1.9 CODE COMPLIANCE:

The design for this project is based on:

1. Occupational Safety and Health Act (OSHA)
2. National Electric Code (NEC)
3. National Fire Code
4. International Building Code
5. UL 916
6. Local ordinances

END OF SECTION 260010

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member Company of NETA or an NRTL.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturer:

1. Senator Wire & Cable Company.
2. Southwire Company.
3. Encore Wire

B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN/THWN-2, Type XHHW-2 and Type SO.

D. Multiconductor Cable: Comply with UL 1569 and NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC with ground wire.

2.2 CONNECTORS AND SPLICES

A. Manufacturers:

1. AFC Cable Systems, Inc.
2. AMP Incorporated/Tyco International.
3. Hubbell/Anderson.
4. O-Z/Gedney; EGS Electrical Group LLC.
5. 3M Company; Electrical Products Division.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Branch Circuits: Type THHN/THWN-2, single conductors in raceway.

B. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway.

C. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and underground: Type THHN/THWN-2, single conductors in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, which will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

A. As-Built Data: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article.

B. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section "Operation and Maintenance Data," include the following:

a. Instructions for periodic testing and inspection of grounding features at ground rings and grounding connections for separately derived systems based on and NFPA 70B.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Branch circuits.
2. Receptacle circuits.
3. Single-phase motor and appliance branch circuits.
4. Three-phase motor and appliance branch circuits.
5. Flexible raceway runs.
6. Metal-clad cable runs.
7. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the panel to equipment grounding bar terminal on busway.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
4. .

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

B. Grounding system will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

D. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
5. Manhole Grounds: 10 ohms.

E. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

a. Hangers.
b. Steel slotted support systems.
c. Nonmetallic support systems.
d. Trapeze hangers.
e. Clamps.
f. Turnbuckles.
g. Sockets.
h. Eye nuts.
i. Saddles.
j. Brackets.

2. Include rated capacities and furnished specialties and accessories.

B. Shop Drawings: For fabrication and installation details for electrical hangers and support systems.

1. Trapeze hangers. Include product data for components.
2. Steel slotted-channel systems.
3. Nonmetallic slotted-channel systems.
4. Equipment supports.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Suspended ceiling components.
2. Structural members to which hangers and supports will be attached.
3. Size and location of initial access modules for acoustical tile.
4. Items penetrating finished ceiling, including the following:

a. Lighting fixtures.
b. Air outlets and inlets.
c. Speakers.
d. Sprinklers.
e. Access panels.
f. Projectors.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M.
2. AWS D1.2/D1.2M.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame Rating: Class 1.
2. Self-extinguishing according to ASTM D 635.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4 factory-fabricated components for field assembly.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allied Tube & Conduit.
b. Cooper B-Line, Inc.; a division of Cooper Industries.
c. ERICO International Corporation.

d. GS Metals Corp.
e. Thomas & Betts Corporation.
f. Unistrut; Tyco International, Ltd.
g. Wesanco, Inc.

2. Material: Plain steel.
3. Channel Width: 1-1/4 inches.
4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
8. Channel Dimensions: Selected for applicable load criteria.

B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.

E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1) Hilti Inc.
      2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      3) MKT Fastening, LLC.
      4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1) Cooper B-Line, Inc.; a division of Cooper Industries.
      2) Empire Tool and Manufacturing Co., Inc.
      3) Hilti Inc.
      4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.

5) MKT Fastening, LLC

3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
   a. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
   b. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
   c. Toggle Bolts: All-steel springhead type.
   d. Hanger Rods: Threaded steel.
   e. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
   f. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
   g. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
   h. Toggle Bolts: All-steel springhead type.
   i. Hanger Rods: Threaded steel

2.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems unless requirements in this Section are stricter.

B. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMTs and RMCs as scheduled in NECA 1, where its Table 1 lists maximum spacings that are less than those stated in] NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

   1. Secure raceways and cables to these supports with two-bolt conduit clamps.

E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMTs, and RMCs may be supported by openings through structure members, according to NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Spring-tension clamps.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Architectural Section "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touchup: Comply with requirements in Sections "Exterior Painting", "Interior Painting" and "High-Performance Coatings" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

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

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Boxes, enclosures, and cabinets.
6. Handholes and boxes for exterior underground cabling.

1.3 DEFINITIONS

A. GRC: Galvanized rigid steel conduit.

B. IMC: Intermediate metal conduit.

C. EMT: Electrical metallic tubing.

D. FMC: Flexible metal conduit.

E. LFMC: Liquidtight flexible metal conduit.

F. LFNC: Liquidtight flexible nonmetallic conduit.

G. RNC: Rigid nonmetallic conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For raceways, wireways and fittings, hinged-cover enclosures, and cabinets.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of conduit groups with common supports.

2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

B. Source quality-control reports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

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

1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Co.
6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z Gedney; a unit of General Signal.
9. Wheatland Tube Company.
10. Hylsa

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. GRC: Comply with ANSI C80.1 and UL 6.

D. EMT: Comply with ANSI C80.3 and UL 797.

E. FMC: Comply with UL 1; zinc-coated steel.

F. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
2. Fittings for EMT:

a. Material: Steel (Zinc is not acceptable).
b. Type: set-screw.

3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

H. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

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

1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
5. CertainTeed Corp.; Pipe & Plastics Group.
6. Condux International, Inc.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. RNC: Type EPC-40-PVCcomplying with NEMA TC 2 and UL 651 unless otherwise indicated.

D. LFNC: Comply with UL 1660.

E. RTRC: Comply with UL 1684A and NEMA TC 14.

F. Fittings for and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

G. Fittings for LFNC: Comply with UL 514B.

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

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

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Hinged type unless otherwise indicated.

E. Finish: Manufacturer's standard enamel finish.

2.4 BOXES, ENCLOSURES, AND CABINETS

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

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Spring City Electrical Manufacturing Company.
10. Thomas & Betts Corporation.
11. Walker Systems, Inc.; Wiremold Company (The).

B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

G. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

H. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.

I. Gangable boxes are allowed as along is permitted by the NEC.

J. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 for indoor applications and Type 3R (stainless steel) outdoor with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Fiberglass.
3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

K. Cabinets:

1. NEMA 250, Type 1, Type 3R galvanized-steel or 4XSS box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

a. Armorcast Products Company.
b. Carson Industries LLC.
c. CDR Systems Corporation.
d. NewBasis.

3. Standard: Comply with SCTE 77.
4. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
5. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
6. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
7. Cover Legend: Molded lettering, "ELECTRIC".
8. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
9. Handholes 18 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.6 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC.
3. Underground Conduit: RNC, Type EPC-40-PVC.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R or Type 4SS as noted on plans.

B. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:

    a. Loading dock.
    b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    c. Mechanical rooms.
    d. Gymnasiums.

3. Concealed in Ceilings and Interior Walls and Partitions: EMT
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
5. Damp or Wet Locations: GRC.
6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.

C. Minimum Raceway Size: 1/2-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. EMT: Use setscrew steel fittings. Comply with NEMA FB 2.10.
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

K. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

L. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

M. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

N. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

O. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

P. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

Q. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

R. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

S. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

T. Expansion-Joint Fittings:

1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet. Install in each run of aboveground RMC conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:

    a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
    b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
    c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.

d. Attics: 135 deg F.

3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

U. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

V. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

W. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

X. Locate boxes so that cover or plate will not span different building finishes.

Y. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

Z. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 3 for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 3."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 3."
4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.

5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduits but a minimum of 6 inches below grade. Align planks along centerline of conduit.
7. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line, below grade.

E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.

F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls.
2. Grout.
3. Silicone sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. PVC-Pipe Sleeves: ASTM D 1785, Schedule 40.

D. Molded-PVC Sleeves: With nailing flange for attaching to wooden forms.

E. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

F. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.

2. Minimum Metal Thickness:

    a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
    b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.3 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Sealant shall have VOC content of 150 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
3. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

    a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 079200 "Joint Sealants."
    b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

F. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

END OF SECTION 260544

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

C. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical- resistant, self-laminating, protective shield over the legend. Labels sized to fit the cable diameter such that the clear shield overlaps the entire printed legend.

D. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tube with machine-printed identification label. Sized to suit diameter of and shrinks to fit firmly around cable it identifies. Full shrink recovery at a maximum of 200 deg F. Comply with UL 224.

E. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of cable it identifies and to stay in place by gripping action.

F. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of cable it identifies and to stay in place by gripping action.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical- resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

C. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tube with machine-printed identification label. Sized to suit diameter of and shrinks to fit firmly around conductor it identifies. Full shrink recovery at a maximum of 200 deg F. Comply with UL 224.

D. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape with adhesive appropriate to the location and substrate.

F. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

G. Underground-Line Detectable Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

H. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Install labels at 30-foot maximum intervals.

B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Power.
2. Security System
3. Telecommunication System.
4. Control Wiring.

C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the

phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.

    a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
    b. Colors for 208/120-V Circuits:

        1) Phase A: Black.
        2) Phase B: Red.
        3) Phase C: Blue.

    c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

E. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use write-on tags with the conductor or cable designation, origin, and destination.

F. Control-Circuit Conductor Termination Identification: For identification at terminations provide heat-shrink preprinted tubes with the conductor designation.

G. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

H. Locations of Underground Lines: Identify with underground-line detectable warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

1. Equipment to Be Labeled:

a. Panelboards, electrical cabinets, and enclosures.
b. Access doors and panels for concealed electrical items.
c. Intercommunication and call system master and staff stations.
d. Fire-alarm control panel and annunciators.
e. Security and intrusion-detection control stations, control panels, terminal cabinets, and racks.
f. Terminals, racks, and patch panels for voice and data communication and for signal and control functions.

3.3 INSTALLATION

Verify the identity of each item before installing identification products.

END OF SECTION 260553

SECTION 269740 – AIPHONE ACCESS CONTROL SYSTEM

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. The requirements of the General Conditions, Supplementary Conditions, Division 0-28, and Drawings apply to all Work herein.

B. Requirements of the following Division 0-28 Sections apply to this section:
1. Grounding and Bonding for Electrical Systems - Section 260526
2. Hangers and Supports for Electrical Systems - Section 260529
3. Raceway and Boxes for Electrical Systems- Section 260533
4. Identification for Electrical Systems – Section 260553
5. Voice and Data Communications Cabling Equipment - Section 269750

1.2 WORK INCLUDED

A. Install a new video access/intercom system at the front entrance and controlled at the main office where noted on the Drawings. Contractor shall provide and install a turnkey Aiphone IX Series System, video intercom devices, cabling, and programming at main mechanical gate entrances. Contractor shall ensure a fully functional video intercom system. System shall be based on AIPHONE equipment. The installation contractor shall be licensed by the State of Texas as a security service contractor. The installation contractor shall be a verifiable AIPHONE Dealer. Technicians shall be Bosch/Radionics and AIPHONE trained and certified in the various applications necessary.

1.3 CODES AND STANDARDS

A. The system shall comply with the applicable Codes and Standards as follows:

1. National Electric Code, Article 760.
2. National Fire Alarm Code (NFPA 72).
3. Life Safety Code (NFPA 101)
4. Administrative Council for Terminal Attachments (ACTA):
5. ANSI/TIA-968-A-2002 Technical Requirements for Connection of Terminal Equipment to the Telephone Network.
6. American National Standards Institute (ANSI):
    a. ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low- Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
7. Fire Marshal (FM):
    a. Title XX, Texas Code of Regulations, Building Material Listing Program (BML).
8. Federal Communications Commission (FCC):
    a. Title 47 C.F.R. Part 15; Class B – Radiated and Conducted Emissions.
    b. Title 47 C.F.R. Part 68; rules governing the connection of Terminal Equipment

(TE) to the Public Switched Telephone Network (PSTN).

9. The National Institute of Standards and Technology of the United States of America (NIST):
    a. Federal Information Processing Standards Publications 197 (FIPS 197) – Advanced Encryption Standard (AES).

10. International Organization For Standardization (ISO):
    a. 9001 - Quality System.

11. Underwriters Laboratories, Inc. (UL):
    a. UL 50 - Enclosures for Electrical Equipment.
    b. UL 294 – Access Control System Units.
    c. UL 365 - Police Station Connected Burglar Alarm Units and Systems.
    d. UL 609 - Local Burglar Alarm Units and Systems.
    e. UL 864 - Control Units System for Fire-Protective Signaling System.
    f. UL 985 - Household Fire Warning System Units.
    g. UL 1023 - Household Burglar Alarm System Units.
    h. UL 1076 – Proprietary Burglar Alarm Units and Systems
    i. UL 1610 - Central Station Burglar-Alarm Units.
    j. UL 60950-1 - Information Technology Equipment - Safety.
    k. UL 636 – Hold up alarms

12. Local & State Building Codes
13. Requirements of Local Authorities having Jurisdiction
14. Requirements of American Disabilities Act (Public law 101-336).
15. Texas Accessibility Standards (T.A.S.)
16. State Fire Marshall.
17. Texas Insurance Code.

PART 2 - PRODUCTS

NOTE: Contractor shall ensure all video intercom systems, devices, and related equipment used on project, shall not exceed a 60-day lead time. All substitutions must have documented approval by owner and technology consultant prior to installation.

2.1 ACCEPTABLE MANUFACTURERS AND INSTALLERS

A. Acceptable Manufacturer: AIPHONE IX Series.

2.2 SYSTEM MODULES / COMPONENTS

B. AIPHONE Model IX-MV master monitor with color display.

C. AIPHONE Model IX Central Exchange Unit

D. AIPHONE Model IX-DVF-P surface mounted, vandal resistant call station with color camera.

E. AIPHONE RY-IP44 IP Input/output door release relay

F. AIPHONE SBX- IDVFRA Surface mount box

G. Any and all accessories necessary for a complete operable system.

H. Provide wiring interface between access system and electric locks and panic hardware provided under other Specification Sections.

I. Contractor shall program and integrate video intercom system to the unified user platform software:

Session Initiation Protocol (SIP) Communication Management (CM)

1. An operator of the USP shall be able to, within the USP Monitoring UI, initiate calls to and answer calls from other operator and edge voice devices such as intercoms, emergency call stations, information desks, softphones, or phone devices.
2. The USP shall support CM between the USP client User Interface and SIP endpoint devices.
3. SIP endpoints shall be able to register to the USP using a standard SIP protocol.
4. The USP shall support CM between two SIP endpoint devices.
5. The USP shall allow the configuration of SIP trunk connections to multiple SIP Servers supporting SIP Trunks.
6. The CM shall support the management of calls to and from other SIP Servers connected though SIP Trunks.
7. The USP shall support the configuration of paging zones for pre-recorded and live message announcements.
8. The CM is a service of the USP and shall not require the addition of any third-party software.
9. The CM shall support the following video codecs:
    a. H.264
    b. H.263
    c. H.263+ (1998)

10. The CM shall support the following audio codecs:
    a. PCMA (G.711 aLaw)
    b. PCMU (G.711 uLaw)
    c. G.722
    d. G.729
    e. iLBC
    f. GSM
    g. telephone event
    h. Speex (Narrowband)
    i. Speex (Wideband)
    j. Speex (Ultrawideband)
    k. L.16
    l. L.16-44-1

m. G.728
n. G.726-16
o. G.726-24
p. G.726-32
q. G.723
r. G.726-40

11. The CM shall certify SIP devices from the following manufacturers:
    a. 2N Telekomunikace
    b. Algo
    c. Aiphone
    d. Axis
    e. Baudisch
    f. Castel
    g. Cisco
    h. Code Blue
    i. Commend
    j. EMCOM
    k. Grandstream networks
    l. Jacques
    m. Mobotix
    n. Siedle
    o. TalkaPhone
    p. TOA Corporation
    q. Valcom
    r. Vingtor-Stentofon
    s. Zenitel
    t. Intelbras

12. The CM shall allow bidirectional audio and video recording of call sessions. The USP shall offer the following recording capabilities:
    a. Automatic cleanup of call session files after a programmable number of days.
    b. Deactivation of call recording between operators.
    c. Deactivation of call recording with specific operators.
    d. Deactivation of call recording with specific voice devices.
    e. Selection of the storage path for call session recordings.

13. The CM shall provide the capability to reach a physical location identified by its own extension number regardless of the user connected to the USP.
14. The CM shall provide the flexibility for the administrator to define the network ports used to communicate between the USP servers and the following:
    a. USP Operator Client User Interfaces
    b. SIP devices
    c. SIP servers

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install materials and devices at locations noted on plans.
B. Comply with manufacturer's written instructions.

3.2 CABLE PATHWAYS

C. Cable Support:
   1. Should follow Division 260529 Hanger and Supports for Electrical Systems.

D. Conduit / Raceway:
   1. Should follow Division 260533 Raceways and Boxes for Electrical Systems.

3.3 WARRANTY

A. Entire system shall be warranted against defects in materials and workmanship for a period of one (1) year from the date of substantial completion.

3.4 SHOP DRAWINGS / RECORDS / TESTING

A. Contractor shall provide shop drawing noting all equipment to be provided Also provide system wiring diagram showing each device and wiring connection. As built drawings shall be provided after construction with actual locations of devices, cable routing, power supply locations and any other equipment locations. Refer to Division 26 for additional shop drawing requirements.

B. Upon completion of system testing in order to confirm proper operation, contractor shall demonstrate operation of the system to an IDEA representative and perform any test or function requested.

END OF SECTION 282316

SECTION 269750 VOICE AND DATA COMMUNICATION CABLING

PART 1 - GENERAL REQUIREMENTS

The primary scope of work is to provide a complete, "turn-key" structured cable infrastructure for the Aiphone Access Control System. All cabling, copper, and fiber optic must be plenum rated. Vendor is responsible for old cable removal when needed.

1.1 Active network equipment (switches) to be procured, installed, and configured by IDEA IT Department. Infrastructure components including but not limited to patch cables, patch panels, fiber distribution panels, pig tails etc., to be provided and installed by contractor.

1.2 WORK INCLUDES

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

B. Communication Systems complete including cabling, special backboxes, hardware and all other required devices and equipment.

C. Installation of system equipment per specifications.

D. To supply in a timely manner to the electrical contractor special backboxes for installation as required.

E. Coordinate wireway, raceway, power, and outlet requirements with the builder and the electrical contractor.

F. Communication Systems Contractors shall provide and install prior to cable installation plastic snap in bushings at each box opening, passage through a metal stud, and at the end of all open conduit stubs or sleeves to protect the cabling from damage.

G. Furnishing of all required materials, equipment, tools, scaffolding, labor, and transportation necessary for the complete installation of the communication systems as shown on the drawings and as specified herein.

H. Cable pathways, conduit, and cable support systems shall be complete with bushings, de-burred, cleaned, and secure prior to installation of cable.

I. It is the intent of these specifications to provide complete installations although every item necessary may not be specifically mentioned or shown.

1.3 WORK TO BE INCLUDED BY THE ELECTRICAL CONTRACTOR IN BASE CONTRACT PROPOSAL

A. Provide utility services conduit as outlined on drawings as required.

B. All required conduit for accessibility to attic space.

C. Furnishing and installation of all required standard back boxes and conduit.

D. Furnishing and installation of all raceways, and other wireways which are detailed or specified under Division 26.

E. Provide equipment grounding system.

F. Provide 120-volt power and hook-up to equipment.

1.4 SUBMITTALS

A. Product Data: Include data on features, ratings, and performance for each component specified.

B. Shop Drawings: Include dimensioned plan and elevation views of components. Show access and workspace requirements.

1. System labeling schedules, including electronic copy of labeling schedules, as specified in Part 3, in software and format selected by Owner.
2. Fiber pathways and interconnects.
3. Total cable drop counts per IT closet (MDF/IDF) assignment
4. Cable drop counts per purpose.

C. Product Certificates: Signed by manufacturers of cables, connectors, and terminal equipment certifying that products furnished comply with requirements.

D. Qualification Data: For firms and persons specified in "Quality Assurance" Article. Provide evidence of Current COMMSCOPE certification. Contractor shall be certified under manufacture before bid date.

E. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

F. Maintenance Data: For products to include in maintenance manuals specified in Division 1 found in Construction Specs document.

G. Submittal procedures shall be per Division 1 - General Requirements.

H. Provide a complete submittal for each section as specified.

I. Equipment is not to be ordered without approval. Partial submittals are not acceptable for review. Each submittal shall include a dated transmittal.

J. Submittal shall be electronically transmitted in PDF file format.

K. Each Product data submittal shall include:
1. A cover sheet with the name and location of the project, the name, address, and telephone number of the Contractor, and the name, address, and telephone number of the submitting sub-contractor. Include on or after the cover sheet sufficient space for review stamps.

2. An indication of any deviations from Contract Document requirements, including variations and limitations. Show any revisions to equipment layout required by use of selected equipment.
3. A product data index and complete equipment list including for each product submitted for approval the manufactures name and part number, including options and selections.
4. Cut-sheets or catalog data illustrating the physical appearance, size, function, compatibility, standards compliance, and other relevant characteristics of each product on the equipment list. Indicate by prominent notation (an arrow, circle, or other means) on each sheet the exact product and options being submitted.
5. Submit design data, when the scope of work requires, including calculations, schematics, risers, sequences, or other data.
6. When the contract requires extended product warranties, submit a sample of warranty language.
7. Any resubmittal shall include a complete revised equipment list and any product data that is revised.

L. Submit shop or coordination drawings, when specified or the required for the scope of work, which include information that will allow to the Contractor to coordinate interdisciplinary work and when necessary, guide the manufacturer or fabricator in producing the product. Shop or coordination drawings shall be specifically prepared to illustrate the submitted portion of work, this may require diagrams, schedules, details, and accurate to scale equipment and device layouts prepared using a CAD or BIM engineering drawing program.

M. The Engineer's review of submittals is only for confirmation of adherence to design of project and does not relieve the Contractor of final responsibility for furnishing all materials required for a complete working system and in complying with the Contract Documents in all respects.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Proposed contractors who do not currently possess the necessary qualifications, trained and experienced personnel, financial capacity, and meet the other requirements herein described will be disqualified.
2. Contractor shall have installed similar systems in at least (5) other projects in the last five years prior to this bid and be regularly engaged in the business of installation of the types of systems specified in this document. Contractor shall provide information on prior pro- jects including, but no limited to: items such as name and location of project contacts and numbers, total square footage, total number of cables/drops, types of media, etc
3. Recently formed companies are acceptable only if specific pre-approval is requested, and granted by the Architect/Engineer, based on experience of key personnel, current and completed projects, and all licensing requirements are met 10 working days prior to the contract proposal date.
4. The proposed contractor shall have an office within 150-miles of the job site, staffed with trained technicians who are qualified and licensed to supervise the installation, to be responsible that the system is installed as submitted, to conduct system start up and perform a 100 percent operational audit of all installed devices, to instruct the Owners representatives in the proper operation of the system, and to provide service throughout

the warranty period. The contractor shall be capable of dispatching technicians to repair a system within six hours of a service request.

5. The proposed contractor shall be fully experienced in the design and installation of the type of system herein specified and shall furnish with the contract proposal an itemized list of the installations of the type specified herein. The list shall include the name of the project, date of completion, the amount of the contract, the name, and telephone number of a qualified person to contact for reference. This list must contain at least two (2) projects within a 150-mile radius of the proposed project to allow owner's officials to visit the job site for review of the system installation and service. Each reference project listed must utilize equipment by the same manufacturer as the proposed system.
6. An experienced installer who is a registered communication distribution designer certified by the Building Industry Consulting Service International.
7. The Contractor (Company) shall have a minimum of two full time employees' who have completed the Manufacturers Certification for the submitted product(s). Copies of Certification shall be included in the submittals.
8. The head installer should be a Registered Communication Distribution Designer (RCDD) and should follow all BICSI recommendations for Telecommunication Infrastructure Copper and Fiber installations.
9. The Contractor (Company) must be able to prove to the satisfaction of the Owner/Engineer that it has significant experience in the installation of fiber optics cable systems and communication systems. Installation must include installation of fiber optics cable, fiber termination, a knowledge of interconnect equipment, and a thorough knowledge of testing procedures.
10. The Contractor (company) shall provide current CommScope certification before bid date.
11. The Contractor shall not sub any portion of the scope of work. This scope shall be performed and certified by contractor awarded.
12. The ability of a proposed contractor to obtain plans and provide a performance bond shall not be regarded as the sole qualification of the contractors' competency and responsibility to meet the requirements and obligations of the contract.
13. The Builder shall be satisfied that a proposed Contractor meets all the requirements expressed herein before including the Contractor's proposal in the project.
14. The Owner may investigate, as they deem necessary to determine the ability of the proposed Contractor to perform the work. The proposed contractor shall furnish to the Owner with any information or data requested for this purpose.
15. The Owner reserves the right to reject any contract proposal if the evidence submitted, or their investigation, fails to indicate that the Contractor is qualified to fulfill of any part of the contract or to complete the work contemplated therein.
16. The Owner reserves the right to reject the proposal of any contractor who has previously failed to perform properly, or complete on time, contracts of a similar nature.

B. Codes: Comply with applicable sections of the following for interior and exterior installations. Ensure you are using the latest and most current standards and regulations applicable.

1. International Building Code (IBC)
2. National Electrical Code (NEC/NFPA 70, 101, 2002)
3. National Electrical Safety Code (NES IEEE C2-1997)
4. IEEE Std. 1100-1999 Recommended Practice for Powering and Grounding Sensitive Electronic.

5. IEEE-SA 802.3, 803.11, and 803.16 series Standards for Ethernet, PoE, and Wi-Fi Information Technology.
6. Local Codes, amendments, and ordinances.
7. ANSI/TIA Standards, current revisions of 568, 569, 606, 607, 1152 standards

C. Comply with NFPA 70.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for in- tended use.

1.6 WARRANTY

A. The guarantee shall be such, that during the 25-year period, if Owner determines that any cable no longer certifies at 1Gb/sec, the contractor shall correct it within 5 working days.

1.7 COORDINATION

A. Adjust arrangements and locations of distribution frames, patch panels, and cross connects in equipment rooms and wiring closets to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment.

B. Coordinate work of this section with IDEA IT Network Services Department.

1.8 PLANS AND SPECIFICATIONS

A. The intent of the project drawings is to establish the types of systems and functions, but not to set forth each item essential to the functioning of the system.

B. Electrical drawings are generally diagrammatic and show approximate location and extent of work.

C. Install the work complete including minor details necessary to perform the function indicated. Provide communication systems (including all hook-ups) complete in every respect and ready to operate.

D. If clarification is needed, consult the Architect/Engineer.

E. Review pertinent drawings and adjust the work to conditions shown. Where discrepancies occur between drawings, specifications, and actual field conditions, immediately notify the Architect/Engineer for his interpretation.

F. The Architect/Engineer reserves the right to make any reasonable change in the location of any part of this work without additional cost to the Owner.

1.9 MANUFACTURERS' INSTRUCTIONS

A. All equipment and devices shall be installed in accordance with the drawings and specifications, manufacturer's instructions, and applicable codes.

B. Where specifications call for installation of a product to be in accordance with manufacturer's instructions and/or where manufacturer's instructions are required for installation of a product, it shall be the contractor's responsibility to obtain the necessary applicable manufacturer's instructions and install the product in accordance with the manufacturer's instructions.

C. It shall be the Contractor's responsibility to install all equipment, materials, and devices shown on the plans and as called out in these specifications even if manufacturer's instructions are absolutely unattainable.

1.10 ACCEPTABLE MANUFACTURERS AND SUBSTITUTIONS

A. Descriptions and details, acceptable manufacturers' names listed, and specific manufacturer and model number items indicated in the plans and specifications shall establish a standard of quality, function, and design. Manufacturers and model numbers listed "no exceptions" shall not be substituted without specific notice in an addendum. Otherwise, where a specific manufacturer's product is indicated, products of other manufacturers listed as acceptable may be submitted for approval based on the substitute product being, in the opinion of the Engineer, of equivalent or better quality than that of the product specified.

B. Proposed contractors wishing to propose systems which differ in manufacturer, features, functions, or operating characteristics from those outlined in these specifications must do so in writing to the specifying authority at least ten (10) days prior to the proposal opening.

C. For manufacturers equipment or models other than that specified, the proposed contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment. Proposals must include detailed information showing all deviations from the system as specified and include relevant technical and cost data. This shall include a complete description of the proposed substitution, drawings, catalog cuts, performance data, test data, or any other data or information necessary for evaluation.

D. The Engineer will consider all such submittals and the Architect will issue an addendum listing items that the Engineer considers acceptable. Only such items as specified or approved as acceptable will be installed on this project.

E. Substitute products for which the proposed contractor does not obtain prior approval will not be considered acceptable for this project. Final approval of the alternate system shall be based on the decision of the Owner and Architect. Prior approval to make a proposal for this project does not automatically ensure the system will be an acceptable equivalent.

F. It is the responsibility of the Contractor to provide all features and functions as outlined in these specifications. The functions and features specified are vital to the operation of this facility; therefore, inclusion in the list of acceptable manufacturers does not release the contractor from strict compliance with the requirements of this specification.

G. The selected contractor must be a certified Integrator/Installer authorized by one of the Manufacturers listed below to provide an extended warranty to the Owner covering all network cable and connectivity hardware products comprising this installation site. All UTP cable, fiber optic cable, and all wiring devices installed shall be products of one approved

manufacturer or joint manufacturers program and approved for use in their extended warranty program. The Contractor and Manufacturer shall jointly provide the Owner an extended warranty of the installed system against defects in material or workmanship; provide a copy of contractor certification.

H. The manufacturers model numbers, functions, and features described in this specification section are those of the CommScope Uniprise with a 25-Year Extended Product Warranty and Application Assurance per District standards, no exceptions.

I. The Contractors' proposal represents that the contract proposal price is based solely upon the materials, equipment, and labor described in the Contract Proposal Documents (including addenda, if any) and that he contemplates no substitutions or extras.

J. The manufacturer of the proposed substitute unit shall provide samples for evaluation, when required, at no charge and non-returnable.

K. Requests for substitution are understood to mean that the Contractor:
   1. Has personally investigated the proposed substitution and determined that it is equivalent or superior in all respects to that specified.
   2. Will provide the same guarantee for the substitution that he would for that specified.
   3. Will, at no cost to the Owner, replace the substitute item with the specified product if the substitute item fails to perform satisfactorily.
   4. After Award of the Contract, substitutions will be considered only under one or more of the following circumstances:
      a. The substitution is required for compliance with subsequent interpretations of code or insurance requirements.
      b. The specified product is unavailable through no fault of the Contractor.
      c. The manufacturer refuses to warranty the specified products as required.
      d. Subsequent information indicates that the specified product is unable to perform properly or to fit in the designated space.
      e. In the Engineer's sole judgment, the substitution would be in the Owner's best interest.
      f. Revisions to the electrical system caused by substitutions shall be under the supervision of the Engineer, at a standard hourly rate charged by the Engineer. Charges from the Engineer, Architect, and Electrical Contractor shall be paid by the Contractor originating the changes.

1.11 LOCATIONS AND EXISTING CONDITIONS:

A. The Contractor will examine the site, verify all requirements, service points, and availability of all services required to complete this project. No consideration will be granted for any alleged misunderstanding of the materials and labor to be provided as necessitated by nature of the site including those items that may be fairly implied as essential to the execution and completion of any and all parts of this project.

1.12 PROTECTION OF EQUIPMENT AND MATERIALS

A. The Contractor shall take such precautions as may be necessary to protect his apparatus from damage.

B. This shall include the creation of all required temporary shelters to protect any apparatus above the floor of the construction and the covering of apparatus in the completed building with tarpaulins or other protective covering.

C. Failure to comply with the above to the satisfaction of the Owner's inspector will be sufficient cause for the rejection of the equipment in question and its complete replacement by the Contractor.

1.13 CUTTING AND PATCHING

A. Notify the Builder sufficiently ahead of construction of any floors, walls, ceiling, roof, et cetera, of any openings that will be required for his work.

B. The Contractor shall see that all sleeves required for his work are set at proper times to avoid delay of the job.

C. All necessary cutting of walls, floors, partitions, ceilings, et cetera, as required for the proper installation of the work under this Contract shall be done at the Subcontractor or at the Subcontractor's expense in a neat and workmanlike manner, and as approved by the Architect/Engineer.

D. Patching of openings and/or alterations shall be provided by the communications Subcontractor or at the Subcontractor's expense in an approved manner.

E. No joists, beams, girders, or columns shall be cut by any Contractor without first obtaining written permission of the Architect/Engineer.

F. All openings in firewalls and floors shall be completely sealed after installation for a completely airtight installation. Sealing material shall be non-combustible and UL approved. The installed sealing assembly shall not cause the fire rating of the penetrated structure to be decreased.

G. All openings in exterior walls shall be sealed watertight.

H. Seal voids around conduits penetrating fire-rated assemblies and partitions using fire stopping materials and methods in accordance with NFPA and local codes.

1.14 INSTALLATION

A. Cooperation with trades of adjacent, related or affected materials or operations, and or trades performing continuations of this work under subsequent contracts are considered a part of this work. In order to effect timely and accurate placing of work and to bring together, in the proper and correct sequence, the work of such trades, including work provided under a Division 1 allowance.

B. The Communications Contractor shall coordinate installation of the communication systems with the Builder, Electrical, Mechanical, and Plumbing Contractors to insure a complete working system for the Owner.

C. Where required for accessibility all conduit and boxes for all communication systems shall be provided by the Electrical contractor as specified, including systems in Division 27, any and all allowances shall be included. Normally low voltage wiring shall run open and supported in accessible attic space. All low voltage wiring in exposed areas such as gyms, stages, shops, and field houses shall be enclosed in conduit. Coordinate with and verify with Division 26 to provide required conduit and boxes at locations and heights as required.

D. Conduit, innerduct, or raceway shall conceal and protect wiring in exposed areas, within walls, through in- accessible areas, floors, chases, under slab, crawlspaces, or underground.

E. All conduit and raceway runs shall be spaced apart to allow for maintenance, such as the installation of couplings, without disturbing adjacent pathways.

F. All work must be performed by workers skilled in their trade. The installation must be complete whether the work is concealed or exposed.

G. Provide stainless screw/bolt hardware wherever stainless devices are used and in potentially wet areas.

H. Coordinate the actual locations of devices and outlets and equipment with building features and mechanical equipment as indicated on architectural, structural, and mechanical drawings. Review with the Architect any proposed changes in outlet or equipment location. Relocation of devices, before installation, of up to 3 feet from the position indicated, may be directed without additional cost. Remove and relocate outlets placed in an unsuitable location when so requested by the Architect.

1.15 FINAL OBSERVATION

A. It shall be the duty of the Contractor to make a careful observation trip of the entire project, assuring themselves that the work on the project is ready for final acceptance before calling upon the Architect/Engineer to make a final observation.

B. To avoid delay of final acceptance of the work, the Contractor shall have all necessary bonds, warranties, receipts, affidavits, et cetera, called for in the various articles of these specifications, prepared and signed in advance, together with a letter of transmittal, listing each paper included, and shall deliver the same to the Architect/Engineer at or before the time of said final observation. The Contractor is cautioned to check over each bond, receipt, et cetera, before preparing for submission to verify that the terms check with the requirements of the specifications.

C. The following and other provision of Division 1 General Conditions will be required at time of final completion:
   1. Final clean up completed.
   2. All systems are fully operational, all material and devices installed.
   3. As built (as installed) drawings and operations manuals

1.16 DRAWINGS, MANUALS, AND TRAINING

A. As-built drawings and operating and maintenance manuals may be electronically transmitted in PDF file format.

B. Upon completion of the installation, and prior to final inspection, the Contractor shall furnish as-built drawings.

C. In addition, the contractor shall furnish complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets. Manuals shall include wiring diagrams to indicate internal wiring for each device and the interconnections between the items of equipment. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system. Provide a parts list with manufacturer and model number for commonly replaced parts. Include complete instructions for the inspection, testing, and maintenance of the system. Place final cable certification test results in manuals.

D. All cable paths and wiring methodology shall be documented. All cables shall have both ends labeled and included in the as-built documentation. Provide an MS Excel worksheet compatible format spreadsheet file cross referencing all cable run numbers, architectural room number, and owners room number for the origin and destination of each cable run.

E. A formal on-site training session shall be provided by the Contractor to the Owners Representative / Maintenance personnel and shall include instruction on the documentation, location, inspection, maintenance, testing, and operation of all system components. Provide a minimum of two (2) hours of documented general instruction.

1.17 QUALITY ASSURANCE

A. All Vendors must meet all applicable codes / standards defined below, and any others that may be defined.

B. The Vendor will follow the National Electric Code (NEC), the National Electric Safety Code (NESC), any applicable State of Texas code, and local codes.

C. The Vendor will provide materials and equipment that is new and will conform to the NEMA, UL, ANSI, IEEE, and IPCEA standards. All cabling will follow the BISCI standards of installation, testing and maintenance.

D. The vendor is required to provide a CommScope 25-year Extend Product Warranty and Application Assurance at job completion.

E. Standards:

1. ANSI/TIA/EIA Standards 568D - Commercial Building Telecommunications Cabling Standard
2. ANSI/TIA/EIA Standard 569 - Commercial Building Standards for Telecommunications Pathways and Spaces
3. ANSI/TIA/EIA - 606 - Administration Standard of the Infrastructure of Commercial Buildings
4. ANSI/TIA/EIA - 607 - Commercial Building Grounding and Bonding Requirements for Telecommunications
5. ANSI/TIA/EIA - 758 - Customer Owned Plant Telecommunications Cabling Standard
6. TSB-67, 95, and 72 - Testing standards and reporting

PART 2 - SCOPE OF PROJECT/SCOPE OF WORK

2.1 SCOPE OF WORK

A. The Horizontal Structured Cabling System shall consist of Category 6 cables placed from the Telecommunications Room to the devices as shown on drawings. All Category 6 outlets will terminate in the Telecommunications Room on 24-port Category 6 patch panels. Wire management shall be used to provide cable management above, below and to each side of the patch panel.

B. Cabling for horizontal cabling shall be routed through J-hooks placed above ceiling and below floor as needed to accomplish proper cable routing to work areas. J-hooks and all cable pathways they create shall follow building lines and allow access to cabling from hallway and open area locations and not be placed over other end user offices. J-hooks should follow all building lines.

C. All structured cabling shall be from a single manufacturer to insure optimum performance.

D. Cable Routing and Installation

1. System wiring and equipment installation shall be in accordance with good engineering practices as established by the EIA and the NEC. Wiring shall meet all state and local electrical code requirements.
2. Cable pathways, conduit, and cable support systems shall be complete with bushings, de- burred, cleaned, and secure prior to installation of cable.
3. All wiring shall test free from opens, grounds, or shorts. All communications cable shall be supported from the building structure and bundled. Do not attach any supports to joist bridging or other lightweight members.
4. The support system shall provide a protective pathway to eliminate stress that could damage the cabling. The cable shall not be crushed, deformed, skinned, crimped, twisted, or formed into tight radius bends that could compromise the integrity of the cabling.
5. Communications cable must not be fastened to electrical conduits, mechanical ductwork/piping, sprinkler pipes, or routed to obstruct access to hatches, doors, utility access panels, or service work areas. Do not route cables through fire doors, ventilation shafts, grates, or parallel with line voltage electrical conductors.
6. Support shall be provided by mounting appropriate fasteners that may be loaded with multiple cables. Provided that the weight load is carried by the support rod or wire, the support assembly may attach to the ceiling grid for lateral stabilization. The required support wires for the ceiling grid or light fixtures shall not be utilized. Any fastener attached to the ceiling grid shall not interfere with inserting or removing ceiling tiles.
7. The cable pathway of supports must be positioned at least 12 inches above the ceiling grid. Communication cables shall not be run loose on ceiling grid or ceiling tiles.
8. Communication cables shall be run in conduits, where stubs are provided, from wall or floor jacks to accessible areas above finished ceilings. Conduit shall be required only within walls and concealed spaces to provide access.
9. Provide bushings to protect the cable from damage for conduit ends, box openings, and passage through metal studs.

10. Communication cables shall be run in bundles above accessible ceilings and supported from building structure. Cabling shall be loosely bundled with cable Velcro hook ties randomly spaced at 30 to 48 inches on center, cable ties shall not be tight enough to deform cabling and shall not be used to support the cabling.
11. For MDF/IDF rooms, each cable run shall include a three-foot service loop with Velcro hook ties located in the ceiling above the rack. This is to allow for future re-termination or repair.
12. All cabling shall be placed with regard to the environment, EMI/RFI interference, and its effect on communication signal transmission.
13. Non-conductive fiber optic cable is immune from EMI/RFI interference. Give priority when selecting a route to minimize exposure to possible cable damage from maintenance or service of all systems in the attic space.
14. Do not route any data cable within two feet of any light fixture, HVAC unit, service access area, electric panel, or any device containing a motor or transformer.
15. Communication cable will not be installed in the same conduit, raceway, tray, duct, or track with line voltage electrical cable without a metallic barrier meeting NEC requirements.
16. Maximum cable pulling tension should not exceed 25 pound-force (110 N) or the manufactures recommendation, whichever is less.
17. Any pulling compounds utilized must be approved by the cable manufacturer and shall not degrade the strength or electrical characteristics of the cable.
18. No terminations or splices shall be installed in or above ceilings, other than in designated end point housings.
19. Cable bends shall not be tighter that the manufacturers' suggested bend radius.
20. Mount all equipment firmly in place. Route cable in a professional, neat, and orderly installation.
21. Provide for adequate ventilation to all equipment racks and take precautions to prevent electromagnetic or electrostatic hum.

E. Category 6 and Category 6a patch cords to complete work area patching shall be provided by the contractor, as detailed in section 4.3 and 6.4D.

F. Contractor will be responsible for supplying and installation of equipment room (MDF/IDF) patch cords.

G. Contractor will be responsible for supplying and coordinating drop/sign-off with customer for work area patch cords.

H. Customer staff will be responsible for work area patch cord installation.

2.2 BACKBONE-FIBER

A. The Backbone Fiber Riser System shall consist of fiber cables with 12 (twelve) 50-um OM4 multimode interlocking armor cable placed from the each IDF and terminating in the MDF, as shown on the drawings.

B. Sharp edges of interlocking armor will be terminated with MC-type connector and attached to Rack mount bracket or to Fiber shelf.

C. Interlocking armor will be bonded to ground per manufacturer's instructions.

D. All fiber terminations shall be fusion spliced pigtails with LC connectors.

E. Fiber will be terminated and routed through rack mount fiber panels.

F. 2 duplex 7' LC OM4 riser-rated patch cords will be provided for each closet.

2.3 CABLE SUPPORT

A. Conduit, duct, or track shall be used for communication cable in exposed areas.

B. Cable fill shall not exceed the manufacturers' instructions for each type of support.

C. All conduit, ducts, track, and raceways

D. Cable runway or tray shall be grounded to an appropriate building ground at each end and bonded at each joint.

E. Rubber or plastic boots shall be installed at the ends of horizontal support rails to prevent cable damage or injuries to personnel.

2.4 J-HOOKS

A. The cabling from the Telecommunications Rooms will be routed to their respective outlets utilizing J-Hooks above ceiling and below floor. Cables will be bundled in groups of less than 50 and placed no more than 5' apart following the pathway from Telecommunications Room to work area outlet. J-Hooks and all mounting hardware as well as any placement of these devices are the responsibility of the contractor.

B. Attachments for cabling support shall be spaced at approximately 48 to 60 inches on center. Cable bundles shall not be allowed to sag down more than 12-inches mid-span between attachments.

C. Category 6, all attachments shall be approved for Category 6 cabling. Attachments shall be Caddy part numbers as follow, or equivalent, sized as follows:
   1. CAT16HP, 1" diameter Capacity 15 Category 6 cables.
   2. CAT21HP, 1.31" diameter Capacity 40 Category 6 cables.
   3. CAT32HP, 2" diameter Capacity 60 Category 6 cables.
   4. Split bundles greater than 2" dia. or provide cable tray.

D. Category 6A, all attachments shall be approved for Category 6A cabling. Attachments shall be Caddy part numbers as follow, or equivalent, sized as follows:
   1. CAT16HP, 1" diameter Capacity 10 Category 6A cables.
   2. CAT21HP, 1.31" diameter Capacity 12 to 24 Category 6A cables.
   3. CAT32HP, 2" diameter Capacity 25 to 35 Category 6A cables.
   4. CAT48HP, 3" diameter Capacity 48 Category 6A cables.
   5. Split bundles greater than 48 cables (maximum allowed bundle size) or provide cable tray.

E. Do not mix different signal strength cables on the same J-Hook (i.e. fire alarm with data and telephone cable). Multiple J-Hooks can be placed on the same attachment point, up to the rated weight load of the attachment device.

2.5 RACK HARDWARE

A. Rack Hardware will be utilized in the IDF's and MDF to house terminated Category 6 patch panels, fiber termination hardware, and network switch equipment. All rack hardware will be secured to the floor with appropriate hardware and overhead by cable tray. All racks will be 7 feet in height and 19 inches wide with 3-inch channels.
B. Vertical cable management will be utilized between each rack and at the end of each rack row to manage vertical patch cables (in front) and horizontal cable runs (in back). 6" vertical cable managers will be used between racks to provide cable management vertically.
   1. CPI Part No. 13912-703 6" wide vertical cable manager shall be provided at each open end of a row of racks and on both sides of a single rack.
C. Horizontal wire management shall be provided so there will be wire management above and below each copper patch panel.
D. Alternately, as noted on the drawings, wall-mounted racks shall be utilized in the IDF to house terminated Category 6 patch panels, fiber termination hardware, and network switch equipment. All rack hardware will be secured to the wall with appropriate hardware.

E. All rack hardware shall be grounded to an approved building ground.

2.6 CABLE TIE WRAPS (PLENUM RATED)

A. Plenum rated Velcro hook cable ties shall be furnished and installed to attach wire bundles to supports and for appropriate wire management as required. Provide and install Panduit TAK-TY HLTP series cable ties with UL 94-V2 flammability rating, or equivalent.

B. Hard plastic or metal tie wraps will not be allowed on any data cable (Category rated UTP).

2.7 FIRE-STOPPING SYSTEMS

A. Suitable fire-stopping shall be used to prevent the spread of smoke and fire throughout the building. Contractor will be responsible for installing fire-stopping system for every wall or floor penetration as required by code.

2.8 GROUNDING

A. Contractor shall provide a ground bar at each termination location (Telecommunications Rooms and Equipment Room). Contractor shall provide a #6 AWG stranded copper wire cable between ground bars located at each TR and ER to the building main service ground point.
B. This ground conductor shall be utilized for grounding termination equipment, equipment rack and cable tray.

PART 3 - TELECOMMUNICATION NETWORK SYSTEM REQUIREMENTS

3.1 The Structured Cabling System shall consist of any one or all of the following structured cabling elements or subsystems:

A. Horizontal cabling
B. Telecommunications room (or horizontal cross connect)
C. Backbone cabling
D. Equipment room
E. Entrance facility
F. All cable support structure

3.2 SUPPORTED APPLICATIONS

A. The Structured Cabling System shall be capable of supporting and/or integrating the following:
   1. Analogue and digital voice applications
   2. Data applications
   3. Local area network services
   4. Wide area network services
   5. Video /Imaging services
   6. Low voltage devices for building controls

3.3 Additional requirements

A. Categorized copper product shall be used in conjunction with an equivalent or higher Category cable as verified by ETL or TSV.

B. All structured cabling products shall be installed according to any applicable instructions.

C. All networks and other applications shall be installed per applicable standards and manufacturers' guidelines and transmitted over the appropriate minimum Category copper cable or fiber cable for which it was intended to operate on.

D. All applicable local, state, national, and federal electrical and fire safety standards shall be adhered to during and after installation.

PART 4 - WORK AREA OUTLET

4.1 The Work Area shall consist of the connectivity equipment used to connect the horizontal cabling subsystem and the equipment in the work area. The connectivity equipment shall include the following options:

A. Patch (equipment) cords
B. Faceplates

4.2 Category 6 and Category 6a Copper Outlets

A. All category 6 information outlets designed for termination of 4-pair balanced twisted-pair category 6 copper cables must possess the following characteristics at the minimum:

1. Be able to be a gravity feed (45 degree angled) as well as flush mount utilizing the same jack.
2. Have 110 style insulation displacement connectors with quadrant pair isolation and a pyramid wire entry system. Termination is accomplished with a single conductor impact tool.
3. Be backwards compatible to allow lower performing categories of cables or connecting hardware to operate to their full capacity.
4. Have rear protective strain relief caps rear entry, which will be installed onto cable after termination.
5. Support industry standards for T568A or T568B wiring options (568B wiring scheme applicable to this project) on each individual outlet.
6. Be side-stackable for high-density solutions.
7. Provide color-coded and labeled for VOICE, DATA or Blank, Snap-In icons for circuit identification.
8. Be constructed of high impact, flame-retardant thermoplastic.
9. Must be Third Party Verified to all claims.
10. Verified to ETL TSV performance in a channel

4.3 Face/Wall plates

A. The faceplates shall support the network system by providing high-density in-wall, surface mount or modular office furniture cabling applications. The outlets consist of faceplates for flush and recessed in-wall mounting as well as mounting to the modular office furniture systems. The surface mount boxes can be mounted where in-wall applications are not possible or to support applications where surface mount is the best option.

B. Faceplates shall be available in single gang design in White and available in (1,2,3, or 4) port openings.. They shall feature openings on both sides to allow easy identifications of the ports and accept Uniprise information outlets. They shall come equipped with mounting screws, label covers, and label cards.

1. CommScope – M14L-262 (4-port outlet)
2. CommScope – M13L-262 (3-port outlet)
3. CommScope – M12L-262 (2-port outlet)
4. CommScope – M10L-262 (1-port outlet)

C. Outlets at faceplate will color code according to application

1. CommScope Uniprise- UNJ600-BL (for all Data Drops)
2. CommScope Uniprise- UNJ600-VL (for all Projectors)
3. CommScope Uniprise- UNJ600-OR (for all Analog)
4. CommScope Uniprise- UNJ600-YL (for all Security Cameras)
5. CommScope Uniprise- UNJ600-262 White (for all intercom)

D. All category 6a information outlets designed for termination of 4-pair balanced twisted-pair category 6a copper cables must possess the following characteristics at the minimum:

1. Be able to be a gravity feed (45 degree angled) as well as flush mount utilizing the same jack.

2. Have 110 style insulation displacement connectors with quadrant pair isolation and a pyramid wire entry system. Termination is accomplished with a single conductor impact tool.
3. Be backwards compatible to allow lower performing categories of cables or connecting hardware to operate to their full capacity.
4. Have rear protective strain relief caps rear entry, which will be installed onto cable after termination.
5. Support industry standards for T568A or T568B wiring options (568B wiring scheme applicable to this project) on each individual outlet.
6. Be side-stackable for high-density solutions.
7. Provide color-coded and labeled for VOICE, DATA or Blank, Snap-In icons for circuit identification.
8. Be constructed of high impact, flame-retardant thermoplastic.
9. Must be Third Party Verified to all claims. Verified to ETL TSV performance in a channel

E. Outlets at faceplate will color code according to application

1. CommScope Uniprise- UNJ10G-GN (for all WAP Drops)

4.4 Above Ceiling/Structure Mounted Jack Locations

1. Jack type to match colors above and shall be as follows:
2. CommScope part number M101SMB-B-262 securely mounted to structure above the finished ceiling with Category 6 jacks and blanks as required.

4.5 Patch Cords

A. All category 6 Patch (Work-area) Cords shall use 4-pair balanced twisted-pair category 6 23 AWG stranded twisted pair copper cable and be available in both Booted and Non-Booted options.

B. For work area data drops, we require the following length and quantity of patch cords.
1. Twenty-Five (25) CAT 6 work area patch cord, 1 foot in length and Blue in color shall be provided. UC1BBB2-0ZF001
2. Fifty (50) CAT 6 work area patch cord, 10 feet in length and Blue in color shall be provided. UC1BBB2-0ZF010
3. Ten (10) CAT 6 work area patch cord, 15 feet in length and Blue in color shall be provided. UC1BBB2-0ZF015
4. Five (5) CAT 6 work area patch cord, 25 feet in length and Blue in color shall be provided. UC1BBB2-0ZF025
5. Two (2) CAT 6 work area patch cord, 50 feet in length and Blue in color shall be provided. UC1BBB2-0ZF050

C. For Security Camera Drops, provide one Yellow category 6 10’ patch cord per drop. UC1BBB2-09F010

D. For Intercom Drops, provide one White category 6 10’ patch cord per drop. UC1BBB2-08F010

E. Patch cords shall be from the same manufacturer as the horizontal cabling to insure optimum performance.

PART 5 - HORIZONTAL CABLING SUBSYSTEM

5.1 The horizontal cabling system is the portion of the telecommunications cabling system that extends from the work area telecommunications outlet/connector to the horizontal cross-connect in the TC.

A. Horizontal cabling in an office should terminate in a TC located on the same floor as the work area being served

B. Horizontal cabling is installed in a star topology (home run)

C. Bridged taps and splices are not permitted as part of the copper horizontal cabling

5.2 Copper UTP Cable

A. Category 6 UTP Cable
   1. * Maximum cable length is 90 meters

B. These requirements are for cables of four unshielded twisted pairs of 23 AWG bare copper, thermoplastic insulated solid conductors enclosed by a thermoplastic jacket. The finished cable shall exceed the requirements of ANSI/TIA/EIA-568-B.2-1 Category 6.

C. All cable shall conform to the requirements for communications circuits defined by the National Electrical Code (Article 800) and the Canadian Building Code. All cable shall be listed with an OSHA approved laboratory and carry labeling of either CMP or CMR whichever is appropriate for the installation environment.

D. The cable manufacturer shall be ISO 9001 registered.

5.3 Cabling Testing Criteria

1. Tested to 650 MHz
2. Maximum Delay Skew < or = 25 ns
3. Typical Positive Power Sum ACR ≥ 400 MHz
4. Capacitance Unbalance of 58.2 pF Max @ 23 degrees Celsius.
5. Typical PSUM NEXT & NEXT ≥ 10dB better than category 6 standard

5.4 Cable Color Scheme

A. Color scheme for cable runs and patch cables are indicated below. Selected cabling vendor should confirm quantity of each with construction and IT to ensure correct number and type of runs.

B. The color code shall be as follows:

Purpose	**Color**
Analog (security/fire/elevator x-connect)	Orange
Security Cameras	Yellow
Intercom	White

5.5 Cable Run Designator Labeling Scheme

A. Each patch panel jack, wall plate jack, terminal cabinet connector, both ends of each cable run and on the ceiling grid bar at jack locations that are concealed above a drop ceiling shall be labeled with a cable scheme run designator machine printed labels installed according to EIA/TIA 606 standards. All labeling shall conform to industry standards and best practices. Labeling types and scheme shall be verified and coordinated with the Owner prior to any installation.
B. Patch panels are to be labeled based on room number (or closet number), sequential order and purpose as indicated in the below example.
C. <Room #>-<Sequence on patch panel>-<Purpose>

IT Closet (Patch Panel)	***Room (Faceplate)***
RM228-004-AP	MDF-004-AP
RM228-005-P	MDF-005-P
RM228-006-D	MDF-006-D

D. Third Party Systems are to be terminated on the patch panel and labeled as indicated below. At the device, the cable should be labeled indicating closet and patch panel label. No devices should be connected directly into the switch and third party vendors are expected to coordinate needed drops with the selected cabling vendor.

E. Fire/Security/Elevator Cross Connects.
1. Cross connect cables should be labeled at the demarc punch block to indicate purpose using a wrap around tag. On the far end panel, the cable should be labeled with the phone number using a wrap around label

Demarc/Punch Block	***Device Panel***
Fire1	<phone # on punch block>
Fire2	<phone # on punch block>
Security	<phone # on punch block>
Elevator	<phone # on punch block>
911 (to voice router)	<phone # on punch block>
SRST (to voice router)	<phone # on punch block>

PART 6 - MDF/IDF ROOMS

6.1 The MDF/IDF Rooms includes those products that connect the networking equipment to the horizontal and backbone cabling subsystems. These products include termination hardware (connectors and patch cords), racks, cable management products and cable routing products.

6.2 Cable Management

A. The Cable Management System shall be used to provide a neat and efficient means for routing and protecting fiber and copper cables and patch cords on telecommunication racks and enclosures. The system shall be a complete cable management system comprised of vertical and horizontal cable managers to manage cables on both the front and rear of the rack. The system shall protect network investment by maintaining system performance, controlling cable bend radius, and providing cable strain relief.

B. Rack Systems

1. Standard Rack
   a. The 7'H x 19" W UL listed standard equipment rack is an Underwriters Laboratory listed 22Y9 communications circuit accessory designed specifically for use in telecommunications equipment installations where codes require UL Listed equipment racks.
2. Double-Sided Vertical Management
   a. The 7'H x 6" W vertical managers are double-sided to allow for front and back side cable management. The doors are lightweight, but sturdy. Doors are equipped with dual hinge latching to enable opening from the right or left.
   b. Recessed handles eliminate snag potential for clothes and arms. C Channel bracket allows for easy access to the cable trough. Tool-less installation of Cable Spool.
3. MDF and IDF Racks:
   a. APC AR3150 – Netshelter
   b. Isolated ground power strip mounted on the lower portion of the left side of each rack to be:
   - Middle Atlantic Products Part No. PDT-2X320, or equivalent.
   c. Ladder type cable tray shall be routed over all floor mounted racks from wall to wall.
   d. Mount fiber termination cabinets in the top portion of the rack and then the patch panels. Reserve the lower 50% of rack space for mounting of network electronics by the Owner.D

6.3 Cable Termination Hardware

A. Each horizontal or backbone cabling run will be terminated using appropriate connectors or connecting blocks depending upon the cable type. Matching patch cords will be used to perform cross-connect activities or to connect into the networking/voice hardware.

B. U/UTP Modular Patch Panel

1. The modular patch panel must be capable of housing M-Series outlets.
2. The discrete distribution module (DDM) panels should be available in a 24- or 48-port, straight configuration.

3. The panel should consist of a rack mounted base unit, rear cable management hardware, and labels for port numbering.
4. Panel should mount in a 19-inch (483mm) equipment rack with universal hole spacing.
5. The modular patch panel will be installed above and below switches. 24-port patch panels shall be installed above the top switch and below the bottom switch in each rack. 48-port patch panels shall be installed between switches in each rack.
   a. CommScope CPP-UDDM-2U-48 Patch Panel, 48 port
   b. CommScope CPP-UDDM-1U-24 Patch Panel, 24 port

C. Outlets installed in the Modular Patch Panel will be color-coded to match application, workstation drop, and patch cord as follows-

1. CommScope Uniprise- UNJ600-BL (for all Data Drops)
2. CommScope Uniprise- UNJ600-VL (for all Projectors)
3. CommScope Uniprise- UNJ600-OR (for all Analog)
4. CommScope Uniprise- UNJ600-YL (for all Security Cameras)
5. CommScope Uniprise- UNJ600-262 White (for all intercom)
6. CommScope Uniprise- UNJ10G-GN (for all WAP Drops)

D. Copper Patch (Equipment) Cords

1. Category 6 and Category 6a patch cords to complete closet patching shall be provided by the contractor.
2. One (1) foot patch cords are preferred in the closet to avoid the need for horizontal and vertical management of patch cords. Patch cords shall be from the same manufacturer as the horizontal cabling to ensure optimum performance and the color should match their respective cable run color and patch panel outlet.
3. Provide 1 per drop, plus an additional 5 each of each color and type.
   a. Data- Blue category 6, UC1BBB2-0ZF001
   b. Projectors- Purple category 6, UC1BBB2-0LF001
   c. Analog- Orange category 6, UC1BBB2-06F001
   d. Security Cameras- Yellow category 6, UC1BBB2-09F001
   e. Intercom- White category 6, UC1BBB2-08F001
   f. WAPs- Green category 6a, UC1AAA2-04F001
4. Uniprise Category 6 and Category 6a patch cords are high-performance UTP components available in a broad range of lengths and easy-to trace colors. They are designed to meet or exceed all Category 6 specifications yet are fully backward compatible with Category 5e and lower systems.
5. 23 AWG conductors are securely mated with a patented RJ45 plug design to deliver superior electrical performance with excellent repeatability. The unique anti-snagging feature simplifies removal and replacement of patch cords.

E. Fiber Termination Enclosure

1. All fiber optic rack mount enclosures shall be CommScope. All adapter panels shall be CommScope for Multi-mode applications. All rack mount enclosures shall be CommScope Uniprise Ready enclosures.
   a. CommScope SD-1U Enclosure

F. Fiber Patch (Equipment) Cords

1. All fiber optic patch cords shall be duplex MM OM4 CommScope fiber patch cords. Connector type shall be CommScope LC connectors for Multi-mode applications. All fiber patch cords shall be CommScope factory assembled and tested, and supplied for each terminated fiber connection per section 7.10

G. Fiber Pigtail Kits

1. All fiber optic pigtails and connectors shall be CommScope. Connector type shall be CommScope LC connectors for Multimode applications. Multimode pigtails shall be constructed with LazrSPEED 550 OM4 fiber.
   a. CommScope FAXLCUC0C-M003 Pigtail Kit (50-um)

PART 7 - BACKBONE CABLING SYSTEM

7.1 The Backbone Cable Subsystem in a building is the part of the premises distribution system that provides connection between equipment rooms, telecommunication rooms, and telecommunications service entrance facilities. A backbone subsystem provides either intra-building connections between floors in multi-story buildings or inter-building connections in campus-like environments.

7.2 All cables shall be run using a star topology (home run) from the Main Cross-Connect (MC) in the Equipment Room to each Horizontal Cross-Connect (HC) within the Telecommunications Room. The length of each individual run of backbone fiber cable shall not exceed 2000 meters for multimode and the length of each UTP cable run for voice applications is not to exceed 800 meters (90 meters for data) as specified under TIA/EIA-568-A.

7.3 The type of backbone fiber cable shall be 50/125 m multimode fiber optic cable. The bending radius and maximum pulling tension of the cable shall be adhered to during handling and installation.

7.4 Fiber Backbone

A. The type of fiber cable used shall contain Laser Optimized 50-micron OM-4 Multimode fiber.

B. Termination enclosure will be located at the top of the rack housing the network equipment in the MDF Room.

7.5 Fiber Cable

A. Fiber Optic Backbone Cable shall be rated OFNP or OFNR per the installation environment as defined by the NEC and local authority having jurisdiction.

B. Multi-mode:

1. Fiber construction shall be multi-mode with a core/cladding size of 50/125 microns. Contractor shall purchase and install the appropriate CommScope fan out and breakout materials where dictated by the application and choice of fiber optic cable type. The

maximum attenuation of the cable shall be 3.0 dB/km at 850nm and 1.0 dB/km at 1300nm. The cable shall be capable of supporting 10 Gigabit Ethernet to 550 meters.

C. Fiber Optic Cable size shall contain 12 fibers, and termination shall be as per the backbone diagram, or Customer requirements. All Fiber Optical Cable shall be constructed to the requirements listed in Fiber Cable Specifications.

D. All fiber links shall be tested for attenuation using a power meter and light source. The allowable attenuation for any link shall be calculated using the CommScope link loss calculator.

E. All testing shall be accomplished according to Section 11 of ANSI/TIA/EIA-568.1-D

1. CommScope 50 micron LazrSPEED 550 Multimode fiber cable P-012-DZ-5K-FSUAQ
2. CommScope Powered fiber cable, OS2, 4 Fibers, Outdoor, 12AWG conductor (printed per feet) –PFC-S04O12F [Provide all POE extenders, connectors, power express modules, Slimline SPS DC Rectifier, and other items for complete system]

F. 1. Fiber Optic Backbone Cable shall be rated OFNP or OFNR per the installation environment as defined by the NEC and local authority having jurisdiction.
1. Multi-Mode
   a. Fiber construction shall be multi-mode with a core/cladding size of 50/125 microns. Contractor shall purchase and install the appropriate CommScope fan out and breakout materials where dictated by the application and choice of fiber optic cable type. The maximum attenuation of the cable shall be 3.0 dB/km at 850nm and 1.0 dB/km at 1300nm. The cable shall be capable of supporting 10 Gigabit Ethernet to 300 meters.
   b. When tested in accordance with FOTP-3, “Procedure to Measure Temperature Cycling Effects on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components,” the average change in attenuation over the rated temperature range of the optical fiber cable shall not exceed 0.05 dB/km at 1550 nm. The magnitude of the maximum attenuation change of each individual optical fiber shall not be greater than 0.15 dB/km at 1550 nm

7.6 Fiber Cable Specifications

A. This optical fiber backbone cable shall be suitable for installation in building riser systems, in conduit, in cable tray and/or in innerduct.
1. Optical fiber cable shall be encased in an interlocking armor with an overall jacket.
   a. Optical fiber cable shall carry an OFCP (Optical Fiber Conductive Plenum) or OFCR (Optical Fiber Conductive Riser) rating, depending on installation environment.
   b. Outer Sheath: The outer sheath shall be marked with the manufacturer’s name, date of manufacture, fiber type, listing (OFCP or OFCR), manufacturer’s identification number, and sequential length markings every two feet.
2. Temperature Range:
   a. Storage: -40ºC to +70ºC (no irreversible change in attenuation).
   b. Operating: -20ºC to +70ºC.
3. Humidity Range: 0% to 100%.
4. Single Unit Cables:

a. Maximum Tensile Strength (2 fibers).
- During Installation: 1001 Newton (225 lb. force) (no irreversible change in attenuation).
- Long Term: 300 N (67 lb. force).

b. Maximum Tensile Strength (≥4 fibers):
- During Installation: 1335 Newton (300 lb. force) (no irreversible change in attenuation).
- Long Term: 400 N (90-lb. force).

5. Multiple Unit Cables:
   a. Maximum Tensile Strength (≤ 24 fibers).
   - During Installation: 2670 Newton (600 lb. force) (no irreversible change in attenuation).
   - Long Term: 180 N (801 lb. force).

   b. Maximum Tensile Strength (36 to 48 fibers):
   - During Installation: 3560 Newton (800 lb. force) (no irreversible change in attenuation).
   - Long Term: 1068 N (240-lb. force).

   c. Maximum Tensile Strength (≥60 fibers):
   - During Installation: 4450 Newton (1000 lb. force) (no irreversible change in attenuation).
   - Long Term: 1335 N (300-lb. force).

6. Bending Radius:
   a. During Installation: 20 times cable diameter.
   b. No Load: 10 times cable diameter.

7.7 Fiber Hardware

A. All Fiber Optic Termination Hardware shall be CommScope. Termination hardware in the Equipment Room shall be CommScope for Multi-mode applications. All rack mount enclosures shall be CommScope Uniprise Ready enclosures.

1. CommScope SD-1U Enclosure
2. CommScope SD-2U Enclosure
3. CommScope SD-4U Enclosure

7.8 LC Connectors

A. When fusion splicing is not practical, Qwik-II connectors shall be used to terminate multimode fiber. All Fiber Optic Connectors shall be CommScope. They shall be available in LC style connectors.
   1. CommScope MFC-LCF-09-5X LC Connector for 0.9 mm Fiber (MM)

7.9 Fiber Optic Adapter Splice Cassettes

A. The splicing cassette is designed for use in the SD fiber shelf, which has a LGX/1000 style footprint. Fusion splices are utilized and managed inside the cassette after splicing. The cassettes are available with 12 fiber LC duplex connections in 50-micron Multi-mode fiber and Single mode Fiber versions. The splice cassette is provided with pigtails in the

appropriate fiber type and fusion splice protection sleeves. Break out kits are not required when utilizing the splice cassette.

B. This product is intended for indoor use or can be used outdoors in a suitable protective enclosure.
   1. CommScope PNL-CS-12LCX-PT Splice Cassette (MM)

7.10 Fiber Optic Patch Cords

A. All fiber optic patch cords shall be available in LC connector type. Cords shall be available in multiple jumper lengths. CommScope's fiber optic jumpers connect the patch panel/shelf to the equipment bay.

B. Contractor will provide Six Duplex 5 foot and Six Duplex 10 foot patch cords per 12 strand backbone cable, enough to fully patch out both sides of the backbone cable.
   1. CommScope FEXLCLC42-MXF005
   2. CommScope FEXLCLC42-MXF010

PART 8 – GROUNDING

8.1 ER to the building main service ground point. This ground conductor shall be utilized for equipment, termination, equipment rack, cable tray and computer equipment grounding.

8.2 All grounding and bonding shall meet the National Electrical Code (NEC) as well as local codes, which specify additional grounding and/or bonding requirements.

8.3 Bonding and Grounding

A. Communication bonding and grounding shall be in accordance with the NEC and NFPA. Horizontal cables shall be grounded in compliance with ANSI/NFPA 70 and local requirements and practices. Horizontal equipment includes cross connect frames, patch panels and racks, active telecommunication equipment and test apparatus and equipment. When required by local code, provide a Telecommunications Bonding Backbone utilizing a #6-AWG or larger bonding conductor that provides direct bonding between equipment rooms and telecommunications closets. This is part of the grounding and bonding infrastructure (part of the telecommunications pathways and spaces in the building structure) and is independent of equipment or cable.

PART 9 – EXECUTION

9.1 UTP CABLE TERMINATION PRACTICES

A. Insulation Displacement Contact (IDC) connectors shall be used and installed per the manufactures' recommendations.

B. Strip back only as much cable jacket as required to terminate.

C. Preserve wire-pair twists as closely as possible to point of termination (0.5" maximum) to keep signal impairment to a minimum.

D. Avoid twisting cable jacket during installation.

E. Take care to ensure all data UTP wiring devices are designed for T568B wiring, T568A devices use a different pair assignment and should not be mixed.

9.2 OPTICAL FIBER CABLE INSTALLATION AND TERMINATION PRACTICES

A. The following fiber optic connector installation methods are acceptable; fusion splice connection of factory-made pigtail connectors, epoxy/polish style connectors, or non-epoxy compression cam gel style connectors. In each case, the connector manufactures' instructions shall be followed and the recommended tools and supplies, including break out kits when required, shall be used for termination and testing. All Fiber strands to be terminated including future use pairs.

B. As per industry standard - IEC 61300-3-35 during optical fiber connector termination, certify, all terminations with a 200-power microscope (minimum). Follow all of the connector manufacturers' recommendations. Unacceptable flaws in the termination's will include, but not be limited to, scratches, full or partial cracks, bubbles, pits, or residual dirt, dust, oil, moisture, grinding or sanding debris in the connector. The acceptable final inspection shall show a connector tip that is properly aligned and free of imperfections in 100% of the core and 80% of the cladding. Any connectors that fail testing shall be inspected and re-tested after rework.

C. During installation of optical fiber cable, do not allow pulling tension to exceed cable manufacturers' specification for the cable being installed. Only the strength member of the cable shall be subjected to the pulling tension.

D. Clean all optical fiber connector tips prior to inserting them into mating receptacles or bulkheads and re-install dust covers. Clean the tester launch cord prior to each insertion, as well.

9.3 WARRANTY, SERVICE, TESTING, CERTIFICATION

A. The Contractor must provide an extended warranty that is inclusive of the Manufacturer's warranty to the Owner covering all network cable and connectivity hardware products comprising this installation site. The Contractor and Manufactured shall jointly provide the Owner an extended warranty of the installed system against defects in material or workmanship for a period of no less than twenty-five years (period as is customary for the Manufacturer) from the date of substantial completion. Any equipment or cabling shown to be defective shall be replaced, repaired, or adjusted free of charge. All labor and materials shall be provided at no expense to the Owner.

B. The System Contractor shall make a thorough inspection of the complete installation to ensure the following:
   1. Complete and functional system.
   2. Installed in accordance with manufacturers' instructions.
   3. All cabling shall test free from all grounds, opens, and shorts.
   4. A representative of the Owner shall have an opportunity to be present for all final testing. Coordinate final testing with Owner, schedule as near as possible to acceptance date.

9.4 UTP CABLES AND LINK TESTING

A. Acceptance Testing: Test each conductor of every cable on the reel to verify length and continuity. Cables that have been damaged in transit must be replaced. Installed cable that proves to be defective will be replaced at the contractor's expense.

B. Final Testing: All UTP cabling will be certified to meet and or exceed the specifications as set forth for Permanent Link Testing of all Power over Ethernet electrical parameters including alien crosstalk performance. Mechanical requirement testing and test methods shall meet ANSI/CEA S–90–661 or ANSI/CEA S–102–732. Certified cable channel performance shall meet or exceed the requirements of ANSI/TIA-568, ANSI/TIA-1152-A, and ISO/IEC 11801 Standards for Structured Telecommunications Cabling Installations in a configuration up to 100 meters at swept frequencies of:
   1. 1 to 250 MHz Level III Class E for Category 6
   2. 1 to 500 MHz Level IIIe Class EA for Category 6A.

C. Test alien crosstalk (near-end and far-end loss) for a cabling system using a network analyzer with 100-Ω pair terminations as follows;
   1. The test device consists of two jacks; one jack is connected to a main test unit and the other to a remote test unit; the main test unit and the remote test unit are connected with a field tester communication channel (patch cord or link);
   2. Six-around-one cable-bundle configuration throughout the tested length;
   3. Cable ties placed 12 inches apart for the entire length of the bundle, except the last 3.2 feet from each end; no cable-tie-induced deformation of the bundle;
   4. Modeling four-connector channel configurations using the worst-case maximum and minimum configurations to determine the worst-case for different parameters;
   5. Long channels with 90 meters of permanent link, 5 meters between the consolidation point and the telecommunications outlet, 10 meters of patch cords used to connect active equipment and cross-connect panels;
   6. Measurement of alien crosstalk (near-end and far-end loss) between all pairs of the middle disturbed cable and each pair of all adjacent cables;
   7. Measurement of power sum of all 24 adjacent pair cables.

D. The cable tester shall be ETL verified to IEC Level V accuracy or equivalent with the latest version of firmware and shall produce an electronic or printed report, noting label information, for each cable run. These reports are to be included in the close-out documentation. Testing shall be conducted with a Fluke DSX-5000 with OLTS and OTDR functions, or equivalent, permanent link adapters, high-performance channel adapters, termination plugs, 8-pin modular couplers and analysis software. Certifications shall include the following parameters for each pair of each cable installed:
   1. Characteristic Impedance 100 Ω +/- 15%
   2. Wire map (pin to pin and ground connectivity)
   3. Cable Length Permanent Link Test, station (horizontal) cable from patch panel to jack, should not exceed 295 feet (Channel length not to exceed 328 feet)
   4. DC Loop Resistance
   5. DC Resistance Unbalanced (Difference in DC Resistance between conductors of the same pair)
   6. DC Resistance Unbalanced (Difference in DC Resistance between conductors between pairs)
   7. Return Loss
   8. Insertion Loss

9. Near End Crosstalk Loss (NEXT)
10. Power Sum Near End Crosstalk Loss (PSNEXT)
11. Far End Crosstalk Loss (FEXT)
12. Attenuation Crosstalk Ratio Far End (ACRF)
13. Power Sum Attenuation Crosstalk Ration Far End (PSACRF)
14. Transverse Conversion Loss (TCL)
15. Equal Level Transverse Conversion Transfer Loss (ELTCTL)
16. Coupling Attenuation
17. Propagation Delay
18. Propagation Delay Skew
19. Power Sum Alien Near–End Crosstalk Loss (PSANEXT)
20. Average Power Sum Alien Near End Crosstalk Loss (Average PSANEXT)
21. Power Sum Alien Far–End Crosstalk Loss (PSAFEXT)
22. Power Sum Alien Attenuation to Crosstalk Ratio Far–End (PSAACRF)

9.5 OPTICAL FIBER TESTING

A. Acceptance Testing: Test each strand of every optical fiber cable on the reel with an OTDR, to verify length and continuity. Fiber cables that have been damaged in transit must be replaced. Installed fiber cable that proves to be defective will be replaced at the contractor's expense.

B. Final Testing: After termination, each individual fiber of each cable segment shall be tested bi- directionally using an OTDR, both to determine the installed length and continuity. All individual fibers of each cable segment will be tested using a power meter to determine the actual loss. These readings will be taken at the 850 nm and 1300 nm windows for Multi-mode and 1310 nm and 1550 nm windows for single-mode. Testing will be in both directions. The final readings shall be listed in the certification report. These readings must not be higher than the "Optimal Attenuation Loss." The OAL will be calculated using the manufacturers' factory certified test results, (dB/Km) converted to the actual installed lengths plus the manufacturers' best published attenuation losses for the connector and/or splice installed on this project. (0.20 for Connectors and 0.10 for splices.) The OAL shall be used for comparison with the end to end power loss test results prior to acceptance by the construction manager.

C. Fiber optic cable shall be subjected to bi-directional testing meeting ANSI/TIA-568 requirements. The cable tester shall produce a printed report, noting label information, for each cable run. These reports are to be included in the close-out documentation.

END OF SECTION 269750 Voice and Data Communication Cabling