IDEA PUBLIC SCHOOLS

HYBRID LAB CONVERSION AT IDEA RIO VISTA

SOCORRO, TEXAS

ARCHITECTS - PLANNERS

GMS Architects

Ethos Engineering

Set No.

TABLE OF CONTENTS

DIVISION 6 - CARPENTRY

06100 Rough Carpentry
06200 Finish Carpentry
06400 Architectural Woodwork

DIVISION 7 - MOISTURE PROTECTION

07201 Sound Attenuation Blankets
07900 Joint Sealers

DIVISION 8 - DOORS AND WINDOWS

08100 Steel Doors and Frames
08210 Wood Doors
08700 Finish Hardware

DIVISION 9 - FINISHES

09220 Non-Structural Metal Framing
09250 Gypsum Drywall
09510 Acoustical Ceilings
09650 Resilient Flooring
09900 Painting

DIVISION 10 - SPECIALTIES

10100 Markerboards and Tackboards

ETHOS ENGINEERING SPECIFICATIONS

DIVISION 26: ELECTRICAL

260010 Summary of Electrical Work
260519 Low-Voltage Electrical Power Conductors and Cables
260519.19 Metal Clad Cable
260526 Grounding and Bonding for Electrical Systems
260529 Hangers and Supports for Electrical Systems
260533 Raceways and Boxes for Electrical Systems
260544 Sleeves and Sleeve Seals for Electrical Raceways and Cabling
260553 Identification for Electrical Systems
262726 Wiring Devices
269750 Voice and Data Communication Cabling

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:	**I IDEA Hybrid Lab Conversion at Rio Vista** IDEA Rio Vista is located at 210 N Rio Vista Rd, Socorro, TX 79927. The Project consists of classroom conversion with demolition, interior partitions, millwork, interior finishes and MEP revisions.
PLANS AVAILABLE:	Plans and Specifications will be available beginning April 4, 2025, from GMS ARCHITECTS (Electronicaly Only). For Electronic Document request email to: susana@gmsarchitects.com.
PRE-PROPOSAL CONFERENCE:	Wednesday, April 16, 2025 at 3:30 pm (Central Time). **Join the meeting now** Meeting ID: 257 633 728 809 Passcode: 3Ex9x5nE 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 and IDEA Construction Procurement at facprocurement@ideapublicschools.org.
PROPOSAL DATE AND TIME:	**Wednesday, April 23, 2025 at 4:00 p.m. (Central Time)** 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 via Teams after the bid opening date and time. **Join the meeting now** Meeting ID: 234 927 867 500 Passcode: z5Jw6wT9
.	
PROPOSAL LOCATION:	Proposals may be submitted using the Public Purchase or Self-Service website, or by sending One (1) clearly identified hard copy ORIGINAL of the Proposal to: IDEA Public Schools with (1) USB Drive to:

IDEA Hybrid Lab Conversion at Rio Vista Texas
Attn**:** IDEA Public Schools Facilities Procurement
813 N Kansas St Suite 100, El Paso, TX 79902

Proposals MUST be received by IDEA by the specified due date and time outlined in the timeline. Each proposal MUST be sealed and marked with the relevant information; failure to do so may result in the proposal not being considered. Please ensure that all submissions are received by IDEA by the designated due date and time.
Note: Faxed or emailed Proposals will not be accepted. Acceptance Period is 120 days from the date of the proposal submission deadline unless otherwise stated in writing.

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

A. Project Description: The Project consists of classroom conversion with demolition, interior partitions, millwork, interior finishes and MEP revisions.

Project Location:
IDEA Rio Vista is located at 210 N Rio Vista Rd, Socorro, TX 79927.
Owner: IDEA Public Schools, 2115 W. Pike, Weslaco, Texas 78596.

B. 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 it 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. 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
Attn: Purchasing Department- IDEA Hybrid Lab Conversion at Rio Vista
813 N Kansas St Suite 100, El Paso, TX

E. Proposers are requested to submit the following documents using the Public Purchase or Self-Service website, or by sending One (1) clearly identified hard copy ORIGINAL of the Proposal to: IDEA Public Schools with (1) USB Drive to:

IDEA Hybrid Lab Conversion at Rio Vista Texas
Attn**:** IDEA Public Schools Facilities Procurement
813 N Kansas St Suite 100, El Paso, TX 79902

Proposals MUST be received by IDEA by the specified due date and time outlined in the timeline. Each proposal MUST be sealed and marked with the relevant information; failure to do so may result in the proposal not being considered. Please ensure that all submissions are received by IDEA by the designated due date and time.

Note: Faxed or emailed Proposals will not be accepted. Acceptance Period is 120 days from the date of the proposal submission deadline unless otherwise stated in writing.

- **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

A. SUBCONTRACTOR INFORMATION

B. 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.

1.16 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.

1.17 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. <u>FUNDING/NOTICE TO PROCEED TO COMMENCE WORK</u>

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"

1.18 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. **N/A**

1.19 WORK SCHEDULE AND COMPLETION TIME

A. A Notice to Proceed (NTP) will be issued on or about **May 5, 2025,** for the full building permit.

B. The project shall have Substantial Completion Date not later than **July 28, 2025.** Final completion shall be 60 days after Substantial Completion.

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

1.20 WORK RESTRICTIONS

A. Reference section 011400 for work restrictions.

1.21 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, , 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)

In accordance with Board Resolution approved by the Board on August 14, 2020 the CEO/Superintendent appoints the Senior Vice President of Financial Planning, Vice President of Facilities and Construction to constitute IDEA Public School's Construction Committee to select a construction methodology, issue proposals, rank proposals, and select the bidder providing best value to IDEA Public Schools for construction projects.

Contractor Ranking and Selection Approval Form

Projects: **IDEA Hybrid Lab Conversion at Rio Vista**

Construction Delivery Approach: Competitive Sealed Proposal (CSP), given the market is conducive for securing quality contractors when bidding this approach. This approach is a more cost-effective approach and is easier to manage from a funds-management and contracts standpoint than other delivery methods. The added risk of a lower quality subcontractor pool can be managed before award by: 1) vetting subcontractors submitted by the contractor during the negotiation period, and 2) by adding subcontractor quality to the selection criteria.

Scoring Criteria and Weighting:

Pass/Fail Criteria

1. Ability to provide required insurance
2. Ability to meet the project schedule
3. Acceptable firm stability
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

Proposed Questions & Information for Each Pass/Fail Category:

1. 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. IDEA is interested in understanding the stability of your firm in terms of managed growth. Provide firm resources or a workload analysis based on gross billings for the prior 3 years and projecting through 2025 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. Provide documentation showing the number of years that the entity has been in business under the same legal name.
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.

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. Past Experience with IDEA Public Schools, Architect and/or Consultants **(10 Points)**

Proposed Questions & Information for Each Scoring Category:

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). The project manager may have other roles, such as project superintendent, but must be on-site full time. Staffing strength is of significant importance to IDEA Public Schools. **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 three 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 or Architect. **10 points**
3. 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**
4. Describe your firm's approach to warranty service implementation. **5 points**

Proposed Subcontractor Team (**10 Points**)

Within 48 hours of the proposal deadline, submit a list of proposed subcontractors for the different trades of work. **10 points**

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 60 =	60
Contractor 2	$2,700,000	$2,500,000/$2,700,000 x 60 =	56
Contractor 3	$2,800,000	$2,500,000/$2,800,000 x 60 =	54
Contractor 4	$2,900,000	$2,500,000/$2,900,000 x 60 =	52
Contractor 5	$3,000,000	$2,500,000/$3,000,000 x 60 =	50

Experience with IDEA Public Schools, Architect and/or Consultants **(10 Points)**

The full credit of 10 points will be given to Offerors whose prior project experience with IDEA and/or IDEA's project team has been excellent. If experience is "standard", 5 points will be given. If IDEA and/or IDEA's project team had poor experience with an Offeror, no points will be awarded.

_____

IDEA Chief Financial Officer

_____

IDEA VP of Facilities and Construction

Ranking Criteria for
Selection of Building Contractors

Project Name: _____ Contractor: _____

Project Location(s):_____ Bid/Proposal: _____

Ranking Date: _____ Bid Opening Date:_____

CATEGORY	Maximum Score		Total Points Scored
1. PRICE (50 pts.)			
• Construction Cost	50		_____
2. FIRM EXPERIENCE / KEY PERSONNEL AND FIRM STABILITY (30 pts)			
• Team Organization Chart (proposed management team) Projects of Comparable Size Firms Quality Control Firms Warranty Service Philosophy	30		_____
		Subtotal	_____
3. Proposed Subcontractor Team (10 pts)			
• Subcontractor Team	10		_____
		Subtotal	_____
4. Prior Experience with IDEA Public Schools (10 pts)			
• Past Experience with IDEA Public Schools Architect and/or Consultants	10		_____
		Subtotal	_____
TOTAL POINTS SCORED	100 pts.	**Grand total**	_____

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 HYBRID LAB CONVERSION AT RIO VISTA** in accordance with the drawings and specifications **Dated 3/12/2025**, 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 HYBRID LAB CONVERSION AT RIO VISTA** 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 $10,000 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.

N/A

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. **N/A**

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***

TEXAS DEPARTMENT OF PUBLIC SAFETY BACKGROUND CHECK REQUEST FORM

This document to be completed by any and all individuals ("Vendor/Contractor") that will provide services to IDEA Public Schools in connection with a services contract involving continuing duties beyond one (1) school day AND direct contact with students. IDEA Public Schools considers "direct contact" with students as having an opportunity for substantial verbal, physical or virtual interaction with students *(Make copies for each individual involved in providing services under this contract, as needed)*. **Please submit completed forms to:** Riskmanagmentvendorbackgroundchecks@ideapublicschools.org

CONSULTANT, CONTRACTOR, VENDOR, PRIVATE DUTY NURSE, ETC…

Legal Name:

Business Name:

Type of Service:

Relationship to Vendor *(select one)*: ☐ Employee ☐ Independent Agent ☐ Subcontractor ☐ Self-employed

Dates of Service:

For *Private Duty Nurse* Name of Student:

Campus/Dept:

Contact Numbers (Cell Preferred):

E-Mail Address:

Social security number: (Please do not include copy of SS card)

Will individual be on school grounds, which may result in direct contact w/students ☐ Yes ☐ No

If individual has been fingerprinted previously in accordance w/Senate Bill 9, please indicate so below:

☐ Yes ☐ No SID Number (if known):

Have you ever been arrested or convicted of a felony offense or an offense that requires you to register as sex offender? ☐ Yes ☐ No

PLEASE MAKE SURE TO INCLUDE THESE ITEMS WHEN SUBMITTING THIS FORM:

- ▶ Texas Department of Public Safety Background Check Request Form
- ▶ Confidential Form
- ▶ A clear copy of individual's Driver License or state-issued ID

CAMPUS/DEPARTMENT ONLY

Requested by:

Name | Campus/Dept. | Date

INTERNAL USE ONLY

☐ Fingerprint Upload

☐ Fingerprint Search

☐ Not fingerprinted or Not Required

SID:

Subscribed till:

By:

Date:

Approved: ☐ Yes ☐ No

Reason for Denied:

By:

RM Representative

Confidentiality Form

IDEA Public Schools is required by Texas Education Code Chapter 22, Subchapter C to review the criminal history of applicants, employees, independent contractors, student teachers, and certain volunteers. The information requested below is necessary to obtain criminal history record information.

Name: _____
Last *First* *Middle*

Date of birth: _____ Driver's License: _____
State and Number

Mailing Address _____
Street City State Zip Code

Sex: ☐ Male ☐ Female Ethnicity: ☐ Black ☐ White/Other

I understand that the information I am providing about age, gender, and ethnicity will not be used to determine eligibility of vendor services but will be used *solely* for the purpose of obtaining criminal history record information. *

X _____ _____
Signature Date

PLEASE INSERT CLEAR PHOTOCOPY OF VALID DRIVER LICENSE OR STATE-ISSUED ID ON THIS PAGE:

(Front side only and do not include copy of social security card)

IDEA Public Schools Risk Management Department
Vendor Active Employee List & Campus Assignment

- ✓ **Complete ALL** requested information
- ✓ **Attach** additional page(s), if needed
- ✓ **Submit** form with the completing vendor packet to the IDEA Purchasing Department at vendorinquiry@ideapublicschools.org
- ✓ **Please** complete the form legibly as information is needed to accurately be processed (If we are unable to read information provided form will be sent back and will create a delay in processing)

Vendor/Provider Name: _____
Vendor/Provider Contact Person(s): _____
Vendor/Provider Phone Number: _____
Vendor/Provider Email Address: _____
Type of Service(s) to be Provided: _____
Please indicate if these services include a contract/agreement? Yes or No

Section I. Vendor Active Employee List & Campus Assignment:

	Last Name *As it appears on driver's license* ***(or Last Name used if you have been previously fingerprinted)***	**First Name** *As it appears on driver's license*	**Campus** (If employee will be providing service at multiple campuses, please list each campus the employee will be providing services at in this column)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Section II. Changes to Contactor/Subcontractor Employees:

Signature of Authorized Signer Requesting Change: _____

	Last Name	**First Name**	**Removal/Adding**	**Campus**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Rev. 1/12/2024
Risk Management

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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List of Sub-Contractors may be submitted at the time of Bid or within 48 hours after Bid. If not sure on certain trades, please provide list of potential subcontractors. Do not leave blank. Email list to rgg@gmsarchitects.com
If lists are not received within 48 hours after bid, no points will be received for this section.

LIST OF PROPOSED SUB-CONTRACTORS/SUPPLIERS
PROJECT: IDEA PUBLIC SCHOOLS – IDEA Rio Vista Hybrid Lab Conversion

BIDDER: _____ DATE: _____

	ITEM NAME OF SUB-CONTRACTOR/SUPPLIER (As applicable)
PERFORMANCE-PAYMENT BONDS	_____
LANDSCAPING	_____
TERMITE CONTROL	_____
CONCRETE WALKS, CURBS AND PAVING	_____
METAL FABRICATIONS	_____
ROUGH CARPENTRY	_____
ARCHITECTURAL WOOD WORK	_____
INSULATION	_____
PREFORMED METAL ROOFING	_____
JOINT SEALERS	_____
FLUSH WOOD DOORS	_____
FINISH HARDWARE	_____
TILE	_____
PAINTING	_____
TOILET PARTITIONS	_____
MOBILE STORAGE SHELVING	_____
DIVISION 10 SPECIALTIES	_____
KITCHEN EQUIPMENT	_____
DIVISION 15	
HVAC SUBCONTRACTOR	_____
HVAC EQUIPMENT	_____
HVAC CONTROLS	_____
PLUMBING SUBCONTRACTOR	_____
DIVISION 16	
ELECTRICAL SUBCONTRACTOR	_____
FIRE ALARM, INTERCOM, INT DET SUBCONTRACTOR	_____

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.

OWNER & CONTRACTOR AGREEMENT

THIS AGREEMENT is entered into and effective on DATE, by and between _____ ("Owner") with its principal place of business at 2115 W. Pike Blvd., Weslaco, Texas and, CONTRACTOR**.** (“Contractor"), with its principal place of business at ADDRESS Phone: NUMBER, Fax: NUMBER

_____ School located at _____in _____, Texas

CONTRACTOR’S WORK

The Contractor shall furnish all personnel, labor, equipment, supplies and all other items necessary to perform the construction services and other work described herein (the “Work”) in accordance with the terms and conditions set forth in this Agreement and the accompanying Contract Documents.

A. The Contractor shall be responsible for making and submitting application for the building permit. The Contractor shall pay the municipality directly for the general building permit. The Contractor shall be responsible for procurement and payment of all other permits, governmental fees, licenses, and inspections necessary for proper execution of the contract and which are legally required.

B. Proposal to be based on existing conditions, as determined by a site visit by the Contractor. By execution of this Agreement, Contractor confirms that it has inspected the site and accepts the conditions as appropriate for performance of the work described herein. No Change Orders shall be allowed for unforeseen or changed conditions, except to the extent such conditions were not foreseeable or discoverable by the Contractor using reasonable means during the aforementioned inspection, or to the extent such changes in conditions or scope are required by any permitting or regulatory agencies, or requested by Owner.

C. The scope of the project includes the following pursuant to the documents included in Exhibit A:

1. [_____]

CONTRACT SUM

Owner agrees to pay Contractor for the strict performance of its Work, as described herein, the lump sum of **(words) Dollars ($_____)** in current funds, which excludes all State Sales Tax and Local Sales Tax since Owner is tax-exempt, and subject to additions or deductions as herein provided; which sum shall include all taxes required by any division of the Federal, State or local government subject to additions and deductions for changes in the work as may be agreed upon.

The payment shall be made based upon the following **or** cost schedule upon receipt of documentation of actual costs incurred by the Contractor to the satisfaction of the Owner, and receipts from subcontractors, equipment, and material suppliers, which shall be competitively bid by the Contractor unless otherwise approved by the Owner, in such case Contractor shall show evidence that such goods and services provided are at market value **or** unit prices/ cost schedule:

INSERT CONSTRUCTION SCHEDULE OF VALUES HERE

SCHEDULE AND TIME OF PERFORMANCE; LIQUIDATED DAMAGES

TIME IS OF THE ESSENCE. Work shall begin upon execution of the Notice to Proceed and must be completed by _____, unless Owner extends the completion date. Contractor shall perform its Work, in accordance with Owner's schedule so as not to delay the construction of the project.

The Parties agree that pecuniary damages would be suffered by the Owner if the Contractor does not substantially complete all Work called for in the Contract Document by the specified date above, which damages are, by their very nature, difficult of ascertainment. It is therefore expressly agreed, as a part of the consideration inducing the Owner to execute this Contract that the Owner may deduct from the final payment made to the Contractor liquidated damages in the amount equal to **(words) Dollars ($** 1,000.00 **)** per day, per site, for each and every calendar day beyond the agreed date which the Contractor has agreed to for completion of the Work included in the Contract Document.

CONTRACT DOCUMENTS

The "Contract Documents" include this Standard Form Agreement, including the General Conditions, Scope of Work, the Contract Drawings and Plans, Specifications, Addendums and the following Exhibits attached hereto: Reference Exhibit A: _[SCOPE]__:, Exhibit B: _[DRAWINGS]__ , Exhibit C: Insurance, and Exhibit D: Criminal History Review and Child Support Certifications

This Agreement constitutes the entire agreement between the parties hereto and supersedes all prior negotiations, representations and agreements, either written or oral with respect to the subject matter hereof. No other agreements, either oral or written, have been made by Owner to the Contractor, except as stated in this Agreement.

CONTRACTOR shall not make any change to this Agreement without the prior written consent of Owner's duly authorized officer or agent. Any change otherwise made shall be null and void.

Contractor:CONTRACTOR NAME	**Owner** **[Owner]**
Signature:	Signature:
Name:	Name:
Title:	Title:
Date Signed: _____	Date Signed: _____

OWNER & CONTRACTOR AGREEMENT
GENERAL CONDITIONS

1. General Scope

For purposes of this Contract Agreement, the term Contractor shall also mean “Vendor.” The term “Agreement” shall also mean “Vendor Contract.”

The general and supplementary conditions, specifications, and conditions, addenda, modifications thereto and any and all other documents referred to therein or made a part thereof (the "Contract Documents") are by reference thereto made a part of this Agreement as fully as though copied herein.

In connection with the construction of IDEA Public Schools – PROJECT TITLE,
Contractor agrees to perform for Owner the Scope of Services enumerated previously under **Scope**, including all things necessary or incidental to the complete performance of those services.

2. Contractor’s Duties and Obligations

Contractor must place sufficient equipment and workmen on the job so that Contractor's Work will continuously progress to the satisfaction of the Owner. The Contractor shall be responsible for coordinating its work with that of any other contractors that may be performing work on the Project site, through the Owner or the Owner’s designated representative, so as not to impede the progress of any work taking place at the Project site. If the Contractor should, in the opinion of Owner, fail to do so, or fail to fully perform any of the Contractor's other obligations hereunder, Owner may, upon 72 hours prior written notice, remedy the default or terminate this Contractor's right to proceed with the Work, take over Contractor's Work and complete this Agreement at Contractor's sole cost and expense.

Contractor must notify the Owner of any required permits and fees within 10 days of the execution of this Contract Agreement.

Contractor must coordinate with the Owner before the commencement of any operations for the purpose of accommodating operations that may be effected by the Work.

All times when on the Owner’s property all technicians will wear identification or company shirts with the vendor’s business name imprinted on the shirt.

Smoking is not allowed in school buildings or on campus property.

Contractor is responsible for their equipment or tools and those of any of their subcontractors, suppliers, or vendors. The Owner is not responsible for any vendor equipment or tools.

The Contractor warrants to the Owner that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence upon completion of the Work.

In addition to the foregoing warranty obligations, if, within one year after the date of completion of the Work, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly and without additional compensation after receipt of written notice from the Owner of such condition. This obligation to correct defective Work shall not be construed as a limitation of the Contractor’s liability with respect to the warranty provided above, nor any other obligation of the Contractor contained in the Contract Documents.

The Contractor shall at all times keep the Project site clean and free from accumulation of waste materials or rubbish caused by the Work under the Contract. Upon completion of the Project, and prior to the final inspection, the Contractor shall have the Project site in a neat and clean condition.

3. Payments to Contractor

A. As full consideration for the performance of those services referenced herein, Owner agrees to pay Contractor the compensation provided for in “Compensation” section of the Agreement.

B. On or about the first day of each month, Contractor shall submit progress invoices and lien releases in a form satisfactory to the Owner in duplicate, indicating the services performed during the preceding month and the charges therefore. Invoices shall be in a form sufficient for Owner to be able to identify the Work completed by Contractor.

C. Within thirty (30) calendar days after receipt of a progress invoice, Owner shall pay Contractor the full amount of the invoice, less 10% retainage. However, if Owner objects to all or any portion of any invoice, it shall notify Contractor within ten (10) calendar days from receipt of invoice of its objections; and both parties shall immediately make every effort to settle the disputed portion of an invoice prior to the date that payment is due. In the event the settlement of a disputed portion of an invoice is not reached by the date that payment is due, then Owner will pay only that portion of the invoice that is not in dispute. Final payment of the 10% retainage shall be conditional upon final acceptance of the Project, receipt of an all bills paid affidavit, final waiver of lien, receipt of all required warranty and closeout documentation, satisfactory completion of all punchlist items, training, and other such documentation reasonably required by the Owner.

D. Contractor agrees to furnish, prior to any payment hereunder, evidence satisfactory to Owner that payment has been made to all its employees, subcontractors and suppliers in the full amounts due in connection with the performance of this Agreement.

E. Notwithstanding anything contained herein to the contrary, all payments (the “Payments”) by the Owner to the Contractor under this Contract, including without limitation, progress payments, payment of retainage, and final payment, are expressly and unequivocally contingent upon and subject to the Owner’s acceptance of all Work performed by the Contractor and the Contractor providing sufficient proof that all payments have been made to its employees, subcontractors and suppliers for work performed on the Project.

4. Insurance and Bonds

Prior to commencing Work, the Contractor shall furnish Owner certificates certifying that the Contractor is insured in accordance with Exhibit "C", Insurance, prior to commencing Work. All policies are to be written through a company duly authorized to transact that class of insurance in the State where the project is located, and shall be with insurance companies acceptable to Owner with an A.M. Best rating of A or better.

The Contractor shall furnish bonds covering faithful performance of the Agreement and payment of obligations arising thereunder as required by Chapter 2253 of the Texas Government Code, utilizing a surety acceptable to Owner and licensed in the State of Texas.

Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Agreement, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

Each bond shall be of penal sum equal to 100% of the estimated cost of construction and shall be compatible with the provisions of the governing authority. The Contractor shall file copies of each bond with the county clerk and furnish the Owner with a file receipt. The bonds shall remain in full force throughout the contractual correction period of the Agreement. The Work will not be started until the bonds and issuing companies have been accepted as satisfactory by the Owner. The original bonds will be delivered to the Owner with an authorized power of attorney attached thereto.

5. Indemnification

A. To the fullest extent permitted by law, Contractor covenants and agrees to indemnify and hold the Owner harmless of and from any and all claims, losses, demands, causes of action and the like, including but not limited to, attorneys' fees and court costs which may be asserted against Contractor by anyone other than Owner resulting from, arising out of, or occurring in connection with the failure of Contractor or any of its subcontractor(s) or supplier(s) to

perform all Work required within the scope of this Agreement in strict accordance with the Contract Documents.

B. To the fullest extent permitted by law, Contractor hereby agrees to indemnify, defend protect and hold harmless the Owner, its agents, employees, servants and any other party required by the Contract Documents (individually the "Indemnified Party" and collectively the "Indemnified Parties") of and from any loss or damage and to reimburse the Indemnified Parties for any and all expenses, including legal fees, and other litigation costs to which the Indemnified Parties may be put because of any loss, damage, personal injury, or death to any person or persons (including employees, officers or agents of Contractor, Subcontractor and lower tier subcontractors) or any property damage arising out of, resulting from, or in connection with (in whole or in part) the performance or nonperformance of Work required in this Agreement or by reason of any act, omission, fault or negligence, whether active or passive, of Contractor, its Subcontractors of any tier and anyone else for whose acts Contractor is responsible, whether on the Project or proceeding to or from the site. Without limiting the foregoing the Contractor's indemnity obligation shall apply to any personal injury, loss, damage, death or property damage caused (or alleged to be caused) in part by the negligence of an indemnified Party. It is specifically understood that this indemnity shall be interpreted as indemnifying an Indemnified party from its own joint, concurrent or partial negligence. This clause is not intended to indemnify the Indemnified Parties for claims, damages, losses and expenses caused by the sole negligence or willful misconduct of an Indemnified Party.

C. **Contractor shall be responsible for, and save Owner harmless from, all expense incurred as a result of liens, claims of lien or bond claims placed on the project, whether caused by Contractor, or any of its subcontractor(s) or supplier(s).** Contractor acknowledges that the Owner's property is public property held in trust for the State of Texas and is not subject to lien, attachment, or foreclosure. The only recourse of any person providing labor and/or materials on the Project will be a claim against the Payment Bond.

6. Compliance with all Laws and Regulations

A. Contractor warrants that it is, and during the course of the Work on the Project will remain, in full compliance with all licensing requirements under applicable Federal, State, and local laws. The Contractor agrees to perform background checks on all employees and to require its subcontractor(s) to perform background checks on all of their employees who will be working on the Project site during school sessions in order to ensure the safety of the students, and to provide documentation to the Owner certifying the Contractor's compliance with Section 22.08341 of the Texas Education Code, All technicians will comply with local business conduct policies and guidelines. Contractor must certify to the Owner (see Exhibit 3 as incorporated herein by reference) and/or coordinate with the Owner to ensure that an appropriate criminal history record information review as required by Texas Education Code § 22.0834 is conducted for Contractor and any of Contractor's personnel who will have continuing duties related to this Agreement and will have direct contact with students.

C. FAMILY CODE CHILD SUPPORT CERTIFICATION - By signing this 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."

D. FELONY CONVICTION NOTIFICATION - 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."

E. NON-DISCRIMINATORY EMPLOYMENT - Contractor, 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.

7. Safety and Substance Abuse

All technicians will comply with OSHA and other federal, state and local codes and safety requirements.

8. Changes and Extra Work

The Contractor shall make all claims in writing to Owner for additional Work and/or extensions of time, in accordance with the requirements of the Contract Documents, but not later than seven (7) days from when Contractor knew or should have known of the claim. Owner may, at any time, unilaterally or by agreement with Contractor, make changes in the Work covered by this Agreement. Any unilateral order or agreement under this Article shall be in writing. Contractor shall perform the work as changed without delay. If a unilateral order is issued, the Contractor and the Owner will negotiate a reasonable sum for payment. Overhead and Profit mark-up is limited to 10% for the Contractor, and 10% for Subcontractors. The maximum aggregate Overhead and Profit mark-up for a change order shall not exceed 20%.

Except where a change order involves an increase in the scope of work, extension of time shall be Contractor's sole remedy for any 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 written 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. Contractor shall, regardless of the cause or reason for the delay, continue to prosecute all of its work to the fullest extent possible and take all reasonable measures to minimize the effect of the delay.

9. Contract Interpretations and Disputes

If any dispute arises between the Owner and Contractor as to interpretation of this Agreement, Contractor upon written direction from an officer or the designated representative of the Owner, shall proceed so as not to delay the Work. Contractor shall submit an estimate for the disputed work within seven (7) days of Owner's written directive; otherwise, any claim of Contractor for disputed work shall be null and void. Under no circumstances shall the Contractor perform any extra work without such prior written direction. If the parties hereto are unable to resolve the dispute, each party shall retain its full legal rights.

10. Default and Terminations

The Owner may terminate this Agreement for convenience with seven (7) days written notice. In such event, the Contractor shall be entitled to receive payment for Work performed in accordance with the Contract Documents executed up to the effective date of termination, less any disputed amounts or claims for which the Owner may become liable as a result of the performance of the Contractor. Contractor shall not be entitled to any payment for overhead or profit on Work not performed. Contractor shall provide backup for costs in a form acceptable to the Owner. In no event shall termination costs exceed the value of the Agreement less amounts already paid to the Contractor.

The Owner may terminate this Agreement for cause after three (3) days written cure notice if the Contractor fails to (1) man the project properly; (2) meet the Project schedule; (3) make payments of all amounts due to laborers, subcontractors and suppliers or (4) any other material breach of this Contract. The Owner may initiate a termination for cause by providing written notice to the Contractor generally identifying the nature of the Contractor's deficient performance. If the Contractor fails to cure its deficient performance after the three (3) days, the Owner may terminate immediately. If a termination for cause is determined to be wrongful at any subsequent time, it shall be converted to a termination for convenience and Contractor's damages shall be limited as set forth in the preceding paragraph.

When the Owner terminates the Contractor for cause, Contractor shall not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner.

11. Miscellaneous

The prevailing party in any judicial proceeding arising from this Agreement shall recover its reasonable and necessary attorneys' fees.

If any one or more of the provisions of this Agreement shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision.

This Contract has been executed and entered into in the State of Texas and shall be construed in accordance with and governed by the laws of said State and of the United States of America, as applicable, and the parties specifically agree that with respect to litigation or other disputes resolution proceedings relating to this Contract, venue shall be in the City and County where the Project is located.

12. Non-Appropriation / Funding Out: This Agreement is conditioned upon continued funding and appropriation and allotment of funds by the Texas State Legislature and/or the Texas Education Agency pursuant to the Owner's open-enrollment charter. This Agreement is further conditioned on continued allocation of funds by the Owner's Board of Directors (the "Board"). If the Legislature and/or the Texas Education Agency fails to appropriate or allot the necessary funds, or the Board fails to allocate the necessary funds at the end of the Owner's fiscal year, then the Owner will issue written notice to Contractor and the Owner may terminate this Agreement without further duty or obligation hereunder.

13. Limitations: THE PARTIES ARE AWARE THAT THERE ARE CONSTITUTIONAL AND STATUTORY LIMITATIONS ON THE AUTHORITY OF THE OWNER (A PUBLIC SCHOOL) TO ENTER INTO CERTAIN TERMS AND CONDITIONS OF AN AGREEMENT, INCLUDING, BUT NOT LIMITED TO, THOSE TERMS AND CONDITIONS RELATING TO LIENS ON THE OWNER'S PROPERTY; DISCLAIMERS AND LIMITATIONS OF WARRANTIES; DISCLAIMERS AND LIMITATIONS OF LIABILITY FOR DAMAGES; WAIVERS, DISCLAIMERS AND LIMITATIONS OF LEGAL RIGHTS, REMEDIES, REQUIREMENTS AND PROCESSES; LIMITATIONS OF PERIODS TO BRING LEGAL ACTION; GRANTING CONTROL OF LITIGATION OR SETTLEMENT TO ANOTHER PARTY; LIABILITY FOR ACTS OR OMISSIONS OF THIRD PARTIES; PAYMENT OF ATTORNEYS' FEES; DISPUTE RESOLUTION; INDEMNITIES; AND CONFIDENTIALITY (COLLECTIVELY, THE "LIMITATIONS"), AND TERMS AND CONDITIONS RELATED TO THE LIMITATIONS WILL NOT BE BINDING ON THE OWNER EXCEPT TO THE EXTENT AUTHORIZED BY THE LAWS AND CONSTITUTION OF THE STATE OF TEXAS.

14. No Waiver of Immunity: NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT, CONTRACTOR ACKNOWLEDGES, STIPULATES, AND AGREES THAT NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A WAIVER OF ANY DEFENSE AVAILABLE TO THE OWNER, INCLUDING BUT NOT LIMITED TO ANY SOVEREIGN, STATUTORY, AND/OR GOVERNMENTAL IMMUNITY AVAILABLE TO THE OWNER UNDER APPLICABLE LAW.

15. List of Exhibits

Exhibit A: Scope Description

Exhibit B: List of Drawings

Exhibit C: Insurance Requirements

Exhibit D: Criminal History Review and Child Support Certifications

Contractor: **CONTRACTOR NAME**	**Owner:** **IDEA Public Schools**
Signature:	Signature:
Name:	Name:
Title:	Title:
Date Signed: _____	Date Signed: _____

Exhibit A – Scope Description

Exhibit B – Drawings and Specifications

Attached documents below, including:

- Document 1 “Title”
- Document 2 “Title”
- Document 3 “Title”

Exhibit C – Insurance Requirements

1. The Contractor shall not commence work under this Contract until he has obtained all the insurance required hereunder and certificates of such insurance have been filed and accepted by the Owner. Insurance coverage shall provide a thirty (30) day notice of cancellation or material change to the policy coverage and/or limits. Acceptance of the insurance certificates by the Owner shall not relieve or decrease the liability of the Contractor.

2. The Contractor shall provide and maintain, until the Work included in this Contract is completed and accepted by the Owner, the minimum insurance coverages that follow, provided that the limits of liability may be met in part by the use of umbrella or excess policies.

   a. **Worker's Compensation** and **Employer's Liability** Insurance in accordance with State law as follows:

Type of Coverage	Limits of Liability
Workers' Compensation	Statutory

   b. **Commercial General Liability** Insurance including coverages for Premises-Operations, Independent Contractor Protective, Products-Completed Operations, Contractual Liability, Personal Injury, and Property Damage, including coverage for Explosion, Collapse, and Underground Hazards and Amendment of Aggregate Limits per Project Endorsement (CG2503).

Type of Coverage	Limits of Liability
Commercial General Liability	\$500,000 Each Occurrence \$50,000 Damage to Premises Rented to Contractor \$5,000 Medical Expense (any one person) \$50,000 Personal & Advertising Liability \$1,000,000 General Aggregate Other than Products - Completed Operations \$1,000,000 Products-Completed Operations/OP Aggregate

   c. **Business Automobile Liability** Insurance covering all owned, non-owned and hired automobiles used in connection with Work with the following limits:

Type of Coverage	Limits of Liability
Bodily Injury and Property Damage	\$1,000,000

3. The furnishing of the above listed insurance coverage is one of the Contractor 's initial requirements of the Contract which must be performed before a Notice To Proceed can be issued. The coverage listed above shall be subject to the following conditions:

   a. All policies shall contain special endorsements to include:

      - The Owner and Project Management Services, Inc. (Owner's agent) as additional insured on the Commercial General Liability policy.

      - Waiver of Subrogation: A Waiver of Subrogation endorsement shall apply to general liability, auto liability and worker's compensation in favor of the Owner.

4. The Contractor shall furnish a certificate, satisfactory to the Owner from each insurance company showing that the above insurance is in force, stating policy numbers, dates of expiration, and limits of liability thereunder, and further providing that the insurance will not be canceled or changed until the expiration of at least thirty (30) days after written notice of such cancellation or change has been mailed to and received by the Owner. Liability coverage must be on an "occurrence" basis as opposed to "claims made."

   Insurance carried by the Contractor shall be with insurers having Best's Rating of A or better.

5. The furnishing of the above Workers' Compensation insurance includes the responsibility of the Contractor to provide coverage of every worker either under the Contractor's policy or under the policy provided by a Subcontractor. The Contractor's policy shall provide that, in the event that a Subcontractor's policy fails to provide Worker's Compensation coverage of a worker that such insurance coverage is provided by the Contractor's policy.

Exhibit D

Criminal History Review of Contractor Employees

Texas Education Code § 22.0834 requires entities that contract with school districts or charter schools to provide services to obtain named based criminal history and/or fingerprinting record information regarding "covered employees."

Definitions:

"*Covered Employees*": Any employee of a contractor or subcontractor who (1) has or will have continuing duties related to the contracted services and (2) has or will have direct contact with students. IDEA Public Schools (the "School") retains the discretion to determine what constitutes direct contact with students.

"*Disqualifying Criminal History*": Any conviction or other criminal information designated by the School, including one or more of the following offenses:

1. A felony or misdemeanor offense that would prevent a person from obtaining certification as an educator under Texas Education Code § 21.060, including:
    a. Crimes involving moral turpitude;
    b. Crimes involving any form of sexual or physical abuse or neglect of a student or minor or other illegal conduct with a student or minor;
    c. Crimes involving felony possession or conspiracy to possess, or any misdemeanor or felony transfer, sale, distribution, or conspiracy to transfer, sell, or distribute any controlled substance defined in Chapter 481, Texas Health and Safety Code;
    d. Crimes involving school property or funds;
    e. Crimes involving any attempt by fraudulent or unauthorized means to obtain or alter any certificate or permit that would entitle any person to hold or obtain a position as an educator;
    f. Crimes occurring wholly or in part on school property or at a school-sponsored activity; and
    g. Felonies involving driving while intoxicated.
2. A felony offense under Title 5, Penal Code.
3. An offense on conviction of which a defendant is required to register as a sex offender.
4. An offense under the laws of another state or federal law that is equivalent to an offense under items (2) and (3) above where, at the time the offense occurred, the victim of the offense was under 18 years of age or was enrolled in a public school.
5. Any other offense that the School believes might compromise the safety of students, staff, or property.

All contractors must work with the School to comply with the requirements of Texas Education Code § 22.0834 prior to beginning services to the School.

CRIMINAL HISTORY REVIEW OF CONTRACTOR EMPLOYEES

Please complete the information below:

I, the undersigned agent for _____ ("Contractor"), certify that [check one]:

[_____]None of the employees of Contractor and any subcontractors are "covered employees" as defined above. If this box is checked, I further certify that Contractor has taken precautions or imposed conditions to ensure that the employees of Contractor and any subcontractor will not become covered employees. Contractor will maintain these precautions or conditions throughout the time the contracted services are provided.

Or

[_____]Some or all of the employees of Contractor and any subcontractor are "covered employees." If this box is checked, I further certify that:

1. Contractor has obtained all required criminal history and/or fingerprinting record information regarding its covered employees through the Texas Department of Public Safety as required by law.
2. If Contractor receives information that a covered employee subsequently has a reported criminal history, Contractor will immediately remove the covered employee from contract duties and notify the School in writing within three business days.
3. Upon request, Contractor will provide the School with the name and any other requested information regarding covered employees so that the School may obtain criminal history record information on the covered employees.
4. If the School 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 to the School.
5. All covered employees hired after January 1, 2008 have completed the required background check process prior to performing any duties related to the School or having any direct contact with students.

I understand that non-compliance with this certification by Contractor may be grounds for contract termination and/or barring disqualified persons from performing the work.

_____

Signature of Contractor Official Date

State of Texas
Health & Human Services Commission

Child Support Certification

I.

Section 231.006, Texas Family Code, as amended by Section 82 of House Bill No. 433, 74th Regular Legislative Session (Acts 1995, 74th Leg., R.S., ch. 751), prohibits the payment of state funds under a grant, contract, or loan to

- ☐ a person who is more than 30 days delinquent in the payment of child support, and
- ☐ a business entity in which such a person is the sole proprietor, partner, shareholder or owner with an ownership interest of at least 25%.

Section 231.006 further provides that a person or business entity that is ineligible to receive payments for the reasons stated above shall continue to be ineligible to receive payments from the state under a contract, grant, or loan until

- ☐ all arrearages have been paid, or
- ☐ the person is in compliance with a written repayment agreement or court order as to any existing delinquency.

Section 231.006 further requires each bid, or application for a contract, grant, or loan to include

- ☐ the name and social security number of the individual or sole proprietor and each partner, shareholder, or owner with an ownership interest of at least 25% of the business entity submitting the bid or application, and
- ☐ the statement in Part III below.

Section 231.006 authorizes a state agency to terminate a contract if it determines that statement required below is inaccurate or false. In the event the statement is determined to be false, the vendor is liable to the state for attorney's fees, costs necessary to complete the contract [including the cost of advertising and awarding a second contract], and any other damages provided by law or contract.

II.

In accordance with Section 231.006, the names and social security numbers of the individual identified in the contract, bid, or application, or of each person with a minimum 25% ownership interest in the business entity identified therein are provided below.

Name	Social Security #
_____	_____
_____	_____
_____	_____
_____	_____

III.

As required by Section 231.006, the undersigned certifies the following:

"Under Section 231.006, 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 withheld if this certification is inaccurate."

_____ _____
Signature **Title**

_____ _____
Printed Name **Date**

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)
IDEA Public Schools
2115 W. Pike Blvd.
Weslaco, Texas 78596

BOND AMOUNT: $

PROJECT:
(Name, location or address, and Project number, if any)
IDEA Hybrid Lab Conversion at Rio Vista

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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

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furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

	(Contractor as Principal) *(Seal)*
(Witness)	*(Title)*
	(Surety) *(Seal)*
(Witness)	*(Title)*

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)
IDEA Public Schools
2115 W. Pike Blvd.
Weslaco, Texas 78596

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)
IDEA Hybrid Lab Conversion at Rio Vista

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*
Signature:

Name and Title:

SURETY
Company: *(Corporate Seal)*
Signature:

Name and Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

2115 W. Pike Blvd.
Weslaco, Texas 78596

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Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK:

1.1 Location: The project site for IDEA Hybrid Lab Conversion at Rio Vista is located at 210 N Rio Vista Rd, Socorro, TX 79927.

1.2 Approval of Working Surfaces: Any contractor performing 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 Owners Contingency Allowance: Include the sum set forth below as an Allowance which will, if needed, be expended on betterment to the Project, as directed in writing by approved change orders.

Betterment Allowance: $10,000.00

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 Hybrid Lab Conversion at IDEA Rio Vista 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. **N/A**

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.

Construction to begin on May 22, 2025.
Date of Substantial Completion will be July 28, 2025.
No time extensions will be accepted.

SECTION 011400

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

A. 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

A. 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.

B. 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.

C. 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 **$10,000.00** 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

1. 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. N/A

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.

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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.

END OF SECTION

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SECTION 013233

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Photography.
   2. Views and Techniques
   3. Images
   4. Media

1.2 PHOTOGRAPHY

A. Take construction record photographs periodically during course of Work that are acceptable to the Owner.

B. Furnish construction photographs taken on commencement of Work and at monthly intervals.

C. Submit digital media monthly with each pay application.

D. Photos may be incorporated into monthly construction report which should include schedule, progress of work, etc.

E. Do not display photographs in publications, contests or other public or private forum without written consent of Owner and Architect.

1.3 QUALITY ASSURANCE

A. Qualifications - Photographer: The Contractor shall utilize qualified personnel to take high quality digital photos. If photos are deemed unacceptable, the Owner may require the Contractor to hire an independent professional photographer.

1.4 INFORMATIONAL SUBMITTALS

A. Submit information on who will be securing digital and aerial photographs within 10 days of the Notice to Proceed.

PART 2 - PRODUCTS

2.1 DIGITAL MEDIA

A. Digital/media images will become property of Owner and provided via electronic transfer.

B. Catalog and index digital images in chronological sequence. Provide typed table of contents. Place negatives in archive negative sheets and compiled in three-ring commercial quality binder.

PART 3 - EXECUTION

3.1 VIEWS REQUIRED

A. Consult with Architect for instructions concerning views required at each specified visit to site.

B. Photograph from locations to adequately illustrate condition of construction and state of progress.

C. Minimum views and quantities required:
   1. At each specified time, take photographs from 12 different views that are consistent from month to month.
   2. Views shall be from consistent vantage points where practical.
   3. Aerial photographs from 2 different views.

D. Architect will have right to request fewer photographs be taken at certain intervals so that more photographs may be taken at other times, providing that total number of photographs remains unchanged.

3.2 DELIVERY OF DIGITAL IMAGES

A. Deliver digital images prints with each monthly pay application.

END OF SECTION

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

SECTION 06100 - ROUGH CARPENTRY

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:
Definition: Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated. Types of work in this section include rough carpentry for:

Finish carpentry is specified in another section within Division 6.

REFERENCES:
Lumber Standards: Comply with PS 20 70 and with applicable rules of the respective grading and inspecting agencies for species and products indicated.

Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provision, with applicable APA Performance Standard for type of panel indicated.

SUBMITTALS:
Wood Treatment Data: Submit treatment manufacturer's instructions for proper use of each type of treated material.

Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative retained and conformance with applicable standards.

For water-borne treatment, include statement that moisture content of treated materials was reduced to a maximum of 15% prior to shipment to project site.

PRODUCT HANDLING:
Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within stacks.

JOB CONDITIONS:
Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 PRODUCTS

LUMBER, GENERAL:
Factory mark each piece of lumber with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.

Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

Provide dressed lumber, S4S, unless otherwise indicated.

Provide seasoned lumber with 19% maximum moisture content at time of dressing.

Framing Lumber (2" through 4" thick) (Wd Frm):

For light framing (less than 6" wide), provide "Stud" grade lumber for stud framing and "Standard" grade for other light framing, any species.

For light framing (less than 6" wide), provide the following grade, any species:

For structural framing (6" and wider and from 2" to 4" thick), provide the following grade and species:

Select Structural grade.
No. 1 grade.
No. 2 grade.
No. 3 grade.

Any species of the specified grade.
Any species and grade which meets or exceeds the following values:

Fb (minimum extreme fiber stress in bending); 1500 psi.
E (minimum modulus of elasticity); 1,500,000 psi.

Exposed Framing Lumber (2" through 4" thick):

Where framing will not be concealed by other work, provide the following grade and species:

Douglas Fir, Appearance Framing (WCLB or WWPA).
Southern Pine, Appearance Grade, Kiln Dried (SPIB).
Redwood Clear All Heart (RIS).
Boards (less than 2" thick).

Exposed Boards: Where boards will be exposed in the finished work, provide the following:

Moisture Content: 19% maximum, "S DRY."
Where painted finish is indicated, provide Southern Pine, No. 2 Boards per SPIB, or Douglas Fir Construction Boards (WCLB or WWPA).

Concealed Boards: Where boards will be concealed by other work, provide lumber of 19% maximum moisture content (S DRY) and of following species and grade:

Board Sizes: Provide sizes indicated or, if not indicated (for sheathing, sub flooring and similar uses), provide 1" x 8" boards.

MISCELLANEOUS, LUMBER:
Provide wood for support or attachment of other work including cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown, and as follows:

Moisture content: 15% maximum for lumber items not specified to receive wood preservative treatment.

Grade: Construction Grade light framing size lumber of any species or board size lumber as required. Provide construction grade boards (RIS or WCLB) or No. 2 boards (SPIB or

WWPA).

PLYWOOD (Pwd):
Trademark: Identify each plywood panel with appropriate APA trademark.

Plywood Decking / Sheathing: Refer to Structural.

Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D PLUGGED INT with exterior glue, in thickness indicated, or, if not otherwise indicated, not less than ½".

Plywood Exterior Sheathing: Provide fire-retardant treated plywood panels with grade designation, APA C-D plugged exterior with exterior glue in thickness shown.

MISCELLANEOUS MATERIALS:
Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices.

Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot dip zinc coating (ASTM A 153).

WOOD TREATMENT:
Preservative Treatment: Where lumber or plywood is indicated as "Trt Wd" or "Treated," or is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.

Pressure treat above ground items with water borne preservatives complying with AWPB LP 2. After treatment, kiln dry to maximum moisture content, respectively of 19% and 15%. Treat indicated items and the following:
Wood cants, nailers, curbs, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.

Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

Inspect each piece of treated lumber or plywood after drying and discard damaged of defective pieces.

BARRIER MEMBRANE AND FLASHING:
Membrane over Plywood (exterior): Acceptable Product: Sharkskin Ultra SA™ as manufactured by: Kirsch Building Products LLC, 1464 Madera Road, Suite 387, Simi Valley, CA 93065; Tel: (805) 750-0084 Fax: 805-526-1116; www.sharkskin.us.

Provide a self-adhered roof underlayment that has passed the requirements set forth in ICC/ES Report 1708 and Miami/Dade TAS 103.

PART 3 – EXECUTION

INSTALLATION, GENERAL:
Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.

Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

Countersink fasteners on exposed carpentry work and fill holes.

Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:
Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

Provide permanent grounds of dressed, preservative treated, key beveled lumber not less than 1 1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

Fire stop concealed spaces with wood blocking not less than 2" thick, if not blocked by other framing members. Provide blocking at each building story level and at ends of joist spans.

Installation of Plywood:

General: Comply with applicable recommendations contained in Form No. E 304, "APA Design/Construction Guide Residential & Commercial," for types of plywood products and applications indicated.

Fastening Methods: Fasten panels as indicated below:
Sheathing: Screw to framing.
Plywood Backing Panels: Screw to supports.

Provide 5/8” plywood blocking panels at all exterior signage locations.

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY

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:
Definition: Finish carpentry includes carpentry work, which is exposed to view, is nonstructural, and which is not specified as part of other sections.

Types of finish carpentry work in this section include:

- Fascias
- Trim
- Wall Mounted Plastic Laminate

Rough carpentry is specified in another Division 6 section.

Builders Hardware and wood doors are specified in Division 8 sections.

Architectural woodwork is specified in another Division 6 section.

QUALITY ASSURANCE:
Factory mark each piece of lumber and plywood with type, grade, mill and grading agency identification; except omit marking from surfaces to receive transparent finish, and submit mill certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.

SUBMITTALS:
Product Data: Submit manufacturer's specifications and installation instructions for each item of factory fabricated siding and paneling.

PRODUCT DELIVERY, STORAGE AND HANDLING:
Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

Do not deliver finish carpentry materials until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

JOB CONDITIONS:
Conditioning: Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas. Do not install finish carpentry until required temperature and relative humidity have been stabilized and will be maintained in installation areas.

PART 2 - PRODUCTS

WOOD PRODUCT QUALITY STANDARDS:
Softwood Lumber Standards: Comply with PS 20 and with applicable grading rules of the respective grading and inspecting agency for the species and product indicated.

Plywood Standard: Comply with PS 1/ANSI A199.1.

Hardwood Lumber Standard: Comply with National Hardwood Lumber Association (NHLA) rules.

Hardwood Plywood Standard: Comply with PS 51.

Woodworking Standard: Where indicated for specific products comply with specified provision of the following:

Architectural Woodwork Institute (AWI) "Quality Standards."

Glued-up Lumber Standard: Comply with PS 56.

MATERIALS:
General:
Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and pattern as shown, unless otherwise indicated.

Moisture Content of Softwood Lumber: Provide kiln -dried (KD) lumber having moisture content from time of manufacture until time of installation not greater than 6% to 11%.

Moisture Content of Hardwood Lumber: Provide kiln -dried (KD) lumber having moisture content from time of manufacture until time of installation from 6% to 11%.

Lumber for Transparent Finish (Stained or Clear): Use good grade pieces made of Cedar.
Lumber for Painted Finish: Any closed grain hardwood, AWI Section 300, custom grade.

INTERIOR FINISH CARPENTRY:
Shelving: 1" shelves 36" wide or over #1 SYP and ¾” for shelves under 36".

Cleats: #1 SYP.

Plastic Laminate: Countertops and backsplashes as per drawings.

Standards: Meet requirements and recommendations of applicable portions of standards listed.

Federal Specifications: FS equal to Wilson Art

Examining:

Examine surfaces that are to receive Laminated Plastic. Report unsatisfactory laminate condition.

Do not start installation of Laminated Plastic until satisfactory conditions have been corrected.

Proceeding with installation of Laminated Plastic will be constructed as evidence of acceptance of conditions under which work will be done.

Protecting:
Handle Laminated Plastic and items to avoid injury to person and to avoid damage to materials or to work in place. Satisfactorily repair or remove and replace work that has been damaged.

Protect adjacent surfaces from damage, soiling and adhering of adhesives and extra materials.

Protect Laminated Plastic from damage by weather and construction. Install necessary protective covering for surfaces that may have traffic during construction period.

Remove protective covering upon completion of project. Remove and replace work that has been damaged.

Delivery and Storing:

Deliver materials to site in manufacturer's original, unopened, labeled containers or packages.

Submit samples for approval of the Architect.

APPLICATION:
Trim shall be plumb and/or level with miter joints and finished as earlier specified. Pre-finished trim shall be required.

Application shall not take place sooner than 24 hours of temperatures less than 42 deg F.

Miscellaneous Materials:

Fasteners and Anchorages: Provide nails, screws and other anchoring devices of the type, size, materials and finish required for application indicated to provide secure attachment, concealed where possible, and complying with applicable Federal Specifications.

All interior and exterior nails shall be galvanized.

Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with a hot-dipped zinc coating (ASTM A 153).

PART 3 - EXECUTION

PREPARATION:
Condition wood materials to the average humidity condition in installation areas prior to installation.

Back prime lumber for painted finish exposed on the exterior or, where indicated, to

moisture and high relative humidity on the interior. Comply with requirements of section on painting within Division 9 for primers and their application.

INSTALLATION:
Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes or patterns.

Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8' -0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.

Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

Anchor finish carpentry work to anchorage devices or blocking built -in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where pre-finished matching fasteners heads are required, use fine finishing nail for exposed nailing, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.

MILLWORK AND TRIM:
Exterior and interior millwork and trim shall conform to design and details shown. Where practical, work shall be finished and assembled at the mill. All mill work and trim shall be furnished smooth and free from machine and tool marks that will show through the finish. All nail heads shall be set to receive putty.

Doors and other movable parts shall be accurately fitted with proper clearances and left in perfect working order. Passage doors shall have a minimum clearance of 1/8" at sides and top, and doors and hardware shall be fitted to template so that they may be interchanged from opening to opening. All refitting necessary due to swelling shrinking, assembly or installation shall be done by this Contractor, for a period of one year after completion and acceptance of the building.

When dressing or cutting has been done, these surfaces shall be refinished. The work shall be left clean and free from warp, twist, open joints or other defects.

Metal thresholds: Fit and set metal thresholds in mastic.

LOCATION OF FINISH HARDWARE:
Locate hardware for door and door frames as follows unless shown otherwise on the drawings:

Center doorknobs 38" above floor. Offset screen door latches to clear door locksets.

Center door pulls 42" above floor and push plates 48" above floors.

INSTALLATION OF WINDOWS:
Install windows and operating sash closed and locked, and set plumb, true, and centered in openings; securely anchored in place, using approved manufacturers

anchors specifically designed for use in the openings detailed.

Check all windows for smooth operation and proper function and adjust as required, prior to acceptance by the Architect.

ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:
Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.

Refer to Division 9 sections for final finishing of installed finish carpentry work.

Protection: Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06200

SECTION 06400 - ARCHITECTURAL WOODWORK

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 type of architectural woodwork is indicated on drawings and in schedules.

Types of architectural woodwork include the following:

- Shelving
- Millwork
- Countertops
- Toilet Partitions

Finish carpentry is specified in another section of Division 6.

QUALITY ASSURANCE:
AWI Quality Marking: Mark each assembled unit of architectural woodwork with manufacturer's identification and grade mark evidencing compliance with indicated AWI quality grade. Locate grade mark on surfaces which will not be exposed after installation. For other items requiring field assembly, a certification of compliance may be substituted for marking of individual pieces.

Arrange for architectural woodwork with sequence matched wood veneers to be produced by a single firm.

REFERENCES:
AWI Quality Standard: Comply with applicable requirements of “Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI), except as otherwise indicated.

SUBMITTALS:
Product Data: Submit manufacturer's specifications and installation instructions for each item of factory fabricated woodwork.

Certification: Include certification that fire-retardant treated materials comply with governing regulations.

Quality Certification: Submit Manufacturer's (Fabricator's) certification, stating that fabricated work complies with quality grades and other requirements indicated.

Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and other components. Submit shop drawings for the following:

- Framed openings and lights, including trim.
- Shelving

PRODUCT DELIVERY, STORAGE AND HANDLING:
Protect woodwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

Do not deliver woodwork, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, woodwork must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

JOB CONDITIONS:
Conditioning: Woodwork Manufacturer and Installer shall advise Contractor of temperature and humidity requirements for woodwork installation and storage areas. Do not install woodwork until required temperature and relative humidity have been stabilized and will be maintained in installation areas.

Maintain temperature and humidity in installation area as required to maintain moisture content of installed woodwork within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period.

The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity condition.

PART 2 PRODUCTS
General: Except as otherwise indicated, comply with following requirements for architectural woodwork not specifically indicated as prefabricated or pre-finished standard products.

Wood Moisture Content: Provide kiln dried (KD) lumber with an average content range of 6% to 11% for interior work. Maintain temperature and relative humidity during fabrication, storage and finishing operations so that moisture content values for woodwork at time of installation do not exceed the following:

Interior Wood Finish: 5% - 10% for mild regions (as defined by AWI).

Plywood: Closed grain hardwood plywood with exterior glue complying with requirements for specified woodwork grade.

Plastic Laminate: Comply with NEMA LD-3 for type, thickness, color, pattern and finish as indicated for each application, or if not indicated, as selected by Architect from manufacturer's standard products as well as the following.

Wilsonart - All Available Colors, including Premium Colors
Formica - All Available Colors, including Premium Colors
Nevamar- All Available Colors, including Premium Colors

Quality Standards: For following types of architectural woodwork; comply with indicated standards as applicable:

Standing and Running Trim: AWI Section 300.
Casework and Countertops: AWI Section 400.
Shelving: AWI Section 600.
Miscellaneous Work: AWI Section 700.
Exterior Frames: AWI Section 900.

Design and Construction Features: Comply with details shown for profile and construction of architectural woodwork, and, where not otherwise shown, comply with applicable Quality Standards, with alternate details as Fabricator's option.

Pre -Cut Openings: Fabricate architectural woodwork with pre-cut openings, where possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing -in diagrams for proper size and shape. Smooth edges of cutoffs and, where located in countertops and similar exposures seal edges of cutouts with a water -resistant coating.

Measurements: Before proceeding with fabrication of woodwork required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.

Where sequence of measuring substrates before fabrication would delay the project, proceed with fabrication (without field measurements) and provide ample borders and edges to allow for subsequent scribing and trimming of woodwork for accurate fit.

INTERIOR ARCHITECTURAL WOODWORK:
Core: Plywood. Particle core panels will not be accepted.

Construction: Reveal overlay.

Exposed Surfaces: Provide high pressure laminate in grades indicated for the following types of surfaces:

Horizontal Surfaces: GP -50 (0.050" nominal thickness).
Post Formed Surfaces: PF -42 (0.042" nominal thickness).
Vertical Surfaces: GP -28 (0.028" nominal thickness).

Except as otherwise indicated, provide separate plastic laminate countertops (installed over closed grain plywood substrate) to comply with requirements for casework for plastic laminate finish. Provide with coved backsplash. Note at science lab countertops, provide epoxy resin tops, black in color.

Fabricate exposed edges of casework, including edges of doors and drawers when open, with matching plastic laminate, except as otherwise indicated.

Shelves: 1" thick, reversible, plastic laminate finish all sides and all edges.

General: These requirements do not apply to shelving which is either integral with or indicated as "casework"; comply with casework requirements for those units of shelving.

Grade: Custom.

FINISH FOR ARCHITECTURAL WOODWORK:
General: The priming and pre-finishing (if any) of architectural woodwork required to be performed at the shop or factory is specified as work of this section. Refer to Division 9 sections for final finishing of installed architectural woodwork.

At the Contractor's option, he may use plastic laminate interior finish in lieu of painted surfaces.

Preparations for Finish: Comply with AWI Quality Standards, Section 1500, for sanding, filling countersunk fasteners, back priming and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.

CABINET HARDWARE AND ACCESSORY MATERIALS:

General: Provide cabinet hardware and accessory materials associated with architectural woodwork, except for units which are specified as "door hardware" in other sections of these specifications.

Hardware Standards: Except as otherwise indicated, comply with ANSI A156.9 " American National Standard for Cabinet Hardware".

Quality Level: Type 2 (institutional), unless otherwise indicated.

Quality Certification: Where available, provide cabinet hardware bearing the BHMA certification label, affixed either to hardware or its packaging, showing compliance with BHMA.

Cabinet Hardware Standard 201.

Cabinet Hardware: Provide all cabinet hardware required for proper installation and operation, whether listed below or not.

Metal Shelf Standards and Brackets: Provide one of the following:

No. 87 Standards and No. 187 Brackets; Knape & Vogt Mfg. Co.
Finish: Nickel-plated.

Pivoted Hinges: model no. Snap on 300 Series Hinge by Grass America

Finish for Butts and Hinges: Stain nickel-plated.

Cabinet Door Pulls: Steel Wire Pulls 4” C/C, Satin Chrome Finish

Door Pull Finish: Satin Chrome

Magnetic Cabinet Catches: Provide one of the following:

Aluminum, satin finish, No.916, Knape & Vogt.
Aluminum, satin finish, No.46 ALD, Stanley Hardware Div.

Drawer Slides: KV 4100 Low Profile - Knape & Vogt Mfg. Co.

Locks: Master Lock Five (5) pin tumbler at all drawers and doors. Typical

Cabinet Door Hardware: Provide hinges, catches and pulls of types indicated, to accommodate each door size and style.

Drawer Hardware: Provide slides and pulls of types indicated, to accommodate each drawer size and style.

Equip each drawer with side-mounted, full-extension, ball-bearing, nylon roller drawer slides with load capacity of 75 lbs. per pair.

Locks: provide standard pin-type or disc-type (5 pins or discs) tumbler locks, keyed alike in each room, at all base and wall cabinets unless noted otherwise.

Shelf Supports: Where shelving is indicated as "adjustable”, provide slotted-type standards and brackets of type needed to properly support shelves with uniform 40-lb per sq. ft. loading.

Closet Bars: Telescoping steel or brass tubing, with forged end brackets; size and thickness as required to support full continuous hanging of clothing.

Exposed Hardware Finish: Provide exposed hardware with BHMA Code 626 satin chromium plate finish (US26D). Where not available, provide either satin aluminum or satin stainless-steel finish.

PART 3 - EXECUTION

PREPARATION:
Condition woodwork to average prevailing humidity conditions in installation areas prior to installation.

Prior to installation of architectural woodwork, examine shop fabricated work for completion, and complete work as required, including back priming and removal of packing.

INSTALLATION:
Install woodwork plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8' -0" for plumb and level (including countertops); and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.

Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

Standing and Running Trim: Install with minimum number of joints possible, using full length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners and comply with referenced Quality Standards for joinery.

Anchor woodwork to anchors or blocking built -in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where pre-finished matching fasteners heads are required, use fine finishing nails for exposing nailing, countersunk and filled flush with woodwork, and matching final finish where transparent finish is indicated.

Wood Storage Shelving: Complete the assembly of units and install in the areas indicated, including hardware and accessories as indicated.

ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:
Repair damaged and defective woodwork where possible to eliminate defects functionally and visually, where not possible to repair replace woodwork. Adjust joinery for uniform appearance.

Clean woodwork on exposed and semi -exposed surfaces. Touch up shop applied finishes restoring damaged or soiled areas.

Protection: Installer of architectural woodwork shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06400

SECTION 07201 - SOUND ATTENUATION BLANKETS

PART 1 - GENERAL

SCOPE

A. Perform all work required completing the Sound Attenuation Blanket Installation as indicated by the Contract Documents and furnish all supplementary items necessary for their proper installation.

B. The requirements of Division 0 - "Bidding and Contract Requirements" and Division 1 - "General Requirements" of this Project Manual shall apply to all work required for this Section.

SUBMITTALS

A. Shop Drawings: Submit manufacturer's literature and mark sufficiently to indicate compliance with these specifications.

PART 2 - PRODUCTS

ACCEPTABLE PRODUCT/MATERIAL MANUFACTURERS

A. A specific product or material manufactured by any of the following listed manufacturers is "acceptable" (not "approved") only if the specific product or material can evidence exact compliance with the Contract Documents.

    1. Owens/Corning Fiberglass Corp.
    2. Forty-eight Insulations, Inc.
    3. Manville
    4. Certain Teed Corporation
    5. United States Gypsum

B. Refer to Section 01630 - Substitutions and Product Options for manufacturers not listed above.

MATERIALS

A. INSULATION: Sound Attenuation Blanket, 3 5/8” thickness for 4” partition and 6 ½” thick for 6" partition, unless otherwise indicated. Rated noncombustible when tested per ASTM E136.

PART 3 - EXECUTION:

INSTALLATION

A. Install at metal stud wall locations indicated.
B. Install in exact accordance with manufacturer's latest published requirements, specifications and details, and as indicated.

PROTECTION AND CLEANING

A. Protect all finished surfaces from damage or staining. Remove and replace all damaged or stained products.

B. Remove excess materials and debris from site.

END OF SECTION 07201

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 for glazing requirements.

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: Dow 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 a 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 081000 - STEEL DOORS AND FRAMES

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 standard steel doors and frames is indicated and scheduled on drawings.

Custom hollow metal work is specified in other Division 8 sections.
Builder's hardware is specified elsewhere in Division 8. Galvanized

QUALITY ASSURANCE:
Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI 100) and as herein specified.

Manufacturer: Provide standard steel doors and frames by a single firm specializing in production of this type of work. Acceptable Manufacturer's:

Texas Door Products
Ceco Corp.
Republic Builders Prod. Corp.
Pearland Industries
Deansteel

Provide galvanized and insulated doors and frames at exterior conditions only.

SUBMITTALS:

Product Data: Submit manufacturer's specifications for fabrication and installation, including data substantiating that products comply with requirements.

Shop Drawings: Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.

Wind Pressures Requirements: Submit documentation stating the door and frame system has been designed to meet the project wind pressure as defined by the structural engineer. Provide TDI material report or other 3rd party testing for review.

Label Construction Certification: Submit manufacturer's certification for oversize fire rated doors and frames that each assembly has been constructed with materials and methods equivalent to requirements for labeled construction.

DELIVERY, STORAGE AND HANDLING:
Deliver hollow metal work in cartons or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.

Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

Store doors and frames at building site under cover. Place units on wood sills at least 4" high, or otherwise store on floors in manner that will prevent rust and damage. Avoid use of non vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4" spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

MATERIALS:

Provide Hurricane Resistant Steel Doors and Frames Equal to: Steel Craft Mfg. Co. H-Series Doors at all exterior door openings.

Hot Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

Cold Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

Supports and Anchors: Fabricate of not less than 18 gage galvanized sheet steel.

Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot dip galvanized items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.

Shop Applied Paint:

Primer: Rust inhibitive enamel or paint, either air drying or baking, suitable as a base for specified finish paints.

FABRICATION, GENERAL:
Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.

Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold rolled steel.

Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold rolled or hot rolled steel (at fabricator's option).

Finish Hardware Preparation:

Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and template provided by hardware

supplier. Comply with applicable requirements of ANSI A 115 series specifications for door and frame preparation for hardware. Exterior doors shall be fabricated and assembled using frame, hinge, and locking hardware as indicated on third party test report.

Reinforce doors and frames to receive surface applied hardware. Drilling and tapping for surface applied finish hardware may be done at project site.

Locate finish hardware as indicated on final shop drawings or, if not shown, in accordance with "Recommended Locations for Builder's Hardware," published by Door and Hardware Institute.

Shop Painting:
Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces.

Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

STANDARD STEEL DOORS:
Provide metal doors of types and styles indicated on drawings or schedules.

	1 3/4" doors
Stiles	16 ga.
Panels	16 ga.
Hinge Tap Plate	9 ga.
Hinges	1 1/2 pair 4 1/2 x 4 1/2 full mortise template typ
Lock reinforcement	3/32" steel
Lock Set	See Hardware Schedule
Door Closer Reinforcement	9 ga.
Insulated	PolyurethaneR-5

Door Louvers:
Provide sight proof stationary louvers for interior doors where indicated, constructed of inverted V shaped or Y shaped blades formed of 24 gage cold rolled steel set into 20 gage steel frame.

For fire rated openings, provide tightly fitted, spring loaded, automatic closing louvers with operable blades, equipped with fusible links, arranged so that metal overlaps metal at every joint.

STANDARD STEEL FRAMES:
Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated.

Frames shall be 16 gauge
Fabricate frames with metered corners, knocked down not acceptable.

Door Silencers: Except on weatherstripped frames, drill stops to receive 2 silencers on

strike jambs of single swing frames and 3 silencers on heads of double swing frames.

Glazing Stops: 16 ga. steel channel with pre drilled holes for flat heads of double sink screws.

Plaster Guards: Provide 26 gauge steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation.

Fire Resistant Frames: Provide 1-hr rated doors in partitions shown on plans and as scheduled.

PART 3 - EXECUTION

INSPECTION:
Installer must examine substrate and conditions under which steel doors and frames are to be installed and must notify Contractor in writing of any conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

INSTALLATION:

General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

Placing frames:

Comply with provisions of SDI 105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

Except for frames located at in place concrete or masonry and at drywall installations, place frames prior to construction at enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels. Building in of anchors and grouting of frames is specified in Division 4.

At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.

Install fire rate frames in accordance with NFPA STD. No. 80.

In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.

Door Installation:

Fit hollow metal doors accurately in frames, within clearances specified in SDI 100.

Place fire rated doors with clearances as specified in NFPA Standard No. 80.

ADJUST AND CLEAN:

Prime Coat Touch up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air drying primer.

Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from pre-finished doors.

Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 081000

SECTION 08210 - WOOD DOORS

PART 1 - GENERAL

RELATED DOCUMENTS
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to of this section.

DESCRIPTION OF WORK:

Extent and location of each type of wood door is shown on drawings and in schedules.

Types of doors required include the following:

Prefinished standard and fire rated type wood doors with flush faces.

Louvers for wood doors, including furnishing and installation, are specified under this section. Louvers are to be furnished by mechanical contractor.

QUALITY ASSURANCE:

NWMA Quality Marking: Mark each wood door with NWMA Wood Flush Door Certification Hallmark certifying compliance with applicable requirements of ANSI/NWMA I.S. 1 Series. For manufacturers not participating in NWMA Hallmark Program, a certification of compliance may be substituted for marking of individual doors.

REFERENCES:

Comply with the applicable requirements of the following standards unless otherwise indicated.

ANSI/AWMA I.S. 1, “Industry Standard for Wood Flush Doors" published by National Woodwork Manufacturers Associates (NWMA).

AWI Quality Standard: Section 1300 of "Architectural Woodwork Quality Standard" published by the Architectural Woodwork Manufacturers (AWI). Designations for grade and core construction under types of doors refer to this standard.

SUBMITTALS:

Product Data: Submit door manufacturer's product data, specifications and installation instructions for each type of wood door.

Include certifications as may be required to show compliance with specifications.

Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.

Samples: Submit samples for the following:

Factory Finished Doors: Submit 8" x 11" samples showing fully completed factory finish on same veneer and edge construction that will be used on factory-finished doors. Submit full range of samples from which selection can be made. Tinting stain may be required at architect's option in order to match finish on existing doors to remain.

Specific Product Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show photographing of construction below in face veneers, or do not conform to tolerance limitations of NWMA.

1. All work in this Section shall be warranted by a **FULL DOOR WARRANTY** (from the date of installation) against defect in materials and workmanship, including the following:
    a. Delamination in any degree.
    b. Warp or twist of ¼" or more in any 3'6" x 7'0" section of a door.
    c. Telegraphing of any part of core assembly through face to cause surface variation of 1/100" or more in a 3" span.
    d. Any defect which may, in any way, impair or affect performance of the door for the purpose which it is intended. Replacement under this warranty shall include hanging, installation of hardware, and finishing.
2. Periods of warranty after date or installation:
    a. Interior solid core and mineral core Life of original installation.
3. Doors must be stored, finished, hung and maintained per manufacturers recommendations set forth in their Full Door Warranty.

PRODUCT DELIVERY, STORAGE, AND HANDLING:

Protect wood doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with "On Site Care" recommendations of NWMA pamphlet "Care and Finishing of Wood Doors" and with manufacturer's instructions and otherwise indicated.

PART 2 - PRODUCTS

BASIS OF DESIGN: Graham Assa Abloy – Copper 250

ACCEPTABLE MANUFACTURERS:

VT Industries
Graham Assa Abloy
Oshkosh Door Company
Haley Architectural Doors

All other door manufacturers must receive prior approval before allowed as substitute.

MATERIALS AND COMPONENTS:

General: Provide wood doors complying with applicable requirements of NWMA I.S. 1 for kinds and types of doors indicated and as specified.

Face Panels: Manufacturer's standard 5 ply panels hot pressed, unless otherwise indicated.

Exposed Surfaces: Provide same exposed surface material on both faces of each door, unless otherwise indicated.

Exposed edges shall be hardwood and compliment face veneer species.

GENERAL FABRICATION REQUIREMENTS:

Transom and Side Panels: Wherever transom panels or side panels of wood are shown in same framing systems as wood doors, provide panels which match quality and appearance of associated wood doors, unless otherwise indicated. Fabricate matching panels with same construction, exposed surfaces and finish as specified for associated doors.

INTERIOR FLUSH WOOD DOORS:

Faces:	Red oak, plain sliced or rotary cut, 2 end matched panels.
Grade:	A.
Core Construction:	SLC (structural composite lumber core).
Edges:	Hardwood

Particle Core door will NOT BE ACCEPTED.
Vision Lite Frames shall meet 20 minutes rating.

Provide 60 minute label doors in partitions shown on plans and as scheduled.

FACTORY FINISH:

1. Comply with referenced WDMA Section G-15, “Factory Finishing.”.
2. Pre-finish wood doors at factory.
3. Transparent Finish: Match finish indicated in WDMA Section G-17: WDMA System #6.

PRE-FITTING AND PREPARATION FOR HARDWARE:

Comply with tolerance requirements of NWMA for pre-fitting. Machine the wood doors where hardware requires cutting of doors. Comply with final hardware schedules and door frame shop drawings and with hardware templates and other essential information required to ensure proper fit of doors and hardware.

Take accurate field measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with machining in factory.

PART 3 - EXECUTION

INSPECTION:

Installer must examine door frames, and verify that frames are correct type and have been installed as required for proper hanging of corresponding doors and notify Contractor in writing of conditions detrimental to proper and timely installation of wood doors. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

INSTALLATION:
Condition doors to the average humidity of the installation areas prior to hanging.

Hardware: For installation see Division 8 "Builders Hardware" section of these specifications.

Manufacturer's Instructions: Install wood doors in accordance with manufacturer's instructions and as shown.

Job Fit Doors: Align doors to frame for proper fit and uniform clearance at each edge and machine for hardware. Seal cut surfaces after fitting and machining.

Clearance: For non fire doors provide clearances of 1/8" at jambs and heads; 1/8” at meeting stiles for pairs of doors; and 1/2" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.

Job Site Finished Doors: See painting sections in Division 9 of these specifications for finishing requirements for finishing wood doors.

ADJUST AND CLEAN:

Operation: Re-hang or replace doors which do not swing or operate freely, as directed by Architect.

Finished Doors: Refinish or replace doors damaged during installation, as directed by Architect.

Protection and Completed Work: Advise Contractor of proper procedures required for protection of installed wood doors from damage or deterioration until acceptance of work.

END OF SECTION 08210

SECTION 08700 - BUILDERS HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to the work of this section.

DESCRIPTION OF WORK:
Definition: "Builders Hardware" includes items known commercially as builders' hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. Types of items in this section include (but are not necessarily limited to):

- Hinges
- Pivots
- Lock cylinders and keys
- Lock and latch sets
- Bolts
- Exit devices
- Push/pull units
- Sliding door equipment
- Closures
- Overhead Holders
- Miscellaneous door control devices

QUALITY ASSURANCE:
Manufacturer: Obtain each kind of hardware (latch and lock sets, hinges, closures, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or has in employment, an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

SUBMITTALS:
Product Data: Submit manufacturers' technical information for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish. Transmit copy of applicable data to Installer.

Hardware Schedule: Submit final hardware schedule in the manner and format specified, complying with the actual construction progress schedule requirements. Hardware schedules are intended for coordination of work.
Final Hardware Schedule: Based on builders hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

- Type, style, function, size and finish of each hardware item.
- Name and manufacturer of each item.
- Fastenings and other pertinent information.
- Location of hardware set cross - referenced to indications on Drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
Mounting locations for hardware.
Door and frame sizes and materials.
Keying information.

Submittal Sequence: Submit schedule at earliest possible data particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by builders' hardware, and other information essential to the coordinated review of hardware schedule.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

PRODUCT HANDLING:
Packaging of hardware, on a set by set basis, is the responsibility of the supplier. As materials received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number. Two or more identical sets may be packed in the same container.

Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.

Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling installation of hardware items which are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation.

JOB CONDITIONS:
Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory - prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

PART 2 - PRODUCTS

SCHEDULED HARDWARE:
Requirements for design, grade, function, finish, size and other distinctive qualities of each type of builders hardware is indicated in the Builders Hardware Data Sheet and Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following.

Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide product designated, or, where more than one

manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

MATERIALS AND FABRICATION:

General:
Hand of door: The drawings show the direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation an operation of the door movement as shown.

Base Metals: Produce hardware units of the basic metal and forming method indicated, using the manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units by FS FF-H-106, FS FF-g-111, FS FF-E-116 and FS FF-H-121. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws Finish exposed(under any condition) screws to match the hardware finish or , if exposed in surfaces of other work, to match the finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive, painted finish.

Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard units of the type specified are available with concealed fasteners. Do not use through bolts for installation where the bolt head or the nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work.

LOCK CYLINDERS AND KEYING:

Cylinders: Suppliers to provide interchangeable core rim cylinders at all locksets, deadbolt and panic hardware, where required for proper operation.

General: Supplier shall prepare the keying schedule according to the Owner’s Keying Program and meet with Owner to finalize keying requirements and obtain final instructions in writing.

Keying System: Grandmaster key the locks to the campus, with a new master key for this project.

HARDWARE FINISHES:
Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

Provide finishes which match those established by EEMA or, if none established, match the Architect's sample.

Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

Provide protective lacquer coating on all exposed hardware finishes of brass, bronze and aluminum, except as otherwise indicated.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed in "Materials & Finishes Standard 1301" by EEMA, including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware" by the NEEA, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware to a surface which will later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units which have not been factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

ADJUST AND CLEAN:

Adjust and clean each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy, return to the work during the week prior to acceptance or occupancy to make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

MANUFACTURERS

Butts	Hager	Hagr
Locksets	Schlage Lock Co.	Schl
Exit Device	Von Duprin	Von
Closers	LCN	LCN
Mullions	Von Duprin	Von
Stops	Hager	Hagr
Silencers	Hager	Hagr
Thresholds	Hager	Hagr
Weatherstripping	Hager	Hagr

Keys & Keying;
All locks, cylinders and deadbolts shall be Master Keyed as required by the Owner to the Existing Grand Master Key System. Provide cylinders cores to all locksets, exit devices, etc. whether noted or not. Furnish two (2) keys per locking device.

Provide Hold Open feature at closures to classrooms, kitchen and offices,

Schedule A at doors 1

1.5 pair Butts	BB1191 x 4.5 x 4.5 x 652 x 2"ws	Hagr
Lockset	ND80PD x SPA x 626	Schl
Wall Stop	236w x 626	Hagr
Silencers	307D	Hagr

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions and exterior metal wall panels.
2. Suspension systems for interior ceilings and soffits.
3. Grid suspension systems for gypsum board ceilings.

B. Related Requirements:

1. Section 05400 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of code-compliance certification for studs and tracks.

B. Evaluation Reports: Submit evaluation reports certified under an independent third party inspection program administered by an agency accredited by IAS to ICC-ES AC98, IAS Accreditation Criteria for Inspection Agencies.

C. Manufacturers Certification: Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.

1.4 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Steel Framing Industry Association (SFIA) or be a part of a similar organization that provides verifiable code compliance program.

B. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction. Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer’s installation instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Notify manufacturer of damaged materials received prior to installation.

B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice".

PART 2 - PRODUCTS

1.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction

identical to those tested in assembly indicated, according to ASTM E 119 by, and displaying a classification label from an independent testing agency acceptable to the authority having jurisdiction.

1. Construct fire-resistance rated partitions in compliance with tested assembly requirements.
2. Rated assemblies to be substantiated from applicable testing using proposed products, by Contractor.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft. (480 Pa).

D. Design framing systems in accordance with American Iron and Steel Institute Publication “S220 - North American Specification for the Design of Cold-Formed Steel Framing - Nonstructural Members”, except as otherwise shown or specified.

E. Design loads: As indicated on the Structural Drawings or 5 PSF minimum as required by the International Building Code, latest edition.

F. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads with a maximum deflection of 2 inches.

1.2 FRAMING SYSTEMS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Framing Members, General: Comply with ASTM C 645 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. High Performance Coating: Comply with ASTM C 645; ASTM A 653. G-90 Coating; roll-formed from steel meeting mechanical and chemical requirements of ASTM A 1003 with a zinc-based coating. *Galvannealed products are not acceptable.*
    a. Provide at all exterior framing and channels, and where noted.
    b. All other partitions to have EQ Coating with equivalent corrosion resistance of DiamondPlus® coating;

C. Studs and Tracks: ASTM C 645.

1. Non-Structural Studs: Cold-formed galvanized steel C-studs as per ASTM C 645 for conditions indicated below:
    a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; ProSTUD products named below, or a comparable product from one of the members of the SFIA:
    b. Flange Size: 1-1/4 inches (32 mm).

       Web Depth: 8”, 6”, 3-5/8”
    c. Member Description: ProSTUD 25 (25 EQ) 50 ksi.

1) Minimum Base-Steel Thickness: 0.0150 inch (0.3810 mm).

2) Minimum Design Thickness: 0.0158 inch (0.4013 mm).

2. Non-Structural Track: Cold-formed galvanized steel runner tracks, drywall track, in conformance with ASTM C 645 for conditions indicated below:

a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; ProTRAK, or a comparable product from one of the members of the SFIA:

b. Flange Size: 1-1/4 inches (32 mm).

c. Web Depth: Track web to match stud web size.

d. Minimum Base-Steel Thickness: Track thickness to match wall stud thickness or as per design.

3. “EQ” (Equivalent Gauge Thickness) Steel Studs and Runners: Members that can show certified third party testing with gypsum board in accordance with ICC ES AC86 (Approved May 2012) need not meet the minimum thickness limitation or minimum section properties set forth in ASTM C 645. The submission of an evaluation report is acceptable to show conformance to this requirement.

4. Interior Steel Framing Stud and Deflection Track Wall System: Self-locking metal studs with telescoping stud extension with knockout in each flange to allow for 1 inch (25 mm) of deflection for fire-rated head-of-wall deflection system.

a. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; TRAKLOC Deflection Stud (TLD) and TRAKLOC Track (TTS) or a comparable product from one of the members of the SFIA:

b. Minimum Base-Steel Thickness: 0.0179 inch (0.45 mm)

c. Depth: 3-5/8 inches, 6 inches, 8 inches.

D. Backing Plate: Proprietary fire-retardant-treated wood blocking and bracing in width indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Danback Fire-Retardant Treated Wood Backing Plate D24F, or a comparable product from one of the members of the SFIA:

E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Backing Plate or a comparable product from one of the members of the SFIA:

2. Minimum Base-Steel Thickness: 0.0296 inch (0.75 mm).

F. Channel Bridging and Bracing: Pre-notched steel, 7/8 inch by 7/8 inch by 50 inches (22.2 mm by 22.2 mm by 1270 mm), 0.0329-inch (0.84-mm) minimum base-steel thickness.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Spazzer 9200 Bridging and Spacing Bar or a comparable product from one of the members of the SFIA:

B. U-Channel Bridging: Steel, 0.0538-inch (1.37-mm) minimum base-steel thickness, with minimum 1/2-inch- (13-mm-) wide flanges.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Cold-Formed U-Channel and EasyClip U-Series Angle], or a comparable product from one of the members of the SFIA:

2. Depth: Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.0538-inch (1.37-mm) thick, galvanized steel.

C. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Furring Channel or a comparable product from one of the members of the SFIA:

2. Minimum Base-Steel Thickness: [As indicated on Drawings.

3. Depth: As indicated on Drawings. 7/8 inch, 1-1/2 inches.

B. Resilient Furring Channels: 1/2-inch- (13-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; RC Deluxe (RCSD) Resilient Channel or a comparable product from one of the members of the SFIA:

2. Configuration: Asymmetrical.

B. Carrying Channels: 0.053-inch (1.37-mm) uncoated-steel thickness, with minimum 1/2-inch (13-mm) wide flanges.

1. Depth: [As indicated on Drawings].

2. Furring Brackets: Adjustable, corrugated-edge-type steel sheet with minimum uncoated-steel thickness of 0.0296 inch (0.75 mm).

3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch (1.57-mm) diameter wire, or double strand of 0.048-inch (1.21-mm) diameter wire.

C. Z-Shaped Furring: Nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 3/4 inch (19 mm), minimum uncoated-steel thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Z-Furring Channel or a comparable product from one of the members of the SFIA: 20 ga.

B. Headers and Jambs: Manufacturer’s proprietary shape used to form header beams and jambs, columns or posts, of web depths indicated, unpunched, with stiffened flanges and as follows:

1. Basis-of-Design Product: Subject to compliance with requirements, provide ClarkDietrich Building Systems; Heavy Duty Studs - HDS, or a comparable product from one of the members of the SFIA:

2. Minimum Base-Steel Thickness: [As indicated on Drawings.

3. Web and Flange Widths, Type HDS: 3-5/8 by 3 by 1-1/16 by 3/4 inch, 6 by 3 by 2-1/4 by 3/4 inch.

0.2 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide the following at all exterior wall locations:

1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 2 - EXECUTION

0.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

0.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches (610 mm) o.c.

2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

0.3 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.

2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.

3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.

4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

0.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: [16 inches (406 mm) o.c unless otherwise indicated.

2. Tile Backing Panels: [16 inches (406 mm) o.c.] unless otherwise indicated.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.

a. Install two studs at each jamb unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (13-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.

c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Install fire-resistant partitions using manufacturer's proprietary equivalent gauge studs in compliance with requirements of [UL V450] [UL V438] [UL U419].

b. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
6. Curved Partitions:
    a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
    b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches (152.4 mm) o.c.

E. Direct Furring:
1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

F. Z-Shaped Furring Members:
1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced 16 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (305 mm) from corner and cut insulation to fit.

G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 09220

SECTION 09250 - GYPSUM DRYWALL

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 General Requirements sections, apply to work of this section.

DESCRIPTION OF WORK:

Types of work include:

Gypsum drywall including screw type metal support system

Drywall finishing (joint tape and compound treatment)

Gypsum Sheathing

QUALITY ASSURANCE:

Fire Resistance Rating: Where gypsum drywall systems with fire resistance ratings are indicated or are required to comply with governing regulations, provide materials and installations identical with applicable assemblies which have been tested and listed by recognized authorities, including UL and AIA.

Gypsum Board Terminology Standard: GA 505 by Gypsum Association.

Single Source Responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

SUBMITTALS:

Product Data: Submit manufacturer's product specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these specifications.

DELIVERY, STORAGE AND HANDLING:

Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

Store materials inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

PROJECT CONDITIONS:

Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum board.

Cold Weather Protection: When ambient outdoor temperatures are below 55 degrees F (13 degree C) maintain continuous, uniform, comfortable building working temperatures of not less than 55 degree F (13 degree C) for a minimum period of 48 hours prior to, during and following application of gypsum bard and joint treatment materials or bonding of adhesives.

Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

PART 2 PRODUCTS

ACCEPTABLE MANUFACTURERS:

Metal Support Materials:

Gold Bond Building Products Div., National Gypsum Co.
Milcor Division; Inryco Inc.
United States Gypsum Co.

Direct Suspension Systems:

Chicago Metallic Corp.
Donn Corporation.
National Rolling Mills Co.
Roblin Building Products, Inc.
United States Gypsum Co.

Gypsum Board and Related Products:

Gold Bond Building Products Div., National Gypsum Co.
United States Gypsum Co.

METAL SUPPORT MATERIALS:

Ceiling Support Materials and Systems:

General: Size ceiling support components to comply with ASTM C 754 unless indicated otherwise, hot dipped galvanized at exterior walls.

Main Runners: Steel channels with rust inhibitive paint finish, hot or cold rolled.

Hanger Wire: ASTM A 641, soft, Class 1 galvanized.

Hanger Anchorage Devices: Screws, clips, bolts, cast in place concrete inserts or other devices applicable to the indicated method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven through standard construction practices or by certified test data. Size devices for 3x calculated load supported except size direct pull out concrete inserts for 5x calculated loads.

Furring Members: ASTM C 645; 0.0179" min. thickness of base metal, hat shaped.

Where shown as "Resilient", provide manufacturer's special type designed to reduce

sound transmission.

Furring Members: ASTM C 645; 0.0179" min. thickness of base metal, C shaped studs.

Furring Anchorages: 16 gage galvanized wire ties, manufacturer's standard wire type clips, bolts, nails or screws as recommended by furring manufacturer and complying with C 754.

Direct Suspension Systems: Manufacturer's standard zinc coated or painted steel system of furring runners, furring tees, and accessories designed for concealed support of gypsum drywall ceilings; of proper type for use intended.

Wall/Partition Support Materials:

Exterior Studs: Refer to Structural

Interior Studs: ASTM C 645; 0.0179" min. thickness of base metal unless otherwise indicated, 25 gage. Provide 16 gage hot dipped galvanized at exterior walls, unless noted otherwise.

Depth of Section: 4", except as otherwise indicated.

Deflection System: Provide Slotted Deflection Track at all interior partitions.

Suspended Drywall System: Equal to Armstrong Drywall Grid System

Shaft Wall System: Equal to USG Shaft wall System at elevator/mechanical shafts. Provide and install system with C-H profile studs.

Runners: Match studs; type recommended by stud manufacturer for floor and ceiling support of studs, and for vertical abutment of drywall work at other work.

Furring Members: ASTM C 645; 0.0179" min. thickness of base metal, hat shaped. Where shown as "Resilient," provide manufacturer's special type designed to reduce sound transmission.

Z Furring Members: Manufacturer's standard screw type galvanized steel, zee shaped furring members; ASTM A 525, G60, 0.0179" min. thickness of base metal; of depth indicated; designed for mechanical attachment of insulation boards or blankets to monolithic concrete and masonry walls. Hot dipped galvanized at exterior walls.

Fasteners for Furring Members: Type and size recommended by furring manufacturer for substrate and application indicated.

GYPSUM BOARD PRODUCTS:
Gypsum Wallboard: (GypWbd) ASTM C 36, of types, edge configuration and thickness indicated, in maximum lengths available to minimize end-to-end butt joint

Type: USG Gypsum Mold Tough Wallboard, Type MR
Edges: Manufacturer's standard.
Thickness: 1/2” at ceilings, 5/8” at wall partitions, unless otherwise indicated
Uses: at toilet ceilings and wall partitions, where noted.

Type: USG Gypsum Firecode Core Wallboard, Type X
Edges: Manufacturer's standard.
Thickness: 5/8", unless otherwise indicated
Uses: at corridor wall partitions, above 8’-0” aff. and where indicated.

Type: USG VHI Firecode Core Wallboard (ASTMC1629 – Passes Level 2 Abrasion Resistance; Level 1 Indention; Level 3 Body Impact)
Thickness: 5/8".
Uses: at all cafeteria wall partitions to a height of 8’-0” aff. and where indicated.

SHEATHING (parapet) shall be Georgia Pacific DensDeck Prime, 5/8" thick, with taped seams, at all parapet roofing applications.
Tile Backer Board: shall be Georgia Pacific, 5/8" thick Dens-Shield Tile Backer with Fire-Shield, provide at all ceramic tile wainscot wall conditions only.

TRIM ACCESSORIES:

General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L type edge trim beads, U type edge trim beads, special L kerf type edge trim beads, and one-piece control joint beads.

Corner bead and Edge Trim for Interior Installation: Comply with ASTM C 840 and the following:

Corner bead formed from zinc alloy, with flanges knurled and perforated or of fine mesh expanded metal.

Steel Edge trim formed from galvanized steel, types per Fig. 1 of ASTM C 840 as follows:

"LC" Bead, unless otherwise indicated.
"LK" Bead with square nose for use with kerfed jambs.
"L" Bead where indicated.
"U" Bead where indicated.

Plastic Edge Trim: Manufacturers standard rigid or semi rigid PVC moldings shaped to provide resilient contact of gypsum board edges with other construction; friction fit, or pressure sensitive adhesive mounting.

One Piece Control Joint: Formed with perforated face flanges connected by vee shaped slot, 1/4 inch wide by approximately 7/16 inch deep and covered with removable tape, fabricated from the following material:

Roll formed zinc.
Extruded vinyl.
Either roll formed zinc or extruded vinyl.

JOINT TREATMENT MATERIALS:

General: ASTM C 475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.

Joint Tape: Paper reinforcing type.

Joint Compound: Vinyl type powder or ready mixed vinyl type for interior use.

Joint Compound: On interior work provide chemical hardening type for bedding and filling, ready mixed vinyl type or vinyl type powder for topping.

MISCELLANEOUS MATERIALS:

General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

Laminating Adhesive: Special adhesive or joint compound specifically recommended for laminating gypsum boards.

Gypsum Board Screws: Comply with ASTM C 646.

Concealed Acoustical Sealant: Nondrying, non-hardening, non-skinning, non-staining, non-bleeding, gunnable sealant for concealed applications per ASTM C 919.

Sound Attenuation Blankets: Refer to Section 07201 for sound attenuation blanket specification.

Corner Guards: Refer to Section 10260 for Clear Corner Guard specification.

TEXTURE FINISH MATERIALS:
Primer: Of type recommended by manufacturer of texture finish.

Polystyrene Aggregated Finish: One of the following:

QT Imperial Texture Finish: United States Gypsum Co.
Perfect Spray: Gold Bond Bldg. Products Div.
Regular Texture
- Light Monterrey
- Medium Monterrey
- Orange Peel

PART 3 EXECUTION

PREPARATION FOR METAL SUPPORT SYSTEMS
Ceiling Anchorages: Coordinate work with structural ceiling work to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers.

INSTALLATION OF METAL SUPPORT SYSTEMS:

General:
Metal Support Installation Standard: Comply with ASTM C 754.

Do not bridge building expansion joints with support system, frame both sides of joints with furring and other support as indicated.

Ceiling Support Suspension Systems:

Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to inserts, clips or other anchorage devices or fasteners as indicated.

Space main runners 4' 0" o.c. and space hangers 4' 0" o.c. along runners, except as otherwise shown.

Level main runners to a tolerance of 1/8" in 12' 0", measured both lengthwise on each runner and transversely between parallel runners.

Wire tie or clip furring members to main runners and to other structural supports as indicated.

Space furring member 16" o.c., except as otherwise indicated.

Wall/Partition Support Systems:

Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction handbook" published by United States Gypsum Co.

Isolate stud system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.

Install runner tracks at floors, ceilings and structural walls and columns where gypsum drywall stud system abuts other work, except as otherwise indicated.

Extend partition stud system through acoustic ceilings and elsewhere as indicated to the structural support or substrate above the ceiling.

Space studs 16" o.c., unless otherwise indicated.

Frame door openings to comply with detailed indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Com. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for jack studs) at head and secure to jamb studs.

Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above, unless otherwise indicated.

Frame openings other than door openings to comply with details indicated or if not indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.
Space wall furring members 16" o.c., unless otherwise indicated.

Erect thermal insulation vertically and hold in place with Z furring members spaced 24" o.c. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails or power drive fasteners spaced 24" o.c. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring member channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than 12"

from corner and cut insulation to fit. Until gypsum board is installed hold insulation in place with 10" staples fabricated from 18 gage tie wire and inserted through slot in web of member, or by an equally acceptable method.

GENERAL GYPSUM BOARD INSTALLATION REQUIREMENTS:
Gypsum Board Application and Finishing Standards: ASTM C 840 and GA 216.

Where handrails are indicated for direct attachment to gypsum board shaft wall system, provide not less than a 0.0341 inch thick by 4-inch-wide galvanized steel reinforcement strip, accurately positioned and secured behind not less than one gypsum board face layer of 1/2 inch or 5/8-inch thickness.

Install sound attenuation blankets as indicated, prior to gypsum board unless it is readily installed after board has been installed.

Locate exposed end butt joints as far from center of walls and ceilings as possible, and stagger not less than 1' 0" in alternate courses of board.

Install ceiling boards in the direction and manner which will minimize the number of end butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints at least 1' 0".

Install wall/partition boards vertically to avoid end butt joints wherever possible. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs.

Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.

Located either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill cut or field cut ends against mill cut or field cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

Attach gypsum board to framing and blocking as required for additional support at openings and cutouts.

Form control joints and expansion joints with space between edges of boards, prepared to receive trim accessories.

Cover both faces of steel stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are properly braced internally.

Except where concealed application is required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area and may be limited to not less than 75% of full coverage.

Isolate perimeter of non load bearing drywall partitions at structural abutments. Provide 1/4" to 1/2" space and trim edge with J type semi finishing edge trim. Seal joints with acoustic sealant. Do not fasten drywall directly to stud system runner tracks.

For double layer partition system, work above acoustic ceilings may be installed with base layer only.

Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

METHODS OF GYPSUM DRYWALL APPLICATION:
Single layer Application: Install gypsum wallboard.

On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.

On partitions/walls apply gypsum board vertically (parallel), unless otherwise indicated, and provide sheet lengths which will minimize end joints.

Double Layer Fastening Methods: Apply base layer of gypsum board and face layer to base layer as follows:

Fasten base layers to supports with screws. Stagger joints on face layers.

INSTALLATION OF DRYWALL TRIM ACCESSORIES:

General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.

Install metal corner beads at external corners of drywall work.

Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where semi finishing type is indicated. Install L type trim where work is tightly abutted to other work and install special kerf type where other work is kerfed to receive long leg of L type trim. Install U type trim where edge is exposed, revealed, gasketed, or sealant filled (including expansion joints).

Install plastic edge trim where indicated on wall panels at juncture with ceilings.

Install metal control joint (beaded type) at all wall openings, at interior structural members and intervals not to exceed 30’-0”, and where indicated otherwise.

FINISHING OF DRYWALL:

General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Pre-fill open joints and rounded or beveled edges, using type of compound recommended by manufacturer.

Apply joint tape at joints between gypsum boards, except where a trim accessory is indicated.

Apply joint compound in 3 coats (not including pre-fill of openings in base), and sand between last 2 coats and after last coat.

Refer to sections on painting, coatings and wall coverings in Division 9 for decorative

finishes to be applied to drywall work.

APPLICATION OF TEXTURE FINISH:

Surface Preparation and Primer: Prepare and prime drywall and other surfaces in strict accordance with texture finish manufacturer's instructions. Apply primer of proper type to all surfaces to receive texture finish.

Finish Application: Mix and apply finish to drywall and other surfaces indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform texture without starved spots or other evidence of thin application, and free of application patterns.

Remove any texture droppings or overspray from door frames, windows and other adjoining work.

PROTECTION OF WORK:

Installer shall advise Contractor of required procedures for protecting gypsum drywall work from damage and deterioration during remainder of construction period.

END OF SECTION 09250

SECTION 09510 - ACOUSTICAL CEILINGS

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 type of acoustical ceiling is shown and scheduled on drawings.

Types of acoustical ceilings specified in this section include the following:
Acoustical panel ceilings, exposed suspension.

QUALITY ASSURANCE:
Installer Qualifications: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units, as shown by current written statement from manufacturer.

Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by or penetrating through, ceilings, including light fixtures, HVAC equipment, fire suppression system components (if any), and partition system (if any).

SUBMITTALS:
Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications.

DELIVERY, STORAGE, AND HANDLING:
Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.

Before installing acoustical ceiling units, permit them to reach room temperature and stabilized moisture content.

Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

PROJECT CONDITIONS:
Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings completed, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 - PRODUCTS

ACOUSTICAL CEILING UNITS, GENERAL:
Standard for Acoustical Ceiling Units: Provide manufacturer's standard units of configuration indicated which are prepared for mounting method designated and which comply with FS SS S 118 requirements, including those indicated by reference to type,

form, pattern, grade (NRC or NIC's as applicable), light reflectance coefficient (LR), edge detail, and joint detail (if any).

Sound Attenuation Performance: Provide acoustical ceiling units with ratings for ceiling sound transmission class (STC) of range indicated as determined according to AMA 1 II "Ceiling Sound Transmission Test by Two Room Method" with continuous at partitions and supported by a metal suspension system of type appropriate for ceiling unit of configuration indicated (concealed for tile, exposed for panels).

Colors, Textures, and Patterns: Provide products to match appearance characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors, surface textures, and patterns available for acoustical ceiling units and exposed metal suspension system members of quality designated.

ACOUSTICAL PANELS:
SAC I Panels Mineral Composition with Standard Washable painted finish:
Nodulated, Cast or Molded Units, Fissured: Form 2, Pattern d, NRC 60, LR 1, STC 30-34 Square edge, white, 24" x 24" x 5/8". No. 1728 Panels:
Fine-Fissured - Armstrong World Ind., Inc.

Upon completion of project, the Contractor shall provide the Owner with two boxes of ceiling tile for each style used for future repairs.

METAL SUSPENSION SYSTEMS, GENERAL:
Standard for Metal Suspension Systems: Provide metal suspension systems of type, structural classification and finish indicated which comply with applicable ASTM C 635 requirements.

Finishes and Colors: Provide manufacturer's standard finish for type of system indicated, unless otherwise required. For exposed suspension members and accessories with painted finish, provide black color.

High Humidity Finish: Comply with ASTM C 635 requirements for Coating Classification for "Severe Environment Performance" where high humidity finishes are indicated.

Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct-Hung.

Hanger Wire: Galvanized carbon steel wire, ASTM A 641, soft temper, pre-stretched, Class 1 coating, sized so that stress at 3 times hanger design loan (ASTM C 635, Table 1, Direct Hung), will be less than yield stress of wire, but provide not less than 12 gage.

Edge Moldings and Trim: Metal or extruded plastic of types and profiles indicated or, if not indicated, provide manufacturer's standard molding for edges and penetrations of ceiling which fits with type of edge detail and suspension system indicated.

Available Manufacturers: Manufacturers of Steel Exposed Suspension Systems: (in air-conditioned areas)
Same as acoustical unit manufacturer:
Chicago Metallic Corp.
Donn Corp.
National Rolling Mills, INc.

EXPOSED METAL DIRECT HUNG SUSPENSION SYSTEM:

Fire Rated Double Web Suspension System: 15/16”
Finish: Aluminum cap painted white.

Structural Classification: Intermediate Duty System: 15/16”
Finish: Aluminum cap painted white.

Structural Classification: Intermediate Duty System: 9/16”
Finish: Aluminum cap painted white.

PART 3 - EXECUTION

PREPARATION:

Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.

Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders and comply with reflected ceiling plans wherever possible.

INSTALLATION:

General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire resistance rating requirements as indicated, and industry standards applicable to work.

Arrange acoustical units and orient directionally patterned units (if any) in manner shown by reflected ceiling plans.

Install tile with pattern running in alternating one direction.

Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-0" along each carrying channel or direct hung runner, unless otherwise indicated, leveling to tolerance of 3/32" in 12'-0".

Secure wire hangers by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.
.
Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, counter splaying or other equally effective means.

Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.

Screw attached moldings to substrate at intervals not over 16” o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12' 0". Miter corners accurately and connect securely.

Install acoustical tile in coordination with suspension system. Place splines or flanges of suspension system into kerfed edges, or insert tile tongues into tile grooves, so that every tile-to-tile joint is closed by double lap of material.

Fit adjoining tile to form flush, tight joints. Scribe and cut for accurate fit at borders and around penetrating work.

Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

ADJUST AND CLEAN:
Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch up of minor finish damage.

Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09510

SECTION 09650 - RESILIENT FLOORING

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 resilient flooring and accessories is shown on drawings and in schedules.
Floor Wax

QUALITY ASSURANCE:
Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.

Wherever possible, provide required resilient flooring and accessories produced by a single manufacturer.

SUBMITTALS:
Product Data: Submit 2 copies of manufacturer's technical data and installation instructions for each type of resilient flooring and accessory.

Samples: Submit, for verification purposes, samples of each type, color, and pattern of resilient flooring, including accessories, required, indicating full range of color and pattern variation.

Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.

Replacement Material: After completion of work, deliver to project site replacement materials from same manufactured lot as materials installed, and as follows:

Tile flooring, not less than one box for each 50 boxes or fraction thereof, for each type, size, and color installed.

JOB CONDITIONS:
Maintain minimum temperature of 65 degrees F (18 degrees C) in spaces to receive resilient flooring for at least 40 hours prior to installation, during installation, and for not less than 48 hours after installation. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55 degrees F (13 degrees C) in areas where work is completed.

Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by manufacturer's recommended bond and moisture test.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:
Available manufacturers must have thru-chip technology or equal manufacturing technology.

Vinyl Composition Tile:
Basis of Design: Armstrong World Industries, Inc. - All available colors including Multi-colors
Selected Colors:
52505 Harlequin White
51812 Lemon Yellow
57508 Blue Dreams
51903 Blue Grey

Tarkett Inc. - Signals, Collage, Expressions/Basics available.
Mannington Commercial - Essentials and Designer Essentials.
Azrock Commercial Flooring - Cortina/Compliments

Rubber Wall Base:
Basis of Design: Flexco Floors
Selected Color: 058 Blue Shadow

Johnson Rubber Co., Inc., Flooring Accessories Div.
R. C. Musson Rubber Co., Inc.
Roppe Rubber Corp.

MATERIALS:
Colors and Patterns: As shown or scheduled, or as selected by Architect from manufacturer's standards.

Tile Flooring:
Vinyl Composition Tile (VCT): FS SS T 312, Type IV; 12" x 12" unless otherwise indicated, and as follows:
Composition 1 asbestos-free.
Gage: 1/8".
Provide four (4) color pattern as shown on plans.

Accessories:
Basis of Design: Wall Base equal to Flexco #2000 – Color: 058 Blue Shadow.
Wall Base (WL BS): Provide rubber base complying with FS SS W 40, Type I, with matching end stops and preformed corner units, and as follows:
Height: 4".
Thickness: 1/8" gage.
Style: Standard top set cove.
Finish: Matte.

Transition strip:
Provide 1" wide transition strips between all differing floor conditions.
Provide 1" transition strips at all door openings.

Adhesives (Cements): Waterproof, stabilized type as recommended by flooring manufacturer to suit material and substrate conditions.

Concrete Slab Primer: Non staining type as recommended by flooring manufacturer.

Leveling Compound: Latex type as recommended by flooring manufacturer.

Floor Wax:

Basis of Design: iShine High Solids Floor Finish – Spartan Chemical Company, Inc.

Total Solids – 34.5%
Non-Volatile Solids – 25%
pH (Concentrate) 8.0-9.0

Install per Manufactures written directions for preparation and installation of product

Provide and install total of (7) coats of floor finish. Installation review every two coats for uniform applications.

PART 3 - EXECUTION

PREPARATION:

Broom clean or vacuum surfaces to be covered, and inspect sub-floor. Start of flooring installation indicates acceptance of sub-floor conditions and full responsibility for completed work.

Use leveling compound as recommended by flooring manufacturer for filling small cracks and depressions in sub-floors.

Perform moisture tests on concrete slabs to determine that concrete surfaces are sufficiently cured and ready to receive flooring.

Apply concrete slab primer, if recommended by flooring manufacturer, prior to application of adhesive. Apply in compliance with manufacturer's directions.

INSTALLATION:

General:
Install flooring using method indicated in strict compliance with manufacturer's recommendations. Extend flooring into toe spaces, door reveals, and into closets and similar openings.

Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on sub-floor. Use chalk or other non-permanent marking device.

Install flooring on covers for telephone and electrical ducts, and other such items as occur within finished floor areas.

Maintain overall continuity of color and pattern with pieces of flooring installed on these covers. Tightly cement edges to perimeter of floor around covers and to covers.

Tightly cement flooring to sub-base without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections. Hand roll flooring at perimeter of each covered area to assure adhesion.

Tile Floors:
Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise shown.

Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged. Cut tile neatly around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable.

Lay tile in "checkerboard" fashion with grain reversed in adjacent tiles.

Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.

Accessories:
Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with metered or coped inside corners. Tightly bond tile to substrate throughout length of each piece to provide continuous contact at horizontal and vertical surfaces.

On masonry surfaces, or other similar irregular surfaces, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which, when changed to different floor material, would otherwise be exposed.

FLOOR WAXING:
Upon completion of floor installation and before applying first coat of floor finish, contractor to coordinate a pre-installation meeting with Owner to determine installation schedule and procedures. Owner will be notified and be present for initial application and will provide approval for each subsequent application per a schedule that is set up by the Owner and coordinated with General Contractor.

- First (1) coat of floor finish to all areas to allow for initial punch list inspection and allow Owner to inspect installation procedures.
- Remaining Six (6) coats of floor finish will be installed per Owner schedule and coordinated with General Contractor.

CLEANING AND PROTECTION:
Remove any excess adhesive or other surface blemishes, using neutral type cleaners as recommended by flooring manufacturer. Protect installed flooring with heavy Kraft paper or other covering.

Finishing: After completion of project and just prior to final inspection of work, thoroughly clean floors and accessories.

END OF SECTION 09650

SECTION 09900 PAINTING

PART 1 GENERAL

RELATED DOCUMENTS:
Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work in this section.

DESCRIPTION OF WORK:
Extent of painting work is indicated on drawings and schedules, and as herein specified.

Work includes painting and finishing of interior and exterior exposed items and surfaces throughout Project, except as otherwise indicated.

Surface preparation, priming and coats or paint specified are in addition to shop priming and surface treatment specified under other sections of work.

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

Paint exposed surfaces whether or not colors are designated in “schedules", except where natural finish of material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors available for materials systems specified.

Pre-finished Items: Unless otherwise indicated, do not include painting when factory finishing or installer finishing is specified for such items as (but not limited to) metal toilet enclosures, pre-finished partition systems, acoustic materials, architectural woodwork and casework, finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets, elevator entrance frames, doors and equipment.

Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.

Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.

Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sensing devices, motor and fan shafts will not require finish painting.

Do not paint over any code required labels, such as Underwriters’ Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

SUBMITTALS:

Product Data: Submit manufacturer's technical information including Paint label analysis and application instructions for each material proposed for use.

Samples: Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

On 12" x 12" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.

On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

On concrete masonry, provide two 4" square samples of masonry for each type of finish and color, defining filler, prime and finish coat.

DELIVERY AND STORAGE:
Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

Name or title of material.
Fed. Spec. number, if applicable.
Manufacturer's stock number and date of manufacture.
Manufacturer's name.
Contents by volume, for major pigment and vehicle constituents.
Thinning instructions.
Application instructions.
Color name and number.

JOB CONDITIONS:

Apply water base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

Apply solvent thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

Do not paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 PRODUCTS

COLORS AND FINISHES:
Paint colors, surface treatments, and finishes, are indicated in "schedules" of the contract documents.

Prior to beginning work, Architect will furnish color chips for surfaces to be painted.

Use representative colors when preparing samples for review.

MANUFACTURERS: for interior paint system only.

Sherwin Williams
Technical Coatings Inc.
Jones Blair
Pittsburgh Paint

Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish materials proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

MATERIALS:

Material Quality: Provide the best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best grade product will not be acceptable.

INTERIOR PAINT SYSTEMS:

Provide following paint systems for various substrates, as indicated.

Exposed Metal:

IPS2: 1st Coat - PROMAR Interior Latex Primer
2nd Coat - PROMAR 200 Interior Latex Semi-Gloss
3rd Coat - PROMAR 200 Interior Latex Semi-Gloss

Gypsum Drywall Systems – (General Use):

1st Coat - Interior Latex Based Primer Coat (FS TT-P-650).
2nd Coat & 3rd Coat - Odorless interior semi-gloss latex enamel (TS TT-E-509). Not less than 2.5 mils dry film thickness.

Surface Preparation: Wood must be dry and cleaned of dirt, grease, wax, polish, and marks. Old finishes in poor condition should be completely removed and the surface treated as a new surface (this shall apply to existing floors only). Sand wood to a smooth surface using 100-120 grit paper. If wood is stained, sand carefully to avoid sanding through the color. Remove sanding dust with a vacuum, no dust cloths shall be permitted. New wood should be stored inside for a minimum of 24 hours prior to staining. Stain or varnish applied to wood that has not been dried can exhibit blotching, discoloration, or cracking.

PART 3 EXECUTION

INSPECTION:

Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been correct in a manner acceptable to Applicator.

Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

SURFACE PREPARATION:

General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly painted surfaces.

Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze as required. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer’s printed directions.

Clean concrete floor surfaces scheduled to be painted with a commercial solution or muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sandpaper smooth when dried.

Prime, stain, or seal wood required to be job painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling. When transparent finish is required, use spar varnish for back-priming.

Back-prime paneling on interior partitions only where masonry or other wet wall construction occurs on backside.

Seal tops, bottoms, and cut outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical

cleaning.

Touch up shop applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch up with same type shop primer.

Galvanized Surfaces: Clean free of oil and surface contaminants with non petroleum based solvent.

MATERIALS PREPARATION:

Mix and prepare painting materials in accordance with manufacturer's directions.

Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue. Store materials not in actual use in tightly covered containers.

Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

APPLICATION:
General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated. Sand lightly between each succeeding enamel or varnish coat.

Omit first coat (primer) on metal surfaces which have been shop primed and touch up painted, unless otherwise indicated.

Scheduling Painting: Apply first coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firms, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not

indicated, as recommended by coating manufacturer.

Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.

Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

Transparent (Clear) Finish: Use multiple coats to produce glass smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats, unless otherwise indicated.

Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

FIELD QUALITY CONTROL:
The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:

Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.

Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.

If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, and remove non complying paint; pay for testing; repaint surfaces coated with rejected paint; remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are non compatible.

CLEAN UP AND PROTECTION:
Clean Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using car not to scratch or otherwise damage finished surfaces.

Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations. At completion of work of other trades, touch up and restore all damaged or defaced painted surfaces.

END OF SECTION 09900

SECTION 10100 - MARKERBOARDS AND TACKBOARDS

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to the work of this section.

DESCRIPTION OF WORK:

Extent of marker boards (MKBD) and tack boards (TKBD) is shown on drawings.

Types of, marker boards and tack boards specified in this section include the following:
Magnetic Marker boards

QUALITY ASSURANCE:

Manufacturer: Unless otherwise acceptable to Architect, furnish all marker boards and tack boards by one manufacturer for the entire project.

SUBMITTALS:

Product Data: Submit manufacturer's technical data and installation instructions for each material and component part, including data substantiating that materials comply with requirements.

Samples: Submit full range of color samples for each type of marker board, tack board, trim and accessory required. Provide 12" square samples of sheet materials and 12" lengths of trim members for color verification after selections have been made.

Shop Drawings: Submit for each type of marker board and tack board. Include sections of typical trim members and dimensioned elevations. Show anchors, grounds, reinforcement, accessories, and installation details.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

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

Manufacturers of Markerboards:
Basis of Design: Nelson Adams NACO
Color: White
Best-Rite.
Claridge Products and Equipment, Inc.
Greensteel, Inc.
Tacrite

Manufacturers of Tackboards:
Basis of Design: Nelson Adams NACO
Color: French Blue B321-71
Claridge Products and Equipment, Inc.

Greensteel, Inc.
Tacrite
Polyvision

Manufacturers of Tack Strips
Basis of Design: Nelson Adams NACO
Color: French Blue B321-71
Claridge Products and Equipment, Inc.
Greensteel, Inc.
Tacrite
Polyvision

MATERIALS:

Colors and Textures: Provide as shown or scheduled. If not indicated on drawings, provide colors and textures as selected by Architect from manufacturer's standards.

Magnetic Markerboards (MKBD):

Porcelain on Metal: LCS 24-gauge Porcelain Enamel Steel, over 1/4" hardboard. Units to be fabricated in accordance with the Performance Specifications for porcelain enamel steel marker boards, as established by the Porcelain Enamel Institute, the enamel should be.

* Applied automatically to a uniform thickness
. * Fired under rigidly controlled temperatures
* Fused permanently to the steel
* Height is 4' by length shown on plans.

Cover Coat Finish: Manufacturer's special writing surface (SWS) with gloss finish intended for use with liquid markers. Surface must be magnetic.

Core: Hardboard of thickness 1/4".
Particle board accepted only in thicknesses of 3/8".

Laminating Adhesive: Manufacturer’s standard moisture-resistant thermoplastic type adhesive.

Tackboards (TKBD):

Vinyl Fabric-Faced: Provide mildew resistant, vinyl fabric complying with FS CCC-W-408, Type II, laminated to 1/4" thick cork backing sheet.

Unless otherwise indicated, make up rigid panels by factory-laminating under pressure to 1/4" thick exterior type plywood or hardboard backing. Height is 4' by length shown in plans. Provide continuous map rail above these units as well, see interior elevations.

TRIM AND ACCESSORIES:

Provide one (1) Flag Holders model no. 51FH per marker board, single or combo unit

General: Fabricate frames and trim of not less than 0.062" thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single length units wherever possible; keep joints to a minimum. Miter corners to a neat, hairline closure.

Clear Anodized Finish: Manufacturer's standard satin anodized finish with clear anodic coating complying with AA requirements for Class II Architectural Coating (AA-A31).

Trough: Furnish continuous aluminum troughs for each markerboard, unless otherwise indicated, as follows.

Solid Extrusion, manufacturer's standard ribbed section, with exposed ends smoothly curved.

Map Rail: Furnish map rail at the top of each unit, unless otherwise indicated, with the following accessories for each map rail.

Display Rail: Continuous cork approximately 12" high, integral with map rail. See drawings for limits of rail.

Map Hooks: Provide 2 map hooks for each 4' of map rail or fraction thereof.

FABRICATION:

Assembly: Provide factory assembled Markerboard and tackboard units.

Make joints only where the total length exceeds the maximum manufactured length. Fabricate with the minimum number of joints, balanced around the center of the board, as acceptable to the Architect.

Provide the manufacturer's standard vertical joint system between abutting sections of Markerboard.

Provide mullion trim at joints between chalkboard and tackboard.

PART 3 - EXECUTION

PREPARATION:

Field Measurements: Take field measurements prior to the preparation of shop drawings and fabrication where possible, to ensure proper fitting of the work. However, allow for trimming and fitting wherever taking of field measurements before fabrication might delay work.

INSTALLATION:

Deliver factory-built chalkboard and tackboard units completely assembled in one piece without joints, wherever possible. Where dimensions exceed panel size, provide 2 or more pieces of equal length as acceptable to the Architect.
When overall dimensions require delivery in separate units, pre-fit components at the factory disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.

Install units in locations and at mounting heights indicated on drawings and in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb and level. Provide all grounds, clips, backing materials, brackets, anchors, trim and accessories necessary for a complete installation.

ADJUST AND CLEAN:

Verify that accessories required for each unit have been properly installed and that operating units function properly.

Clean units in accordance with the manufacturer's instructions.

Break-in chalkboards only as recommended by the manufacturer.

END OF SECTION 10100

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TABLE OF CONTENTS

MEP SPECIFICATIONS FOR IDEA PUBLIC SCHOOLS RIO VISTA HYBRID LAB CONVERSION, SOCORRO, TEXAS

MARCH 05, 2025

DIVISION 26: ELECTRICAL

DRAWINGS:

March 5, 2025

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 Public Schools Rio Vista Hybrid Lab Conversion" consists of an existing two-story building, work consists of to renovate/subdivide two large computer labs into three classrooms renovation. This building is generally 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 a complete operational electrical distribution system. Major items of work include, but are not limited to:
   (a) Electrical Service: To remain as is with modifications.
   (b) Demolition: Disconnect and remove existing devices as noted on plans.
   (c) Interior Lighting: Existing to remain as is.
   (d) Lighting Controls (switches, occupancy sensors, etc.): Existing to remain as is.
   (e) Power Systems: Provide miscellaneous duplex receptacles, duplex receptacles for computer terminals and white boards.
   (f) Branch circuits: Provide metal-clad cable for receptacle branch circuits, excluding home runs.
   (g) Fire Alarm System: Existing to remain as is.
   (h) School Intercom System: Existing to remain as is.
   (i) Voice and Data Communication Cabling Equipment: Provide cabling and connectors to provide end-to-end connectivity.
   (j) Multimedia System (classrooms): Provide rough ins for outlets and white boards.

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 Mechanical Contractor for providing power to HVAC equipment.

G. Fully coordinate with HVAC controls contractor for Lab controller interface with Lab Fans.

H. Fully coordinate with the Millwork contractors for the wiring devices installation.

I. 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 installing all raceways, labeling all j-boxes and prior to suspended ceiling and dry wall installation.
2. Upon completion of pulling all wiring, making all terminations, labeling and color-coding wires at the panelboards and prior to installing their covers.
3. When ready to request the manufacturer’s start-up of each piece of equipment.
4. When ready to conduct a complete Fire Alarm demonstration.
5. When ready to conduct complete Laboratory Safety Device System.
6. When ready for Substantial Completion Inspection.
7. When ready for Final Inspection.

J. 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. 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 being 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. 260519.19 Metal Clad Cable
- c. 260526 Grounding and Bonding for Electrical Systems
- d. 260529 Hangers and Supports for Electrical Systems
- e. 260533 Raceways and Boxes for Electrical Systems
- f. 260544 Sleeves and Sleeve Seals for Electrical Raceways and Cabling
- g. 260553 Identification for Electrical Systems
- h. 262726 Wiring Devices

2. Electrical Gear Submittal #2
- a. 262200 Low Voltage Transformers
- b. 262416 Panelboards
- c. 262813 Fuses
- d. 262816 Enclosed Switches and Circuit Breakers
- e. 262913 Enclosed Controllers

3. Light Fixtures Submittal #3
- a. 265116 Interior Lighting

4. Special Systems: Submittal #4
- a. 267210 Fire Alarm System
- b. 269750 Voice and Data Communications

5. Electrical Commissioning Submittal #5
- a. 260800 Commissioning for Electrical Systems

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. Electrical Gear.
2. Raceways Including Wiring.
3. Light Fixtures
4. Wiring Devices.
5. Fire Alarm System
6. Voice and Data Communications
7. Commissioning
8. Allowances.
9. Miscellaneous.

10. 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 and Type SO 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. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls and Partitions: Type THHN/THWN-2, single conductors in raceway.

C. Exposed Branch Circuits: Type THHN/THWN-2, single conductors in raceway.

D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: 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 260519.19 – METAL CLAD CABLE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. This section includes the following:

1. Metal Clad (Type MC) and Metal-Clad Interlocking Armor Ground Cable (Type MCI-A).
2. Wiring connections and terminations.
3. Installation methods and procedures.

1.2 RELATED SECTIONS

A. 26 05 19 - Low Voltage Electrical Power Conductors and Cables

B. 26 05 26 - Grounding and Bonding for Electrical Systems

1.3 REFERENCES

A. UL 83 - Thermoplastic Insulated Wires and Cables

B. UL 1569 - Standard for Metal Clad Cables

C. NEC - NFPA 70, National Electrical Code 2014

D. ASTM B3 - ASTM International Standard B3 Standard Specification for Soft or Annealed Copper Wire

E. ASTM B8 - ASTM International Standard B8 Standard Specification for Concentric-Lay- Stranded Copper Conductors, Hard, Medium-Hard, or Soft

F. ANSI/NETA ATS - International Electrical Testing Association Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems, 2013 edition

1.4 SUBMITTALS

A. Product Data Submittals: Submit product data for each type of metal clad cable and fitting indicated.

B. Quality Assurance/Control Submittals: Submit qualification data for testing agency.

C. Closeout Submittals: Submit field quality-control test reports.

1.5 QUALIFICATIONS

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

B. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in unopened cartons or bundles as appropriate, clearly identified with manufacturer's name, Underwriter's or other approved label, grade or identifying number.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. AFC Cable Systems, Inc. or approved equivalent.

2.2 ARMORED CABLE ASSEMBLY

A. Metal clad cable assemblies shall consist of 2 or more insulated current carrying copper conductors and a green insulated copper ground conductor. The metal clad cable (or armored cable assembly) shall be UL classified as a through-penetrating product (XHLY) for use in one, two or three-hour through-penetration firestop systems (XHEZ). The assembly shall be suitable for use in cable trays in accordance with the NEC.

B. Current-Carrying Conductors: Soft annealed copper in compliance with the latest edition of ASTM B3 and/or B8; size 12 AWG through 6 AWG. A separate neutral conductor shall be supplied with each phase conductor. Neutral conductor shall be oversized where indicated on the plans.

C. Insulated Equipment Grounding Conductor: The equipment ground shall be a full-sized insulated conductor with a protective cover, sized in accordance with Table 6.1 of UL 1569. The grounding conductor shall be soft-annealed copper in compliance with the latest edition of ASTM B3 and/or B8.

D. Isolated Grounding Conductor: An additional isolated, insulated grounding conductor shall be provided where specified in section 26 05 26. The isolated ground shall be a full-sized insulated conductor with a protective cover, sized in accordance with Table 6.1 of UL 1569. The isolated grounding conductor shall be soft-annealed copper in compliance with the latest edition of ASTM B3 and/or B8.

E. Conductor Insulation: The insulated conductors shall be type THHN 90°C DRY with an extruded polypropylene protective covering. The insulated conductors with protective covering shall be manufactured and tested in accordance with UL 83 and UL 1569.

F. Armor: An aluminum armor shall be applied over the cabled wire assembly with an interlock in compliance with Section 13 of UL 1569. Armor shall be colored to identify the voltage and number of conductors.

2.3 FITTINGS

A. Fittings shall be UL listed and identified as MCI-A for such use with metal clad interlocking armor ground.

B. Connectors shall be of steel and shall have saddle clamp to insure a tight termination of MC or MCI-A cable to box.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Scope: Provide metal clad cable for lighting and receptacle branch circuits, excluding home runs. Provide metal clad cable for exterior circuits, generator feeders, and cooling tower circuits.

B. Interior Routing: Route metal clad cable runs parallel with or perpendicular to walls or structural elements. Route horizontal runs level. Route vertical runs plumb. Rack groups together neatly with both straight runs and bends parallel and uniformly spaced.

C. Supporting: Provide support for MC cable in accordance with NEC Article 330 or the following, whichever is more stringent.

1. Use of cable tray: Basket, ladder rack, or ventilated cable tray may be utilized for support of metal clad cabling. The sum of the cross-sectional areas of cables shall not exceed the maximum allowable cable fill area allowed by NEC Article 392. Ampacity of cables installed in cable tray shall meet the requirements of NEC 392.80.
2. In existing buildings, provide independently supported cable hangers. These hangers are to be suitable for installation of MC cable.
3. In new buildings, provide a combination of cable tray and/or J cable hangers.
4. Individual metal clad cables hung from roof structure or structural ceiling shall be supported by split-ring hangers and wrought-iron hanger rods. Where three or more metal clad cables are suspended from the ceiling in parallel runs, use steel channels, Unistrut or equal, hung from 1/2-inch (13 mm) rods to support the cables. The cables on these channels shall be held in place with metal clad cable clamps designed for the particular channel that is used.
5. Secure metal clad cable support racks to concrete walls and ceilings by means of cast-in-place anchors; die- cast, rustproof alloy expansion shields; or cast flush anchors. Wooden plugs, plastic inserts, or gunpowder driven inserts shall not be used as a base to secure conduit supports.
6. Support metal clad cable immediately on each side of a bend and not more than 1 foot (300 mm) from an enclosure where a run of metal clad cable ends.

D. Clearances: Maintain clearances described below.

1. Where metal clad cable is installed parallel to framing members, such as studs, joist, or rafters, support the cable so that the nearest outside surface of the cable is at least 1- 1/4

inches (31 mm) from the nearest edge of the framing member. Where this distance cannot be maintained, protect the cable by a steel plate, sleeve, or equivalent that is at least 1/16-inch thick.

2. Maintain at least 6-inch clearance between metal clad cables and other piping systems.
3. Maintain 12-inch (300 mm) clearance between metal clad cables and heat sources such as flues, steam pipes, and heating appliances.
4. No metal clad cable shall be fastened to other conduits or pipes or installed so as to prevent the ready removal of other pipes or ducts for repairs.

E. Fittings: Follow manufacturer's instructions for cable preparation for installation of fittings.
Cleanly cut the cable end with metal clad cable rotary cutting tool to ensure flush seating of the cable into the fitting. Properly torque fitting securement screws.

F. Splices and Terminations: Make splices at junction boxes with an approved, insulated, live spring type connector such as those manufactured by Scotchlock, 3M or Ideal.

G. Conductors in Enclosures: Provide neat and workmanlike installation with conductors tied with nylon wire ties in terminal cabinets, gutters and similar locations.

H. Terminating metal clad cables into panelboards:
1. Provide a junction box within plenum space with sweep elbows down to panelboard, or
2. Use a ladder tray mounted vertically above the panelboard. Strap cables to rungs and install cover on cable tray.

I. Identification: Identify all wiring with permanent wire labels, using alphanumeric designations. Terminations and splices shall be identically labeled for the same wire (i.e. common conductors terminated in multiple locations). Wire labels shall agree with the circuit designations on the Construction Drawings. Identify conductors in outlets, pull boxes and similar locations where conductors are accessible with printed plastic adhesive tapes to show circuit numbers. Wrap tapes at least two turns around conductor. Mark panel identification number with felt tip pen on cloth or plastic tag and attach to entering conductors with nylon string.

3.2 SITE TESTS, INSPECTION

A. Hire an independent testing agency to perform acceptance testing.

B. All fittings and locknuts shall be re-examined for tightness. A continuity test is to be performed at each connection as a final means of inspection for tightness of joints.

C. Perform site tests in accordance with sections 26 08 11 and 26 05 19.

D. Perform field tests in conformance with the ANSI/NETA ATS.

END OF SECTION 260519.19

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.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless **exothermic**-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

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. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. 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. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Metal-clad cable runs.
8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the distribution 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. 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.

3.4 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 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Sections "Cast-in-Place Concrete" or "Miscellaneous Cast-in-Place Concrete."

C. Anchor equipment to concrete base as follows:

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 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. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. FMC: Flexible metal conduit.

C. LFMC: Liquidtight flexible metal conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For raceways, wireways and fittings, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

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. EMT: Comply with ANSI C80.3 and UL 797.

D. FMC: Comply with UL 1; zinc-coated steel.

E. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

F. 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: Steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

2.2 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.

2.3 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.

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

a. Hubbell Wiring Device-Kellems
b. Thomas & Betts Corporation.
c. Walker Systems, Inc.; Wiremold Company (The).
d. Wiremold Company (The); Electrical Sales Division.
e. Panduit.

C. Power Poles:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Hubbell Wiring Device-Kellems
   b. Wiremold Company (The); Electrical Sales Division.
   c. Panduit
2. Material: Aluminum with clear anodized finish.
3. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials, and other fittings shall match and mate with tele-power pole as required for complete system.

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 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. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

K. Cabinets:

1. NEMA 250, Type 1, Type 3R 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.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Concealed in Ceilings and Interior Walls and Partitions: EMT
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
4. 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.

B. Minimum Raceway Size: 1/2-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. EMT: Use setscrew steel fittings. Comply with NEMA FB 2.1.
2. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

D. 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.

E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

F. Install surface raceways only where indicated on Drawings.

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. 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.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Stub-ups to Above Recessed Ceilings:

1. Use EMT for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

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. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. 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.

L. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

M. 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.

N. 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.

O. 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.

P. Surface Raceways:

1. Install surface raceway with a minimum 2-inch radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

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 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. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
   b. 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 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 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."

3.4 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.5 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 and floors.
2. Grout.
3. Silicone sealants.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

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.

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.

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. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

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. Warning labels and signs.
5. Instruction signs.
6. Equipment identification labels.
7. 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 ARMORED AND METAL-CLAD 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 cable size.

B. Colors for Cables Carrying Circuits at 600 V and Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. 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.

D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

E. 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.

2.3 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.

2.4 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.

2.5 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 7 by 10 inches.

D. Metal-Backed, Butyrate Warning Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 10 by 14 inches.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.6 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.7 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

C. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

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. 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. Emergency Power.
2. Power.
3. Fire Alarm System
4. Telecommunication System.

C. Power-Circuit Conductor Identification: For secondary conductors No. 1/0 AWG and larger in vaults, pull and junction boxes, manholes, and handholes use color-coding conductor tape. Identify source and circuit number of each set of conductors. For single conductor cables, identify phase in addition to the above.

D. 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. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. 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.

E. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

F. 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.

G. Control-Circuit Conductor Termination Identification: For identification at terminations provide heat-shrink preprinted tubes with the conductor designation.

H. 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.

I. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self- adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.

4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

K. 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.

L. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

M. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
b. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
c. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Panelboards, electrical cabinets, and enclosures.
b. Distribution panelboards and Switchboards – label each circuit breaker
c. Access doors and panels for concealed electrical items.
d. Transformers.
e. Emergency system boxes and enclosures.
f. Disconnect switches.
g. Enclosed circuit breakers.
h. Motor starters.
i. Push-button stations.
j. Contactors.
k. Voice and data cable terminal equipment.
l. Fire-alarm control panel and annunciators.
m. Terminals, racks, and patch panels for voice and data communication and for signal and control functions.

3.3 INSTALLATION

Verify identity of each item before installing identification products.

END OF SECTION 260553

SECTION 262726 - WIRING DEVICES

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. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Tamper-resistant receptacles.
3. Cord and plug sets.
4. Service poles.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

B. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.
2. Cord and Plug Sets: Match equipment requirements.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and processes used for premarking wall plates.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
   1. Cooper Wiring Devices; a division of Eaton.
   2. Wiring Device-Kellems; a division of Hubbell.
   3. Leviton Mfg. Company Inc.
   4. Pass & Seymour; a division of LeGrand.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, 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.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

   1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
   2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Tamper-Resistant Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498 Supplement sd, and FS W-C-596.

2.4 GFCI RECEPTACLES

A. General Description:

   1. Straight blade, feed-through type.
   2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
   3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

C. Tamper-Resistant GFCI Convenience Receptacles, 125 V, 20 A:

2.5 CORD AND PLUG SETS

A. Description:

1. Match voltage and current ratings and number of conductors to requirements of equipment being connected.
2. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and ampacity of at least 130 percent of the equipment rating.
3. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.6 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Tamper proof metal with head color to match plate finish.
2. Material for Finished Spaces: Type 302 stainless steel, 0.04-inch thick.
3. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

2.7 SERVICE POLES

A. Description:

1. Factory-assembled and -wired units to extend power and voice and data communication from distribution wiring concealed in ceiling to devices or outlets in pole near floor.
2. Poles: Nominal 2.5-inch-square cross section, with height adequate to extend from floor to at least 6 inches above ceiling, and with separate channels for power wiring and voice and data communication cabling.
3. Mounting: Ceiling trim flange with concealed bracing arranged for positive connection to ceiling supports; with pole foot and carpet pad attachment.
4. Finishes: Satin-anodized aluminum.
5. Wiring: Sized for minimum of five No. 12 AWG power and ground conductors.
6. Power Receptacles: As noted on plans.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: Match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.

9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.
2. Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

H. Adjust locations of service poles to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black -filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.

6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Test straight-blade convenience outlets in patient-care area and hospital-grade convenience outlets for the retention force of the grounding blade according to NFPA 99. Retention force shall be not less than 4 oz.

D. Wiring device will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 262726

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, if applicable, that will serve the district reliably for many years. All cabling, copper, and fiber optic must be plenum rated. Vendor is responsible for old cable removal, rack, and old network equipment, when needed.

1.1 Active network equipment (switches, network cameras, etc.) to be procured, installed, and configured by IDEA IT Department. Infrastructure components including but not limited to patch cables, patch panels, wire managers, racks, cabling, ladder, cable tray, fiber distribution panels, pig tails etc., to be provided and installed by contractor.

1.2 TECHNOLOGY SYSTEM DESIGN REQUIREMENTS

A. All voice, video and data cabling projects are bid and contracted through the General Contractor scope of work. The back boxes, raceways, and conduit needed to support these services are to be included in design and construction documents.

B. Data and voice cabling projects are separate from audio visual, video, security, building control systems that are not directly associated with IDEA's IP-based data/voice network.

C. 100% Schematic Design Milestone Requirements:
   1. Identify all telecommunication rooms, service entrances and all backbone pathways. Plans shall include schematic layouts of headend closets, legends, and details.

D. 100% Design Development Milestone Requirements:
   1. Finalize all telecommunication rooms, service entrances and all backbone pathways. Plans shall include schematic layouts of headend closets, legends, and details.

E. 50% Construction Document Milestone Requirements:
   1. Include plans, endpoint drops/locations, pathways, headend room layouts, backbone schematic diagrams and telecommunication specifications.

F. 100% Construction Document Milestone Requirements:
   1. Include backbone riser diagrams for all intra-building cross connects and interbuilding cross-connect locations. Also include service entrances and headend room layouts, wall elevations of all communication rooms, rack elevations, grounding busbar, termination boards, conduits, cables trays, floor penetration locations and pull boxes.
   2. Detailed room layouts indicating all technology endpoint outlets with identification to determine number of drops to each outlet and to what IT closet they are assigned to.

G. ***The IDEA Technology Department should review drawings after each design phase.***

H. At time of construction award, notice of final data cabling subcontractor selection to be made available to IDEA Technology for coordination.

I. ***The architect shall coordinate all underground conduit to be located adjacent to existing utilities entering the site.***

J. ***The architect shall coordinate location of all classroom projectors and conference room flat digital display, providing each student with proper visibility of the board.***

1.3 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.

1.4 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. Installation of special back boxes supplied by the Division 27 contractor(s).

E. Furnishing and installation of all floor boxes, surface raceways, and other wireways which are detailed or specified under Division 26.

F. Provide equipment-mounting boards as outlined on drawings.

G. Provide equipment grounding system, conductors, and bus bars and as outlined in Division 26.

H. Provide 120-volt power and hook-up to equipment provided in Division 26.

I. Coordination of requirements of Division 26 with the Builder.

1.5 WORK NOT INCLUDED

A. Contractors shall make no agreement that obligates the Owner to pay any company providing communications, monitoring, or other services. Contractors shall not make selection, purchase, or installation of interconnect instruments/equipment to be used on this project.

1.6 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 between MDF and IDF rooms
3. Total cable drop counts per IT closet (MDF/IDF) assignment
4. Cable drop counts per purpose/room/outlet

C. Samples: For workstation outlet connectors, jacks, jack assemblies, and faceplates for color se- lection and evaluation of technical features.

D. Product Certificates: Signed by manufacturers of cables, connectors, and terminal equipment certifying that products furnished comply with requirements.

E. 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.

F. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

G. Maintenance Data: For products to include in maintenance manuals specified in Division 1 found in Construction Specs document.

H. Submittal procedures shall be per Division 1 - General Requirements.

I. Provide a complete submittal for each section as specified.

J. Submit complete submittal package within 30 calendar days after award of this work for approval. Equipment is not to be ordered without approval. Partial submittals are not acceptable for review. Each submittal shall include a dated transmittal.

K. Submittal may be electronically transmitted in PDF file format (preferred) or paper copies may be provided in quantities indicated in Division 1. Paper copies shall be organized including index tabs in a 3-ring black binder of sufficient size.

L. 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.

M. 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.

N. 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.

1.7 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.

1.8 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.

1.9 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 for their system specifications, telephone instruments, workstations, equipment suppliers, etc.

1.10 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.

1.11 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.

1.12 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.

1.13 FUTURE USE CABLING

A. When cabling is installed for future use, it shall be identified with a tag of sufficient durability to withstand the environment involved.

1.14 LOCATIONS AND EXISTING CONDITIONS:

A. Location and condition of any existing equipment or services, when shown, have been obtained from substantially reliable sources, are shown as a general guide only, without guarantees as to accuracy.

B. 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.

1.15 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.

1.16 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.

1.17 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, track, 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, duct, track, 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.

1.18 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

1.19 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.

1.20 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 on each floor to the outlets as shown on drawings. All Category 6 outlets will terminate in the Telecommunications Room on 24-port or 48-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 Work Area outlets/endpoints, each cable run shall include a 15-foot service loop with Velcro hook ties located above the ceiling. This is to allow for future relocation, re-termination, or repair.
12. 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.
13. All cabling shall be placed with regard to the environment, EMI/RFI interference, and its effect on communication signal transmission.
14. 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.
15. 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.
16. 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.
17. Maximum cable pulling tension should not exceed 25 pound-force (110 N) or the manufactures recommendation, whichever is less.
18. Any pulling compounds utilized must be approved by the cable manufacturer and shall not degrade the strength or electrical characteristics of the cable.
19. No terminations or splices shall be installed in or above ceilings, other than in designated end point housings.
20. Cable bends shall not be tighter that the manufacturers' suggested bend radius.
21. Mount all equipment firmly in place. Route cable in a professional, neat, and orderly installation.
22. Provide for adequate ventilation to all equipment racks and take precautions to prevent electromagnetic or electrostatic hum.

E. Faceplate types are as follows:
   1. Flush Wall mount
   2. 1, 2, 3, or 4-port faceplate mounted on wall in device box at the work-area.
   3. White in color

F. Contractor will provide all materials to place and terminate all outlet types.

G. Workstation and Equipment Room Category 6 and Category 6a outlets will be color coded to match applications as noted in section 4.2 and 6.4C.

H. 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.

I. Contractor will be responsible for supplying and installation of equipment room (MDF/IDF) patch cords.

J. Contractor will be responsible for supplying and coordinating drop/sign-off with customer for work area patch cords.

K. 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. Solid, ladder, or mesh cable tray/duct shall be required for narrow depth cable routes that would allow sags to rest upon the ceiling, electrical conduits, HVAC equipment, ducts, or lighting fixtures.

E. Vertical cable runs exceeding 12" in equipment closets shall require ladder or mesh type cable support tray. Attachment shall utilize appropriate mounting hardware and accessories for vertical placement and allow a minimum of 2" clearance between the wall and runway. Cable attachment shall be made by Velcro hook ties in a basket type configuration.

F. All vertical supports shall be attached to the building support structure or concrete ceiling with anchors load rated for 100-lbs. minimum. Down rods shall be a minimum of 1/4" diameter. Steel uni-strut cross supports shall be 2" minimum.

G. Cable runway or tray shall be grounded to an appropriate building ground at each end and bonded at each joint.

H. 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 MEASURING PULLING TAPE (MULE TAPE)

A. All future use innerduct and conduit cable pathways shall include a Measuring Pulling Tape (Mule Tape) made of woven Polyester, Aramid, Kevlar, or an equivalent fiber blend. Measuring Pulling Tape shall have a minimum tensile strength of 1250 lbf. or as required and shall be pre-lubricated for prevention of burn though and marked for measuring in feet.

B. Measuring Pulling Tape installed in underground pathways shall incorporate a 22 gauge minimum solid corrosion resistant copper conductor for use in radio signal locating procedures.

2.8 LADDER TRAY

A. Ladder tray shall be placed inside the IDF's and MDF to provide a pathway into the room and routing the cables to the rack mounted termination hardware. Ladder tray will be 18" wide and mounted to walls and racks. Ladder tray shall be mounted above racks and doors to allow a natural cable drop from the ladder tray to the rack.

B. All cable trays shall be grounded to an approved building ground.

C. Ladder type cable tray shall be routed over all floor mounted racks from wall to wall, provide all necessary hardware to attach the ladder rack to the top of the floor rack and to the walls. All field cuts shall be filed smooth, dressed square, and painted to match with CPI Part No. 25401-700 Black Touch-up Paint. Utilize tray splicing, support, and coupling hardware supplied by and installed as recommended by the manufacturer. Cable tray and rack shall be securely supported and grounded. Cable tray shall be of heavy-duty tubular steel construction with black powder coat finish, 12" wide, with cross members at 12" intervals. Chatsworth Product Inc. (CPI) Part No. 10250-712 Tubular Runway. At each ladder rack joint, provide a CPI Part No. 40164-001 Grounding Kit. Provide CPI Part No. 10642-001 fire-retardant flat black colored rubberized material end caps to cover all exposed ends of ladder rack. At the top of each rack, provide a CPI Part No. 10595-712 Rack-to-Runway Mounting Plate, CPI Part No. 10506-702 Cable Runway Elevation Kit, and CPI Part No. 12100-712 Cable Runway Radius Drop. At each wall, provide a CPI Part No. 11421-712 Horizontal Wall Angle Support. Provide CPI 12362-712 Cable Runway Center Support hanger brackets and similar and 5/8" all-thread rod hanger supports from the

building structure at any span that exceeds 60” from other support (rack and wall mounting locations), at intervals of 60” on center maximum.

2.9 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.

2.10 UPS

A. An Uninterruptible Power System shall be placed into each Telecommunications Room to provide conditioned power and back-up in case of power failure. UPS shall be mounted in the bottom of the rack housing the network equipment. Customer is responsible for ordering/installing this device.

2.11 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. Work area
B. Horizontal cabling
C. Telecommunications room (or horizontal cross connect)
D. Backbone cabling
E. Equipment room
F. Entrance facility
G. 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 Projector Drops, provide one Purple category 6 10’ patch cord per drop. UC1BBB2-0LF010

D. For Analog Drops, provide one Orange category 6 10’ patch cord per drop. UC1BBB2-06F010

E. For Security Camera Drops, provide one Yellow category 6 10’ patch cord per drop. UC1BBB2-09F010

F. For Intercom Drops, provide one White category 6 10’ patch cord per drop. UC1BBB2-08F010

G. For WAP Drops, provide one Green category 6a 10’ patch cord per drop. UC1AAA2-04F010

H. 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**
Data (wall jacks)	Blue
Wireless Access Points	Green
Projectors	Purple
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.

IT Closet (Patch Panel)	***Device***
HVAC001	MDF-HVAC001
Lighting001	MDF-Lighting001
Marquee001	MDF-Marquee001

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 Data / Telephone Cabling Plan

A. Provide adjacent to the equipment rack in each MDF and IDF a plan view of all building areas covered by the equipment closet meeting the following requirements:

1. Framed and secured to the wall and plan covered with clear acrylic panel.
2. Size to clearly show all required information.
3. "YOU ARE HERE" indicator with arrow.
4. Room names and numbers. Verify with Owner.

5. Show each device with symbol and identification address number as designated by owner.
6. Symbol legend.
7. True north arrow
8. Scale indicator

6.3 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
4. IDF-Portable buildings
   a. Chatsworth 12419-748 Tinted CUBE-iT PLUS Cabinet System with 30" Depth, 48" Height - 48"H x 24"W x 30"D (1220 mm x 610 mm x 760 mm); 26U; #12-24 Tapped Rails; Tempered Glass Door; Black
   b. Include one (1) per rack, Chatsworth 12820-705 20-amp power strip, 8 outlets, NEMA 5-20P, 19” wide (1 RU).
   c. Include one (1) per rack, Chatsworth 10610-019 Horizontal Rack Busbar with a Chatsworth 40162-902 2-hole lug with 3/4" bolt-hole spacing and #6 AWG green insulated copper wire to the building ground.

C. Cable Tray

1. The Cable Tray in a Telecommunications Room / Equipment Room shall be placed to allow easy access into the room and formed as shown on drawings. Tray shall route cables from room entrance to their termination location. Tray shall use a stand-off bracket to allow cables to be routed above racks and flow easily into vertical managers.
2. All cable trays shall be grounded to ground bar located in the termination location.

6.4 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

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)
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22. Power Sum Alien Attenuation to Crosstalk Ratio Far–End (PSAACRF)

9.5 OPTICAL FIBER TESTING

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END OF SECTION 269750