



PRICING PACKAGE 1, ADDENDUM#2

Date: May 20, 2022

YES Prep. Public Schools – Brays Oaks Elementary School

12102 McLain, Houston, Texas 77071

Prepared by: Element Architects.
1250 Wood Branch Park Drive, #480
Houston, TX 77079
Tel. (713) 874-0775

Element Project No.: 22016

SPECIFICATIONS:

New Sections added:

Section 01 11 10 - Codes, References and Definitions
Section 01 13 00 - Mechanical and Electrical Coordination
Section 01 22 00 - Measurement and Payment (Unit Prices) – may not apply
Section 01 26 00 - Contract Modification Procedures Section
Section 01 26 13 - Request for Interpretation
Section 01 31 00 - Project Management and Coordination
Section 01 33 00 - Submittal Procedures
Section 01 40 00 - Quality Requirements
Section 01 41 00 - Inspection and Testing Laboratory Services
Section 01 42 00 - References
Section 01 56 61 - Trench Safety System
Section 01 60 00 - Product Requirements
Section 01 63 10 - Substitution Request Form
Section 01 73 00 - Execution
Section 01 73 29 - Cutting and Patching
Section 01 74 00 - Warranties
Section 01 77 00 - Closeout Procedures

END OF PRICING PACKAGE 1, ADDENDUM#2

SECTION 01 11 10

CODES, REFERENCES AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section specifies requirements for the following:
 - 1. References Standards.
 - 2. Definitions.
 - 3. Abbreviations.
 - 4. Format and Specification Context Explanations.
 - 5. Drawing Symbols.
 - 6. General Requirements.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.4 QUALITY ASSURANCE

- A. This Section outlines minimum standards and requirements. Refer to the Structural Drawings for additional requirements. Information on Structural Drawings shall take precedence. Bring all conflicts and discrepancies between documents to the attention of the Architect and Engineer and do not start work until such conflicts and discrepancies are clarified and corrected. Failure to do so will not relieve the Contractor from performing the Work correctly at no additional expense to the Owner.
- B. General:
 - 1. For products or workmanship specified by a standard of an association, trade, or Federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable code authorities having jurisdiction.
 - 2. The contractual relationship of the parties to the Contract should not be altered from the Contract Documents by mention or inference otherwise in any reference standard.
 - 3. Obtain copies of standards when required by Contract Documents.
 - 4. Maintain copy of standards at jobsite during submittals, planning, and progress of the specific work for which the standards pertain, until the date of Substantial Completion.

5. In the absence of specific instructions in the specifications, materials, products, equipment and their installation shall conform to the applicable codes, regulations and standards specified therein. When a conflict exists between the applicable code, regulation and standard and that specified, the more stringent code regulation or standard shall prevail, except as authorized by applicable authorities having jurisdiction.

- B. Specifications and Drawings: The Drawings and Specifications are correlative and have equal authority and priority. Base disagreements in themselves or in each other on the most expensive combination of quantity and quality of work indicated. In the event of such disagreement bring it to the attention of the Architect, who will determine the appropriate method to perform the work.

- C. Industry Standards: Where compliance with two (2) or more industry standards or sets of requirements are specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement is intended and will be enforced, unless specifically detailed language written into Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to the Architect for a decision before proceeding.

- D. Contractor's Option: Except for overlapping or conflicting requirements, where more than one (1) set of requirements are specified for a particular unit of work, option is intended to be Contractor's regardless of whether or not it is specifically indicated as such.

- E. Minimum Quality/Quantity: In every instance, the quality level or quantity shown or specified is intended to be the minimum for the work to be performed or provided. Except as otherwise specifically indicated, the actual work may either comply exactly with the minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Architect for decision before proceeding.

- F. Specialists; Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists, who are engaged for performance of work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements should not be interpreted so as to conflict with applicable regulations, union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of requirements remains with the Contractor.

1.5 REFERENCE STANDARDS

- A. Dates of codes, regulations and standards specified shall be the latest date of issue of that code, regulation or standard prior to the date of issue of this Project Manual or Document,

except as modified or otherwise directed by the applicable codes and their supplements and amendments adopted by the code authorities having jurisdiction.

1. Date of Issue - The “date of issue” as it appears in the statement above, means the date which appears on the cover of the Project Manual or Document corresponding to the date of issue of the Contract Documents.
2. Code Authorities: The “code authorities” as it appears in the statement above, means the City of Houston authorities responsible for code enforcement.

B. Governing Codes:

1. Building/Structural Code: 2015 International Building Code (IBC) and City of Houston Amendments.
2. Mechanical Code: 2015 Uniform Mechanical Code (UMC) and City of Houston Amendments.
3. Plumbing Code: 2015 Uniform Plumbing Code (UPC) and City of Houston Amendments.
4. Electrical Code: 2020 National Electrical Code (NEC) and City of Houston Amendments.
5. Energy Code: 2015 International Energy Conservation Code, or ASHRAE 90.1-2013.
6. Accessibility Standards: 2012 Texas Accessibility Standards (TAS).
7. Life Safety Code: National Fire Protection Association (NFPA) 101.
8. Elevator Code: ASME/ANSI A17.1-1.
9. Sign Code: City of Houston (COH) Sign Code.

1.6 DEFINITIONS

- A. General Explanation: A substantial amount of specification language consists of definitions for terms found in other Contract Documents, including those in the AIA A201 General Conditions of the Contract for Construction, Supplementary Conditions, the Drawings, and the Specifications. Drawings must be recognized as being diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in the Contract Documents are defined in the General Conditions, Supplementary Conditions, and in this Section. Definitions and explanations contained in this Section are not necessarily either complete or exclusive, but are general for this Work to the extent that they are not stated more explicitly in another element of the Contract Documents. In the event of a conflict in definitions or explanations within the Contract Documents or whenever there is need of clarification or interpretation of definitions within or between the Contract Documents, notify the Architect immediately and proceed as directed. Except in cases where definitions are determined by code authorities having jurisdiction, the Architect’s interpretation of all definitions will take precedence.
- B. General Requirements: The provisions or requirements of Division 01 - Sections apply to entire Work of Contract and, where indicated, to other elements which are included in the Project.

- C. Special Conditions: Wherever the term “Special Conditions”, appears in the Contract Documents, it refers collectively to all requirements of the Owner in addition to the sections in Division 01, General Requirements, and to Articles contained in the General Conditions and Supplementary Conditions.
- D. Bid, Competitive Sealed Proposal, CSP, Response, Offer, etc.: Wherever the term “Bid”, “Competitive Sealed Proposal”, “CSP”, “Response”, “Offer”, “Proposal”, or any derivative thereof, or similar term appears in the Contract Documents, they mean one and the same, and shall mean Competitive Sealed Proposal.
- E. Owner, etc.: Wherever the term “Owner”, or similar such term appears in the Contract Documents, it means YES Prep Public Schools, 5455 South Loop East, Houston, Texas 77033; phone: (713) 967-9000; contact: Keith Weaver, e-mail: keith.weaver@yesprep.org, or other authorized representative.
- F. Architect: Wherever the term “Architect”, or any derivative thereof appears in the Contract Documents, it means Element Architects LLC, 1250 Wood Branch Park Dr., Suite 480, Houston, Texas 77079; phone: (713) 874-0775; contact Patrick Helemann, AIA, email: p.helemann@elementarchitects.com, or other authorized representative.
- G. General Contractor, Prime Contractor, Contractor, etc.: Wherever the term “General Contractor”, “Prime Contractor”, “Contractor”, or any derivative thereof appears in the Contract Documents, they mean the same, and shall refer to the entity (person or firm) licensed and meeting all applicable regulations of the State of Texas and Department of Labor to perform the Work, or their authorized representative.
1. Responsibilities: To avoid any misunderstanding or lack of interpretation, the Contractor is hereby advised that the responsibility for the coordination and performance of the work, either by its own forces, or that of its subcontractor(s) is totally his, and such responsibility shall be demonstrated throughout the Work and specified warranty period.
 2. In the event of a controversy involving the Contract Documents or interpretation of Project requirements, the decision of the Architect will take precedence.
- H. Subcontractor, Sub-subcontractor, Bidder, etc.: Wherever the term "Subcontractor", Sub-subcontractor", "Bidder", “Vendor”, "Installer", "Integrator", "Respondent", "Offeror", “Proposer”, or any derivative thereof, or similar term appears in the Contract Documents, they mean one and the same, and shall refer to the entity (person or firm) licensed and meeting all applicable regulations of the State of Texas and Department of Labor to perform the Work, or their authorized representative.
1. Responsibilities: To avoid any misunderstanding or lack of interpretation, the responsibility for performing the work is totally that of the entity defined above, and the resolutions proposed in his shop drawings and related documentation shall be demonstrated throughout the Work and specified warranty period.

- I. Consultant: Wherever the term “Consultant”, or any derivative thereof appears in the Contract Documents, it means the entity (person or firm) engaged by the Owner or Architect for the performance of the construction documentation (drawings and/or specifications) of a particular part of the work on the Project and means the following:
 - 1. Architect’s Consultants:
 - a. Civil Engineer: ALJ Lindsey, 5629 FM1960 West, Suite 314, Houston, Tx. 77069 contact: Jorge Guerra, P.E. or other authorized representative.
 - b. Structural Engineer: Integrity Structural Corp. 12777 Jones Rd., Suite 388, Houston, Texas 77070; Phone: (281) 894-7099; contact: Karl Miller, P.E.
 - c. MEP Engineers: H4 Engineers, 25215 Oakhurst Dr., Spring, Texas 77386; phone: (281) 528-8584; contact: Sherie Hensley, P.E., or other authorized representative.
 - II. Project, Site: Wherever the term “Project”, “Site”, or similar such term appears in the Contract Documents it means the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing work as part of the Project. The extent of project or site is shown on the Drawings, and may or may not be identical with description of land upon which Project is to be built.
 - J. Specialist: Wherever the term “Specialist”, or any derivative thereof appears in the Contract Documents, it means an individual or firm of established reputation (or if newly organized, whose personnel have previously established a reputation in the same field), which is regularly engaged in, and which maintains a regular force of workmen skilled in either (as applicable) manufacturing or fabricating items required by the Contract, installing items required by the Contract, or otherwise performing work required by the Contract. Where the Contract Specification requires installation by a specialist, that term shall also be deemed to mean either the manufacturer of the item or firm who will perform the work under the manufacturer’s direct supervision.
 - K. Testing Laboratory: Wherever the term “Testing Laboratory”, or any derivative thereof appears in the Contract Documents, it means an independent entity engaged to perform specific inspections or tests of the work, either at the Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.
 - L. Additional Definitions: Refer to Division 01 Section "References".
- 1.7 FORMAT AND SPECIFICATION CONTEXT EXPLANATIONS
- A. Underscoring: Is used strictly to assist reader of specification text in scanning text for key words (for quick recall). No emphasis on or relative importance is intended where underscoring is used.

- B. Capitalization: Except for manufacturer, product, or trademark names, capitalization is used strictly to assist reader of specification text in scanning text for key words (for quick recall). No emphasis on or relative importance is intended where capitalization is used.
- C. Imperative language: Is used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or when so noted, by others.
- D. Section Numbering: Is used to facilitate cross-reference in Contract Documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine numbers and names of specification sections in Contract Documents.
- E. Page Numbering: Pages are numbered independently for each section. The section number is shown preceded by the project number and followed by the page number at the bottom of each page, to facilitate the location of text. The project number is given to identify the project, for which specification was written, should the section become separated from the Project Manual.
- F. Specifying Methods: The techniques or methods of specifying to record requirements varies throughout text, and may include “prescriptive, “open-generic descriptive”, “compliance with standards”, “performance”, or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work.
- G. Abbreviations: The language of Specifications and other Contract Documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Actual work abbreviations of a self-explanatory nature have been included in texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of the Contract Documents so indicates. A list of typical abbreviations, includes, but is not limited to the following trade associations and organizations. Refer to Drawings and other Contract Documents for other abbreviations.

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Assn.
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
AGA	American Gas Association
AGC	Associated General Contractors of America
AHA	American Hardboard Association
AHGA	American Hotdip Galvanizers Association

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Package 1, Addendum#2

AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron & Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	Air Conditioning & Refrigeration Institute
ASA	Acoustical Society of America
ASA	American Subcontractors Association
ASC	Adhesive & Sealant Council, Inc.
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Professional Engineers
ASAH	American Society of Architectural Hardware Consultants
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASPI	American Wood Preserver's Institute
ASTM	ASTM International (American Society for Testing and Materials)
AWI	Architectural Woodwork Institute
AWS	American Welding Society
BHMA	Builders Hardware Manufacturers Association, Inc.
BIA	Brick Industry Association
BRI	Building Research Institute
CRA	California Redwood Association
CLFMI	Chain Link Fence Manufacturers Institute
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
DHI	Door and Hardware Institute
EPA	Environmental Protection Agency
FTI	Facing Tile Institute
FGMA	Flat Glass Marketing Association
GA	Gypsum Association
HPMA	Hardwood Plywood Manufacturers Association
IBC	International Building Code
IgCC	International Green Construction Code
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
JSMA	Joint Sealer Manufacturers Association
MFMA	Maple Flooring Manufacturers Association
ML/SFA	Metal Lath/Steel Framing Association
NAAMM	National Association of Architectural Metal Manufacturers
NAMM	National Association of Mirror Manufacturers
NBLP	National Bureau of Lathing & Plastering
NCPI	National Clay Pipe Institute
NCMA	National Concrete Masonry Association
NEMA	National Electrical Manufacturers Assn.
NESC	National Environmental Systems Contractors

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Package 1, Addendum#2

NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NHLA	National Hardwood Lumber Association
NOMMA	National Ornamental Metal Manufacturers Assn
NPVLA	National Paint, Varnish and Lacquer Assn.
NRMCA	National Ready Mixed Concrete Assn.
NRCA	National Roofing Contractors Association
NSPE	National Society of Professional Engineers
NWMA	National Woodwork Manufacturers Assn., Inc.
OSHA	Occupational Safety and Health Administration
PDCA	Painting and Decorating Contractors of America
PI	Perlite Institute, Inc.
PCA	Portland Cement Association
RFCI	Resilient Floor Covering Institute
RVFC	Rubber and Vinyl Floor Council
SFPA	Southern Forest Products Association
SHLMA	Southern Hardwood Lumber Manufacturing Assn.
SDI	Steel Deck Institute
SDI	Steel Door Institute
SJI	Steel Joist Institute
SSPC	Steel Structures Painting Council
TCNA	Tile Council of North America, Inc.
UL	Underwriter's Laboratories, Inc.
VBI	Venetian Blind Institute
VFI	Vinyl Fabrics Institute
WCLIB	West Coast Lumber Inspection Bureau
WRCLA	Western Red Cedar Lumber Association
WWPA	Western Wood Products Association

1.8 DRAWING SYMBOLS

- A. General: Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols defined by “Architectural Graphic Standards”, published by the American Institute of Architects (AIA) and John Wiley & Sons, Inc., latest edition. Refer instances of uncertainty to Architect for clarification before proceeding.
- B. Mechanical/Electrical Drawings: Graphic symbols used in Mechanical/Electrical Drawings are generally aligned with symbols recommended by American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). Where appropriate, those symbols are supplemented by more specific symbols as recommended by other recognized technical organizations, including, but not limited to American Society of Mechanical Engineers (ASME), American Society of Professional Engineers (ASPE), Institute of Electrical and Electronic Engineers (IEEE) and similar organizations. Refer instances of uncertainty to Architect for clarification before proceeding.

A. Color, Texture, or Pattern Requirements:

1. When color, texture, or pattern is specified, the item, product, or material shall be furnished in the specified color, texture, or pattern, as applicable.
2. When more than one (1) approved manufacturer is named in the Specifications, Contractor may select any of the approved manufacturers and submit the full range of colors, textures, and patterns (standard and special) available of that manufacturer for the Architect's review and selection.
3. When the term "match Architect's approved sample", or any derivative thereof appears in the Contract Documents, it means that the Architect has selected a sample which must be matched in every respect as to color, texture, and pattern, as applicable.
4. When an item or product is specified of a manufacturer for which only one (1) color, texture, or pattern is available, and a color, texture, or pattern other than that one is specified, Contractor shall bring it to the attention of the Architect for a decision prior to proceeding with the work. Do not proceed with the work until Architect has approved the color, texture, and pattern, as applicable.
5. When an item or product is specified of a manufacturer for which no color, texture, or pattern is specified, and colors, textures, and patterns are available, Contractor shall bring it to the attention of the Architect and submit the full range of colors, textures, and patterns (standard and special) available of that manufacturer for the Architect's review and selection. Do not proceed with the work until Architect has selected and approved the color, texture, and pattern, as applicable.
6. When due to the nature of the item, product, or material, i.e. tile, etc, Contractor shall submit sample or samples which exhibits the full range of characteristics (colors, i.e. lights and darks, as well as textures, and patterns) for which the item, product, or material is available. The Architect will select the color, texture, and pattern, as applicable, from those available and request a sample panel exhibiting the approved characteristics. The approved color range, texture, and pattern, as applicable will then become the standard for which all work on the project will be judged. Architect will be final judge as to having performed work in conformance with approved characteristics.
7. Under no circumstances are colors, textures, patterns, or any other characteristics for which an item, product, or material are available to be selected by anyone other than the Architect or his authorized representative.
8. Non-conforming work shall be removed from the site and replaced with new conforming work at no additional expense to Owner.

B. Continuity of Building Envelope, Full Height Partitions, and Fire Rated Construction:

1. Continuity of Building Envelope:
 - a. All materials such as exterior sheathing, membrane flashings, vapor barriers, insulations, dampproofing, waterproofing, roofing, flashings, etc. and all penetrations, holes, gaps, joints, and openings through such

materials shall be sealed to ensure continuity of building envelope, whether indicated or not to eliminate moisture penetration.

- b. Refer instances of uncertainty to Architect for clarification before proceeding with work.
2. Full Height Partitions:
 - a. All full height partitions shall be from floor to bottom of deck structure and shall be made to fit around steel joists, beams, etc., whether indicated or not.
 - b. Seal joints at top of partitions, in flutes of steel deck, and around structural elements with a compressible filler and/or sealant to accommodate movement due to expansion, contraction, and deflection, whether indicated or not. Treat seals in joints of fire rated partitions as specified below for fire rated construction, whether indicated or not.
 - c. Refer instances of uncertainty to Architect for clarification before proceeding with work.
 3. Fire Rated Construction:
 - a. All seals in fire rated construction, whether at top, bottom, or penetrations through fire rated construction, shall be made with firestopping and fire safing materials to maintain fire rating integrity of construction and satisfy authorities having jurisdiction, whether indicated or not.
 - b. Refer instances of uncertainty to Architect for clarification before proceeding with work.
- C. Plumbing Line Protection:
1. Placing or washing materials, including, but not limited to the following, down any plumbing line or fixture is strictly forbidden.
 - a. Concrete, cement, sludge, mortar, grout, plaster, or any other cementitious material
 - b. Paint, paint thinner, turpentine, kerosene, gasoline, oil, or any other petroleum or hazardous products.
 2. Cleaning painting equipment, including brushes in new or existing plumbing fixtures is strictly prohibited.
 3. If requested, Contractor shall certify that all affected plumbing lines and fixtures are clean, free flowing and running. Plumbing lines and fixtures damaged as a result of any of the above shall be repaired or replaced at no expense to Owner. Contractor shall bear responsibility and all costs of fines, penalties, and legal fees attributed to violations as levied by authorities having jurisdiction.
- D. Support from Structure: Ducts, pipes, conduits, equipment, and other items indicated to be supported from the structure shall be accomplished using approved hangwires, hangers, or devices of type, size and material recommended to suit the application and installed in accordance with recommendations of the hanger or device manufacturer, Architect and/or Structural Engineer, or code authorities having jurisdiction, whichever is the more stringent

requirement. Nothing shall be hung from the structure unless directed to do so by the Architect and/or Structural Engineer.

- E. Ducts, Pipes, Conduits, and Wires: Shall be concealed in walls, chases, and enclosed areas out of view, unless specifically indicated as exposed or where exposure is required for proper function of item, such as air registers, air returns, louvers, grilles, vents, thermostats, electrical receptacles, telephone/data terminals and jacks, light switches, etc. Refer instances of uncertainty to Architect for clarification before proceeding.
- F. Fasteners:
1. Unless specifically indicated or directed otherwise, all fasteners in work exposed to view, shall be concealed in the finished work.
 2. No fasteners shall show through or telegraph through exposed face of finished work and all finished surfaces shall be free of all evidence of the existence of fasteners.
 3. Fasteners shall be spaced to accurately and rigidly secure work in place.
 4. If not shown or otherwise required or recommended by manufacturer, standard, or code authorities having jurisdiction, fastener spacing shall not exceed 12 inches on center.
 5. Non-conforming work shall be removed from the site and replaced with new conforming work at no additional expense to Owner.
- G. Exposed Metal Work:
1. Unless specifically indicated or directed otherwise, all exposed metal work shall be flat with all surfaces free of distortions, oil canning, waves, dents, scratches, weld marks, and other surface defects detrimental to good appearance or function.
 2. All steel exposed to exterior shall be hot-dip galvanized, phosphate treated for paint retention and shop prime painted, unless indicated or directed otherwise.
 3. Non-conforming work shall be removed from the site and replaced with new conforming work at no additional expense to Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 13 00

MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Providing necessary work and services required for the complete installation of heating, ventilating, air conditioning, plumbing, electrical systems, and fire and security alarm systems as shown on the Drawings.
 - 2. Making installations in a manner that shall comply with applicable codes and laws as minimum standards of quality and safety. Where the requirements of Contract Documents exceed code requirements, comply with Contract Documents. Where conflicts occur between the Drawings and Specifications, between different Drawings, between different portions of this Section of the Specifications, or between different sections of the Specifications, the more stringent requirements and the greater quantity shall apply.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 QUALITY ASSURANCE

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. Bring all conflicts and discrepancies to the attention of the Architect, Engineer, and appropriate Consultant and do not start work until such conflicts and discrepancies are clarified and corrected.
- B. Materials used in HVAC and Plumbing systems shall be asbestos, lead, PVC, Phthalate, and urea formaldehyde free.

1.4 COORDINATION

- A. Coordinate the mechanical, electrical, fire protection system, and security alarm system work with that of other trades in order that the various components of the systems shall be installed at the proper time, shall fit the available space, and shall allow proper service access to those requiring maintenance, including equipment specified in other Divisions.
- B. Remove and relocate items which are installed without regard to proper access as directed by the Architect, at no additional cost to the Owner.

Package 1, Addendum#2

- C. Provide materials with trim to match and fit properly with the types of adjacent ceiling, wall, and floor finished actually installed. Model numbers in specifications or scheduled on Drawings are not intended to designate the required trim.
- D. Provide mechanical equipment with electrical characteristics compatible with that shown on Electrical Drawings and described in Electrical Division of the specifications, if any.
- E. Prior to the fabrication of ductwork, or the installation of devices in the ceilings, review the Drawings to ascertain that the locations of devices in the ceilings create a pattern which is compatible with the reflected ceiling plan and the spacings of the various ceiling mounted devices.

1.5 DRAWINGS

- A. The Drawings are schematic in nature, but indicate how the various components are integrated with other parts of the building. Determine exact locations by job measurement, by checking the requirements of other trades, and by review of Contract Documents.
- B. The Drawings indicate general routing of the various parts of the systems, but do not indicate all sizes, fittings, offsets, and runouts, which are required. Provide correct sizes, fittings, offsets, and runouts required to fit the system into spaces allocated to them. Locate all light fixtures, vents and supply grilles to conform to the ceiling system. Examine the Drawings to become familiar with this requirement.
- C. In certain instances, the Architect may require relocation of outlets and switches. Where relocation is within three (3) feet of location shown on Drawings, and when Contractor is informed of necessary relocation before Work is begun on this portion of the job, no extra compensation will be allowed.

1.6 OPERATING MANUAL, SERVICE DATA, AND WARRANTIES

- A. Upon completion of the Project, provide copy of service manual for each type unit of equipment provided in the project. Each manual shall contain complete operation instructions and information required for performing periodic minor maintenance on the equipment. Include the following information:
 - 1. Identification of each major part of the unit by the manufacturer's part number.
 - 2. Wiring diagrams for electrical items and components.
 - 3. List of necessary service parts and equipment for maintenance.
 - 4. Separate spare parts list stating the estimated quantities of spare parts normally required to service the equipment for a period of one year.
 - 5. Manufacturer's catalogs containing optional accessory items available for the equipment.
- B. Warranties: In addition to the one year warranty specified in the Conditions of the Contract, assume all responsibility for special guarantees which may be required in this specification concerning installation, operation or performance of equipment, materials, and systems provided by a distributor, manufacturer or subcontractor.

- C. Owner's Instructions: At the completion of the Project, arrange and conduct instructional classes on the mechanical, electrical, and plumbing systems for the Owner.

1.7 SUBMITTALS

- A. Comply with requirements of Division 01 Section "Submittal Procedures".
- B. Equipment and material submittals shall show sufficient data to indicate complete compliance with Contract Documents as follows:
 - 1. Proper sizes and capabilities.
 - 2. Ability to fit in the available space in a manner that will allow proper service.
 - 3. Construction methods, materials, and finishes.
 - 4. List of accessories.
- C. Product data shall include the contract item designation, building and proposed model number.
- D. If proposed air devices are different than models specified, indicate the specified model and beside it the proposed model for each type of device. Do not list quantities.
- E. For any items to be installed in or on a finished surface, certify that applicable Contract Documents have been checked and that the item submitted is compatible with the surface finish on which it is to be installed.
- F. Shop Drawings: Sheet metal, piping, mechanical, and electrical fabrication Shop Drawings shall show equipment, ductwork, and piping, including piping in plumbing chases, sized and drawn in exact location to be installed. Produce Drawings to scale with all ductwork and piping sized accordingly. Ductwork and piping larger than three (3) inches shall be shown with double lines.
- G. Coordination Drawings: Coordination Drawings are Drawings which indicate relationships between the various systems and other components of the building such as beams, columns, ceilings, and walls. They shall be drawn to scale and shall include plans, elevations, sections, and other details as required to clearly define the relationships, possible interferences and to indicate the Contractor's proposed solution for any possible interferences. Indicate ducts, conduits, light fixtures, piping, and miscellaneous equipment on one Drawing for floors.
- H. Interference Drawings:
 - 1. Interference Drawings are Drawings which indicate conflict between the various systems and other components of the building such as beams, columns, and walls. They shall be drawn to scale and shall include plans, elevations, sections, and other details as required to clearly define the interference and to indication the Contractor's proposed solution.
 - 2. Submit Drawings for approval whenever job measurements and analysis of the Drawings and specifications by the Contractor indicate that the various systems

cannot be installed without significant deviation for the intent of the Contract. When such an interference is encountered, Work shall cease in the general areas of the conflict until a solution to the question has been approved by the Architect.

- I. Bind Submittals into book form with a table of contents listing all items in that specific submittal. Loose catalog sheets or drawings will not be acceptable. A separate brochure will be required for each type of equipment; e.g., lighting fixtures, switchgear, lighting panels, mechanical equipment, plumbing items, and ductwork accessories, each in a separate brochure. Miscellaneous apparatuses such as transformers, contactors, time switches, and safety switches may be contained in one brochure.
- J. Auxiliary systems submittals shall contain sufficient information to show conformance with the specifications and shall include a description of the operation of each system to aid the consultant in the evaluation of each submittal.

1.8 GENERAL REQUIREMENTS FOR ALL EQUIPMENT

- A. Provide equipment with necessary parts and accessories even though the parts and accessories are not specifically mentioned.
- B. Provide a factory applied finish on all exterior surfaces. Touch up or refinish items which have the finish marred, before final acceptance.
- C. Rotating parts shall be in static and dynamic balance.
- D. Electrical materials shall bear the stamp of approval of the Underwriter's Laboratory.
- E. Eliminate any abnormal noises, which are not an inherent part of the systems as designed. Abnormal buzzing and rattling of equipment, piping, ducts, and air devices and squeaks in rotating equipment components will not be acceptable.

1.9 PROTECTION OF EQUIPMENT

- A. Do not deliver equipment to job site until progress of construction has reached the stage where equipment is actually needed, or until building is closed in enough to protect equipment from the weather. Equipment allowed to stand in weather will be rejected, and new equipment of a like kind shall be used at no additional expense to Owner.
- B. Adequately protect equipment from damage after delivery to job site. Cover with heavy drop cloths as required to protect from plaster, dirt, paint, water, adverse weather conditions, and physical damage.
- C. Equipment which has been damaged by construction activities will be rejected, and new equipment of a like kind shall be used at no additional expense to Owner.
- D. At time of Substantial Completion, equipment shall be clean.

1.10 MANUFACTURER'S DIRECTIONS AND SUPERVISION

- A. Follow manufacturer's directions for installation, testing, and operation of all apparatuses and equipment provided.
- B. Where supervision by a manufacturer is required in the specification, pay all costs and follow all instructions and recommendations of the manufacturer, who shall supervise the installation, connection, startup adjustment, instruction of the Owner, and final tests of equipment and systems. Where two or more manufacturer's equipment is interrelated, coordinate the Work and supervision.
- C. Provide a letter from the manufacturers whose supervision is required stating that they have supervised the installation and their equipment or system is operating satisfactorily in detail and in every respect and that the Owner has been instructed in the operation and maintenance.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 22 00

MEASUREMENT AND PAYMENT (UNIT PRICES)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work

1.3 DEFINITIONS

- A. Unit price is an amount proposed and stated on the Proposal Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, and applicable overhead and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Unit Price No. 1 - Soil Excavation:

1. Description: Unit price for Contractor to provide additional soil excavation required on the Project. Refer to Division 31 for Earthwork and related Sections, and Civil and Structural Drawings, as applicable, for materials and requirements.
2. Unit of Measurement: Per cubic yard of soil excavated. Enter unit price amount on Bid Form.

B. Unit Price No. 2 - Structural Fill and Compaction:

1. Description: Unit price for Contractor to provide additional structural fill and compaction required on the Project. Refer to Division 31 for Earthwork and related Sections, and Civil and Structural Drawings, as applicable, for materials and requirements.
2. Unit of Measurement: Per lift indicated, in place and compacted. Enter unit price amount on Bid Form.

C. Unit Price No. 3 - Concrete Curb and Gutter:

1. Description: Unit price for Contractor to provide additional concrete curb and gutter required on the Project. Refer to Division 32 for Concrete Paving and related Sections, and Civil Drawings, as applicable, for materials and requirements.
2. Unit of Measurement: Per lineal foot of concrete curb and gutter, in place. Enter unit price amount on Bid Form.

D. Unit Price No. 4 - Reinforcing Steel and Dowels:

1. Description: Unit price for Contractor to provide additional reinforcing steel and dowels required on the Project. Refer to Division 03 for Concrete Reinforcing and related Sections, and Civil and Structural Drawings, as applicable, for materials and requirements.
2. Unit of Measurement: Per pound. Enter unit price amount on Bid Form.

E. Unit Price No. 5 - Cast-In-Place Concrete, in place:

1. Description: Unit price for Contractor to provide additional cast-in-place concrete, in place required on the Project. Refer to Division 03 for Concrete and, related Sections, and Civil and Structural Drawings, as applicable, for materials and requirements.
2. Unit of Measurement: Per cubic yard, in place. Enter unit price amount on Bid Form.

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes specific administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 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 AIA Document G710, "Architect's Supplemental Instructions".

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: The Architect 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 the 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 Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - 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 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.

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 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.
5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 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. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 4. 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. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
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.

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

1.6 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 AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. 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

SECTION 01 26 13

REQUEST FOR INTERPRETATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing Request for Interpretation.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. Request for Interpretation:
 - 1. A request from the Contractor to the Architect seeking an interpretation or clarification of some requirement of the Contract Documents.
 - 2. The following are not Requests for Interpretation:
 - a. Substitution Request.
 - b. Non-Conformance Notice.
 - c. Action Submittals.
 - d. Information Submittals.
 - e. Shop Drawings, Product Data, and Samples required by the Contract Documents.
 - f. Schedule Submittals.
 - g. Project Memos and Letters.
- B. Drawing/Specification Clarification: A response from the Architect, in response to an inquiry from the Contractor, intended to make some requirement of the drawings or specifications more clearly understood. Drawings/Specification clarification may be sketches, drawings, or in narrative form and will not change any requirements of the Drawings or Specifications.

1.4 REQUEST FOR INTERPRETATION

- A. In the event the Contract Documents require clarification or interpretation, shall submit a "Request for Interpretation" in Microsoft Word electronic format to the Architect in form approved by the Architect.
 - 1. Clearly and concisely state the issue for which clarification or interpretation is required and why a response from the Architect is needed.
 - 2. State interpretation or understanding of the Contract Document's requirements along with reasons for reaching the understanding.

3. Response from the Architect will not change requirements of the Contract Documents.
- B. The Architect will review Requests for Interpretation to determine if they are valid within the meaning of the term. If the Architect determines the document is not a Request for Interpretation, he will return the document to the Contractor for resubmission in the proper form.
- C. Responses to Request for Interpretation will be issued within five (5) days of receipt of the request from the Contractor unless the Architect determines that a longer time is necessary to provide an adequate response.
1. If a longer time is determined necessary, the Architect will notify the Contractor within the five (5) days of the anticipated response time.
 2. If the Contractor submits a Request for Interpretation on an activity with five (5) days or less float on the current Project Schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Architect to respond to the request, provided that the Architect responds within the five (5) days set forth above.
- D. Drawing/Specification Clarification issued by the Architect does not constitute a change to any requirement of the Contract Documents.
1. If the Contractor believes that a Drawing/Specification Clarification to a Request for Interpretation will cause a change to the requirements of the Contract Document, the Contractor shall immediately give written notice to the Architect stating that the Contractor considers the response to be a modification to the Contract.
 2. Failure on the part of the Contractor to give such written notice immediately shall waive Contractor's right to seek additional time or cost under Division 01 Section "Contract Modifications Procedures".
- E. Where a response to a Request for Interpretation constitutes a modification to contract requirements, the Architect will follow administrative procedures under Division 01 Section "Contract Modifications Procedures".
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly in form approved by the Architect. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Project meetings.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 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.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- 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:

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

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.

D. Conservation:

1. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
2. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.4 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures".
- B. 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.
 3. Refer to Divisions 21 through 28 for specific Coordination Drawing requirements for mechanical and electrical installations.

1.5 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: Architect will record significant discussions and agreements achieved. Architect will distribute the meeting minutes to everyone concerned, including Owner and Contractor, within 5 days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments. Architect will record and distribute meeting minutes to all participants.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; 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. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.
 - s. Rain gauge, photos, and excused delays.
- 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 and appropriate consultant 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 mockups.
 - 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: In addition to representatives of Owner and Architect, appropriate consultant, 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 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.
 - a. 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.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

15) Requested excused delays.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction 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.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. 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.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. 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.
- C. 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 10 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 15 days for initial review of each submittal.
- D. 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. Architect's project number.
 - l. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- F. 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.
- G. 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 locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- 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.
- H. 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.
- I. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

1.5 CONTRACTOR'S USE OF ELECTRONIC DRAWING FILES

- A. Electronic copies of the construction drawings produced by the Architect may be furnished for Contractor's use in preparing submittals upon request by the Contractor. Requests from subcontractors will not be accepted.
1. The Contractor must submit a single written request for all files to be used; multiple requests by the Contractor may be rejected by the Architect. Request for electronic Drawing files must be accompanied by:
 - a. Signed copy of the Architect's CADD File Indemnification Agreement". This form is available upon request from the Architect.
 - b. A list of the name and number of the Drawing sheet as listed on the "Index of Drawings".
 - c. Contractor's preference for form and format of electronic Drawing files.
 2. Requested electronic Drawing files will be furnished to the Contractor by the Architect on a CD/DVD or posted to an FTP site at the discretion of the Contractor.
 - a. Electronic Drawing files will have necessary x-ref files and layers bound to the electronic Drawing file. A list of layers will not be provided.
 - b. Electronic Drawing files will not contain professional seals or company logos.
 - c. Electronic Drawing files will be produced using the Architect's current version of AutoCad. The Contractor may specify that the files be produced in a format useable by an earlier version.
 3. By requesting electronic drawing files produced by the Architect, the Contractor acknowledges that:
 - a. Contractor is responsible for the accuracy and completeness of the Shop Drawings prepared from these files and submitted in compliance with requirements.
 - b. Files are being transmitted as a convenience to the Contractor at the request of the Contractor.
 - c. Files were not prepared by the Architect for use as Shop Drawings.
 - d. Files may not reflect most current revisions.

- e. Architect is under no obligation to inform the Contractor of subsequent revisions to the files.
- B. The Contractor should direct written requests to each design consultant (structural, MEP, etc.) for copies of electronic drawing files produced by their offices.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Written Copies: Submit one copy of each submittal. Architect will return one original and one electronic copy. Mark up and retain one returned copy as a Project Record Document.
 - 2. Number of Drawing Copies: Submit one original copy of each drawing submittal. Architect will return one original and one electronic copy. The contractor shall be responsible for any additional copies required for distribution. Retain one returned copy as a Project Record Document.
- B. 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.
- C. 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.

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- 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 42 inches.
- D. Coordination Drawings: Comply with requirements in Division 01 Section, "Project Management and Coordination".
- E. Samples: Prepare physical units of materials or products, including the following:
1. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.
 2. 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.
 3. Samples for Verification: Submit one full-size unit or Sample 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. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and 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. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
 - a. Size limitations.
 - b. Compliance with recognized standards.
 - c. Availability.

- d. Delivery time.
6. 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.
7. Number of Samples for Initial Selection: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
8. Number of Samples for Verification: Submit one set of Samples. Architect will return Sample set. Mark up and retain returned Sample set as a Project Record Sample.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
9. 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.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
- G. Delegated-Design Submittal: Comply with requirements in Division 01 Section "Quality Requirements".
- H. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation".
- I. Application for Payment: Comply with requirements in Division 01 Section "Payment Procedures".

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- J. Schedule of Values: Comply with requirements in Division 01 Section "Payment Procedures".
- 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 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit one electronic copy of each submittal required. Architect will not return copy.
 - 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 Requirements".
- B. 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.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- D. 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.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

- H. 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.
- I. 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.
- J. 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.
- K. 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.
- L. 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.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with Building Code with 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.
- N. 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".
- O. 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.
- P. 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:

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

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.
- Q. 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.
- R. 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.
- S. Construction Photographs: Comply with requirements in Division 01 Section "Construction Progress Documentation".

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. Submittal number shall correspond with specification section number. NO EXCEPTIONS.

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.

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- B. Action Submittals: Architect will review each submittal, mark to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp, and mark the stamp appropriately to indicate the action taken, as follows:
1. Final Unrestricted Release: Where the submittal is marked “No Exceptions Taken”, the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
 2. Final-but-Restricted Release: Where the submittal is marked “Note Markings”, the Work covered by the submittal may proceed provided it complies with both Architect’s notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
 3. Returned for Resubmittal: Where the submittal is marked Rejected or Resubmit”, do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Architect’s notations and corrections.
 4. Incomplete: Where the submittal is marked “Confirm”, do not proceed with the Work covered by the submittal. Prepare additional information requested, or required by the Contract Documents, that indicates compliance with requirements. Architect will indicate a number of days within which Contractor is required to submit additional information. When the additional information is not submitted during that period, the submittal may be returned for resubmittal.
 5. Other Action: If the submittal is primarily for information purposes, record purposes, special processing, or other contractor activity, the submittal will be returned marked “REVIEWED”.
 6. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Do not permit submittals to be used at the Project Site, or elsewhere where Work is in progress that are marked with any one of the following actions:
1. “REJECTED, REVISE, OR RESUBMIT”
 2. “CONFIRM”
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.
- E. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control on the Project.
- 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-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 quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.

- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

- A. Performance and Design Criteria:
 - 1. 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.
 - 2. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures".
- B. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, 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, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality control service.
- E. Required Testing: As specified or noted on the Drawings, or requested by the Architect, Engineer, or Owner.
- F. Reports: Prepare and submit certified written reports that 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. Ambient 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.
- G. 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. This Section outlines minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. Where requirements of this Section conflicts with notes on the Drawings, the notes on the Drawings shall take precedence. Bring all conflicts and discrepancies between documents to the attention of the Architect/Engineer and do not start work until such conflicts and discrepancies are clarified and corrected.
- B. 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.
- C. 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.
- 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. 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.
- F. 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 products that are similar to those indicated for this Project in material, design, and extent.

- G. Specialists: Certain sections of the Specifications 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. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.
- H. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
- I. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.
1. Contractor responsibilities include the following:
 - a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
 - d. When testing is complete, remove assemblies; do not reuse materials on Project.
 2. Testing Agency Responsibilities: Promptly issue a certified written report of each test, inspection, and similar quality-assurance service to Architect, Owner, Structural Engineer and Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups required to comply with the following requirements, using materials indicated for the completed Work:
1. Construct integrated mockup composed of exterior finishes and materials and constructed to conform to indicated details.
 2. Mockup Size: Not more than 10 feet by 10 feet.
 3. Conform to the details on the Drawings for construction. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Notify Architect seven (7) days in advance of dates and times when mockups will be constructed.
 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 6. Obtain Architect's approval of mockups before starting work, fabrication, or construction. Architect's approval will be for quality of workmanship, material finish, and detailed integration of materials.

7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed, unless otherwise indicated.

1.7 QUALITY CONTROL

- A. Owner Responsibilities: Owner will engage and pay for a qualified testing agency to perform these services.
1. 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.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 6. The absence of Owner Provided Testing Services during construction shall not relieve the Contractor from constructing the project in accordance with the Construction Documents. The Contractor shall be responsible for proving and payment of testing services necessary to assure this conformance.
- B. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
1. Testing agency will notify Architect, Engineer, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Engineer and Contractor and to authorities having jurisdiction.
 3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 5. Testing agency will retest and reinspect corrected work.
- 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.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- E. 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. 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 requirements of the Contract Documents or approve or accept any portion of the Work.
 5. Do not perform any duties of Contractor.
- F. 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.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-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.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 14 days of date established for commencement of the Work.
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.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 ACCEPTABLE TESTING AGENCIES

- A. Material Testing: To be selected and paid for by the Contractor.
- B. Special Inspections: To be selected and paid for by the Owner.

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 Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- 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 01 41 00

INSPECTION AND TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section

1.2 SUMMARY

- A. Section includes all inspection and testing laboratory services on the Project.
 - 1. The Owner will select an inspection and testing laboratory and the Contractor will be notified as soon as possible.
 - 2. The Owner will pay for the initial inspection and testing laboratory services of materials that comply with the requirements of the Contract Documents. The Contractor shall pay for re-inspection and re-testing of materials that do not comply with the requirements of the Contract Documents.
- B. The Contractor shall cooperate with the inspection and testing laboratory in all matters pertaining to the work.
- C. The Owner retains the option to add to or delete any or all inspection and testing laboratory services specified herein.
- D. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 RELATED REQUIREMENTS

- A. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals or public authorities.
- B. Respective Sections of Specifications. Certification of products.
- C. Civil and Structural Drawings: Inspection and laboratory test required and standards for inspection and testing. Where a conflict exists between the information in this Section and the notations on the Civil and Structural Drawings, the notations on the Civil and Structural Drawings take precedence. Confer all items of uncertainty to Civil Engineer, Structural Engineer, or Architect, as appropriate, for clarification prior to start of Work.
- D. Each Specification Section Listed: Inspection and laboratory test required and standards for inspection and testing.

- E. Testing laboratory inspection, sampling and testing are required for materials noted on the Civil or Structural Drawings, or required or requested by the Architect, Engineer, or Owner.

1.4 AUTHORITIES AND DUTIES OF THE LABORATORY

- A. The inspection and testing laboratory is not authorized to revoke, alter, relax, enlarge, or release any requirement of the Specifications, or to approve or accept any portion of the Work. When it appears that the material furnished or work performed by the Contractor fails to fulfill specification requirements, the inspection and testing laboratory shall promptly notify the General Contractor, Architect, Engineers, supplier and/or subcontractor providing or preparing the materials or work being tested of such deficiencies.
- B. The inspection and testing laboratory shall promptly distribute copies of the laboratory test and inspection reports. Standard distribution shall include copies of all reports to the Owner, Architect, and General Contractor. The Structural Engineer, Civil Engineer, MEP Engineer, concrete supplier, and any outside consultants shall receive copies of the testing results regarding their particular phase of the Project.

1.5 QUALITY ASSURANCE

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. If any jurisdictional regulations, the drawings, or other specifications have more stringent standards or requirements, the most stringent standards or requirements shall apply. Bring all conflicts and discrepancies to the attention of the Architect and Engineer and do not start work until such conflicts and discrepancies are clarified and corrected.

1.6 TESTING LABORATORY GUIDELINES AND PROCEDURES

- A. Refer to Division 01 Section "Quality Requirements" for testing agency qualifications.
- B. Technicians scheduled to perform specific inspection and testing services must be qualified to review and perform other services that overlap, i.e. earthwork, foundation inspections, rebar inspection, and concrete when scheduled concurrently at the Project site.
- C. Technician time for services performed will be reimbursed at a regular time rate. Compensation at the overtime rate will be considered for any hours over eight (8) hours spent at the job site on a single day, field testing services performed on a Saturday or Sunday, and any field services performed on a recognized holiday.
- D. Concrete design mixes will receive a cursory review with discrepancies reported to the Architect and Engineer.
- E. Nuclear density testing will be based on a daily rental rate for the actual testing equipment, compensation on a per test basis will not be considered.

- F. Report distribution shall include the Owner, Architect, Contractor, Civil Engineer, Structural Engineer, and others requesting or requiring review of the specific testing results.
- G. There will be a three (3) hour minimum for each scheduled testing service. Vehicle charges will be included on a per trip basis.
- H. Cylinders will be pick-up by the technician performing test the next day in order to have them cure under laboratory conditions.
- I. Structural steel inspections shall include a plant visit reviewing shop fabrication, welding and an overall review of the shop fabrication quality control standards.
- J. The Contractor shall bear the responsibility of scheduling all of the inspection and testing services. The Contractor and the testing laboratory shall assume full responsibility to coordinate the inspection and testing services. Cancellations and or failed test will be reimbursable to the Owner by the Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 GENERAL

- A. Inspection and testing services shall include, but not be limited to those specified below or which are necessary or required during course of construction to ascertain specification compliance and which may be deemed necessary by Architect, Engineer, or Owner to ensure the quality of the Work.
- B. Where requirements of this Section are in conflict with requirements noted on the Contract Drawings or other Sections of the Specifications, the more stringent requirement shall apply, unless directed otherwise by Architect.
- C. Should any unusual conditions be encountered during any operations, the laboratory shall be contacted immediately so that additional inspection and testing, as applicable, can be provided.
- D. The Owner reserves the right to add to or delete any or all inspection and testing specified herein.

3.2 SITE GRADING

- A. Testing Services:
 - 1. Perform field tests for moisture density properties.

- a. In each compacted fill layer, provide one (1) field test for every 5,000 square feet or fraction thereof of area, but not less than three (3) tests.
- b. At paved area, provide one (1) field test for every 5,000 square feet or fraction thereof, of area, but not less than three (3) tests.

3.3 COMPACTING FILL AND BACKFILL, AND SOIL STABILIZATION

A. Testing Services:

1. Perform field test for moisture density properties:
 - a. Within the building line provide one (1) field test in each compacted layer for every 5,000 square feet or fraction thereof, of area, but not less than three (3) tests.
 - b. Follow the requirements of ASTM D6276 to determine a recommended percentage of lime stabilized additive per field soil engineer.

3.4 PIPED SITE UTILITIES

A. Inspection and Observation Services:

1. Inspection of trenches for proper alignment and grade.
2. Inspection of pipe bedding and supports.
3. Inspection of pipe, joints, jointing material, and thrust blocks prior to installation of pipe.
4. Inspection of installation of pipe and joints.
5. Observation of testing of piped utilities performed by Contractor.

3.5 EARTHWORK

A. Inspection and Observation Services:

1. Refer to and include, as applicable, work of Paragraphs 3.2, 3.3, 3.4, and 3.5 above.
2. When perimeter and underfloor drainage systems are specified or required, inspect installation of such systems for conformance with specified materials and detail requirements.
3. When temporary drainage and dewatering systems are used to keep excavations dry, inspect the systems for adequacy. Ground water should be maintained at least two (2) feet below bottom of excavation.
4. Review the equipment and methods used in placement and compaction of fill materials and inspect materials used and compaction of fills in general earthwork and in backfilling around structures, and in backfilling in utility trenches.
5. Notify the Contractor in writing and the Architect immediately if footings and slabs-on-grade are placed on unfinished soil or frozen ground and when footings and slabs-on-grade are not protected from frost damage.
6. Notify the Architect when soil with allowable bearing capacity noted is encountered at elevation above the bottom of footing shown.

7. Notify the Architect and Contractor if soil with required bearing capacity noted is not encountered at bottom of footing elevation shown. Bottom of footing shall be adjusted as recommended and approved by the Structural Engineer and Architect.
8. Review rock excavation techniques, if required, and monitor blasting induced ground motions, as appropriate.
9. Review calculations and shop drawings for sheeting, shoring, and underpinning prepared by the Contractor, if required.

B. Testing Services:

1. References (As applicable for tests):
 - a. ASTM International (ASTM)
 - 1) D698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³ (600 kN-m/m³))
 - 2) D2922, Standard Test Method for Density of Soil and Soil-Aggregate In Place By Nuclear Methods (Shallow Depth)
 - 3) D4318, Liquid Limit, Plastic Limit, and Plasticity Index of Soils
 - b. American Association of State Highway and Transportation Officials (AASHTO)
 - 1) T89, Determining the Liquid Limit of Soils
 - 2) T90, Determining the Plastic Limit and Plasticity Index of Soils
 - 3) T99, Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305-mm (12-in) Drop
 - 4) T238, Density of Soil and Soil Aggregates In Place By Nuclear Methods (Shallow Depth)
2. Perform sieve analysis to develop grain size distribution curves for materials to be used for subgrade, fill under slab-on-grade, and backfills.
3. Establish the moisture density relation of soils to be used as fill using the method best suited to the type of fill material.
4. Determine moisture content of all fill materials before placement and advise Contractor when it is or is not suitable to achieve required compaction.
5. Determine Liquid Limit in accordance with ASTM D4318 or AASHTO T89, Plastic Limit in accordance with ASTM D4318, and Plasticity Index in accordance with ASTM D4318 of all fill material.
6. Perform one (1) in place density test for each 2,500 square feet (280 square yards) of existing subgrade material.
7. Perform Moisture-Density curve in accordance with ASTM D698 or AASHTO T99 for one (1) type of fill material. If the original choice of material does not meet the specifications, the Contractor shall pay for additional testing.
8. Perform in place density tests of each lift of compacted fill at locations adequate to evaluate the degree of compaction of all fill areas. Conduct one (1) test for each 2,500 square feet (280 square yards) of each lift of compacted fill.

C. Reports: Submit reports to Architect with the following information:

1. Type and condition of soil at footing bottoms.
2. Level of water table in the excavated areas.
3. Grain size distribution of fill materials (average of three (3) tests).
4. Moisture density test results.
5. In place density test results with moisture content and relative density of each layer of compacted fill. Include with in place density test results, a plan showing location of each test.
6. Notify Architect by telephone within one (1) hour of the discovery of the following conditions and follow up telephone notification with written report.
 - a. Materials used, or degree of soil compaction not meeting specified requirements.
 - b. Frost and freeze protection requirements for excavation bottoms not being complied with.
 - c. Water in excavations which is not being removed prior to work being performed in excavation.

3.6 CONCRETE REINFORCING STEEL AND EMBEDDED METAL ASSEMBLIES

A. Inspection and Observation Services:

1. Inspect all concrete reinforcing steel prior to placing of concrete for compliance with Contract Documents and approved shop drawings. All instances of noncompliance with Contract Documents and approved shop drawings shall be immediately brought to the attention of the Contractor for correction and then, if uncorrected, reported to the Architect.

B. Reports:

1. Observe and Report on the Following:
 - a. Number and size of bars.
 - b. Bending and lengths of bars.
 - c. Splicing.
 - d. Clearance to forms including chair heights.
 - e. Clearance between bars or spacing.
 - f. Rust, form oil, and other contamination.
 - g. Grade of steel.
 - h. Securing, tying, and chairing of bars.
 - i. Excessive congestion of reinforcing steel.
 - j. Installation of anchor bolts and placement of concrete around such bolts.
 - k. Fabrication of embedded metal assemblies, including visual inspection of all welds.
- l. Visually inspect studs and deformed bar anchors on embedded assemblies for compliance with Contract Documents. Check number, spacing and weld quality. If, after welding, visual inspection reveals that a sound weld or a full 360 degree fillet has not been obtained for a particular stud or bar, such stud or bar shall be struck with a hammer and

bent 15 degrees off perpendicular and then bent back into position.
Anchors failing this test shall be replaced.

C. Testing Services:

1. Will be required of all suspect materials or workmanship at the discretion of the Architect, Engineer, or Owner.

3.7 REINFORCING STEEL MECHANICAL SPLICES

A. Inspection and Observation Services:

1. Visually inspect and report on the completed condition of each mechanical splice of reinforcing steel.
2. Each mechanical splice shall be visually inspected to ensure compliance with the I.C.B.O. Reports and the manufacturer's published criteria for acceptable completed splices.
3. Special emphasis shall be placed on inspection of the end preparation of each bar to be spliced, as required by the I.C.B.O. Report.

B. Reports: Submit reports to Architect with the following information:

1. Submit copies of manufacturer's published criteria for acceptable completed splices prior to observing mechanical splices.
2. Reports on each mechanical splice shall indicate location of the splice, size of bars spliced, and acceptability or rejection of splice. Reasons for rejection shall be shown on each report.

3.8 CAST-IN-PLACE CONCRETE

A. Inspection and Observation Services:

1. Review concrete design mixes proposed for use on the Project.
2. Provide full time services for all structural building concrete in drilled piers, grade beams, slab on grade, columns, concrete paving, and other miscellaneous structural concrete. Refer to and include work for reinforcement steel specified in Paragraph 3.7 above.
3. On the first day's batching of each type and each strength of concrete, inspect and observe materials for concrete, batch weights, moisture content, and gradation of fine and course aggregate.
4. Provide additional inspection if the Contractor elects to use concrete from more than one (1) source of supply simultaneously. All costs for such additional inspection shall be borne by the Contractor.

B. Testing Services:

1. References (As applicable for field and laboratory tests):
 - a. American Concrete Institute (ACI)

- 1) 214, Recommended Practice for Evaluation of Strength Test Results of Concrete
 - 2) 318, Building Code Requirements for Reinforced Concrete
- b. ASTM International (ASTM)
- 1) C31, Practice for Making and Curing Concrete Test Specimens in the Field
 - 2) C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - 3) C138, Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
 - 4) C143, Slump of Hydraulic Cement Concrete
 - 5) C173, Air Content of Freshly Mixed Concrete by the Volumetric Method
2. Compression Test Cylinders:
- a. Make, transport, cure and test six (6) inch diameter by 12 inch long test specimens taken from concrete being cast. Test cylinders will be made, handled, cured, and stored in accordance with ASTM C31, at the rate of five (5) cylinders minimum for each 5 cu. yd., but less than 25 cu. yd., plus five (5) additional cylinders for each additional 25 cu. yd. or fraction thereof of each class of concrete placed in any one (1) day.
 - b. Handle newly made cylinders carefully to avoid cracking the green concrete. Store these cylinders in a box at temperatures between 60 degrees F and 80 degrees F during first 24 hours. Contractor shall construct a suitable box and provide heat or cooling, if necessary, to maintain cylinders at proper temperature.
 - c. Place cylinders in laboratory storage, with molds removed, under moist curing conditions and temperature of 73 degrees plus or minus three (3) degrees F 24 hours after casting maintain these moist curing conditions until specimens are tested.
 - a. Of the test cylinders taken, test two (2) cylinders at seven (7) days for information, two (2) cylinders at 28 days for acceptance, and store one (1) cylinder for testing at 56 days in the event the 28 days strength tests do not meet strength requirements. Test cylinders in accordance with ASTM C39. When Type III cement is used, test at three (3) days instead of seven (7) days.
 - d. Each 28 day compression test report shall clearly indicate average strength results, concrete slump and air content, concrete and ambient air temperatures, and how much water was added on site by contractors as of the report date and for the class of concrete being reported.
 - e. Maintain a moving average for compressive strength based on the three (3) latest 28 day test results to check compliance with specification requirements. The figures for the standard deviation and moving average for strength will be kept continuously up to date and submitted on a weekly basis to the Architect and Engineer. Maintain a continuously up to date log in both graphical and tabulated form for each class of concrete.

- 1) the average of the latest three (3) test results;
 - 2) the lowest average of three (3) consecutive test results recorded to date;
 - 3) the average of all sets of three (3) consecutive test results;
 - 4) the percentage of tests falling below specified strength;
 - 5) the lowest single test result.
- f. Maintain a moving average for range of test results for quality control purposes as described in ACI 214, Chapter 4, Paragraphs 4.4 and 4.5. Graphical reports of moving average for range shall be submitted to the Architect and Engineer on a weekly basis.
- g. Slump Tests: Conduct in accordance with ASTM C143; one (1) test shall be performed for each sampling for strength tests. Slump shall be considered acceptable if the field test is within the range of design slump plus or minus one (1) inch. For concrete placed by pumping, one (1) test shall be performed at the pump and one (1) at the point of deposit. Slump loss through pumping will be acceptable to the Architect and Engineer. Slump measured at the pump shall be evaluated for acceptance relative to the design slump in accordance with the criteria previously specified.
- h. Air Content Tests: Conduct in accordance with ASTM C231; test air entrained concrete only, one (1) test shall be performed for each sampling for strength tests. Air content shall be considered acceptable if the field test is in the range of the design air content plus two (2) percent.
- i. Unit Weight Tests: Conduct in accordance with ASTM C138; test each sample of lightweight concrete taken for strength tests. Unit weight shall be considered acceptable if the field test shows a fresh unit weight equal to the design unit weight plus or minus 2 pcf.
- j. Chloride Tests: Perform one (1) total chloride ion test for each class of concrete placed each day. If the total chloride ion content is determined to be excessive by the Architect or Engineer, water soluble chloride ion tests shall be performed at the Contractor's expense.
3. Noncompliance: In the event the initial tests above indicate that concrete may not meet the specified requirements, the Architect or Engineer may, at his discretion, order additional tests be performed at the Contractor's expense. Load tests shall comply with requirements of ACI 318.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes references used within the Specifications.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Unless otherwise indicated, the following definitions apply to this project:
 - 1. “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.
 - 2. “Directed”: Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean directed by Architect, requested by Architect, and similar phrases.
 - 3. “Indicated”: The term “indicated” refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as “shown,” “noted,” “scheduled,” and “specified” are used to help the user locate the reference.
 - 4. “Regulations”: The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
 - 5. “Furnish”: The term “furnish” means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
 - 6. “Install”: The term “install” describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
 - 7. “Provide”: The term “provide” means to furnish and install, complete and ready for the intended use.
 - 8. “Installer”: An installer is the 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.

9. The term “experienced,” when used with an entity, means having successfully completed a minimum of three (3) previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- a. Using a term 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 tradespeople of the corresponding generic name.

10. Additional Definitions: Division 01 Section "Codes, References and Definitions".

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 standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements:

1. 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 uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
2. 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.

D. Copies of Standards:

1. Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
2. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

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12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

E. Abbreviations and Acronyms:

1. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the name of entities generally recognized in the construction industry. The Architect will make a complete list available by the to the Contractor upon written request. Types of entities include:
 1. Industry Organizations.
 2. Code Agencies.
 3. Federal Government Agencies.
 4. State Government Agencies.
2. Abbreviations and acronyms used in the Specifications and other Contract Documents include, but are not limited to those listed in Division 01 Section "Codes, References and Definitions".

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01 56 61

TRENCH SAFETY SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section

1.2 SUMMARY

- A. Section includes:
 - 1. Trench Safety System for trench excavation in materials other than solid rock or where otherwise required.
 - 2. Trench safety system requirements will apply to larger open excavations if erection of structures or other installations limits space between the excavation slope and the installation to dimensions equivalent of a trench, as defined.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. "Trench" means a narrow excavation (in relation to its depth) made below the surface of the ground. In general, the depth is greater than the width.
 - 1. Width of Trench (Measured at the Bottom): Generally, not greater than 15 feet.
 - 2. Depth: Generally greater than five feet.
- B. Trench safety systems include both Protective Systems and Shoring Systems but are not limited to sloping, sheeting, trench boxes or trench shields, side rail systems, sheet piling, cribbing, bracing, dewatering or diversion of water to provide adequate drainage.
 - 1. "Protective System" means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of an adjacent structure.
 - 2. "Shoring System" means a structure that supports the sides of an excavation and which is designed to prevent cave-ins, or to prevent movement of ground affecting adjacent installations or improvements.

1.4 MEASUREMENT AND PAYMENT

- A. Measurement for trench safety systems used on trench excavations is on a lump sum for each separate trench requiring trench safety.

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Package 1, Addendum#2

- B. Payment for trench safety work will be made in proportion to percent complete of each type of trench safety work, on a line-item basis. Include in the Schedule of Values a line item for the value for trench safety work for each separate trench requiring trench safety.

1.5 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures".
- B. For information only, submit the following:
 - 1. Safety program specifically for construction of trench excavation. Design the trench safety program following OSHA 29CFR standards governing presence and activities of individuals working in and around trench excavations.
 - 2. Certificate signed and sealed by a qualified professional engineer, stating that the Trench Safety System is designed in conformance with regulatory requirements.
- C. Submission of the safety program to the Architect will not constitute request for review or approval by the Architect nor relieve Contractor of obligations under State and Federal trench safety laws.

1.6 QUALITY ASSURANCE

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. If any jurisdictional regulations, the drawings, or other specifications have more stringent standards or requirements, the most stringent standards or requirements shall apply. Bring all conflicts and discrepancies to the attention of the Architect and Engineer and do not start work until such conflicts and discrepancies are clarified and corrected.
- B. Prepare fabrication and field engineering drawings for Trench Safety Systems sealed as required by OSHA by a licensed professional engineer retained and paid by Contractor.
- C. Engineering Responsibility:
 - 1. Engage a qualified professional engineer to prepare design calculations and fabrication and field engineering drawings.
 - 2. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of Texas and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for Trench Safety Systems similar to those required for this Project.

1.7 REGULATORY REQUIREMENTS

A. Comply with requirements of:

1. Excavations, Trenching, and Shoring, Federal Occupation Safety and Health Administration (OSHA) Standards, 29 CFR, Part 1926, Subpart P, as amended; and applicable regulations adopted by the State of Texas.
2. Legislation enacted by Texas Legislature regarding Trench Safety Systems, is hereby incorporated, by reference, into this Section. Refer to Texas Health and Safety Code Ann., §756.021 (Vernon 1991).

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install and maintain trench safety systems following provisions of OSHA 29CFR.
- B. Install specially designed trench safety systems following Contractor's trench excavation safety program and fabrication and engineering drawings for locations and conditions identified in the program.
- C. Obtain verification from a competent person, as identified in Contractor's trench excavation safety program, trench boxes and other pre-manufactured systems are certified for actual installation conditions.

3.2 INSPECTION

- A. Conduct daily inspections by Contractor or Contractor's independently retained consultant, of trench safety systems to ensure installed systems and operations meet OSHA 29CFR and other personnel protection regulations requirements.
- B. If evidence of possible cave-ins or slides is apparent, immediately stop work in the trench and move personnel to safe locations until necessary precautions are taken by Contractor to safeguard personnel.
- C. If at any time during its use, the trench safety system is damaged, immediately evacuate personnel from the trench or excavation area and repair the trench safety system.
- D. Maintain permanent record of daily inspections.

3.3 FIELD QUALITY CONTROL

- A. Verify specific applicability of selected or specially designed trench safety systems to field conditions encountered at each trench.

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12102 McLain, Houston, Texas 77071

Package 1, Addendum#2

3.4 REMOVAL

- A. Bed and backfill pipe to a point at least one foot above top of pipe prior to removal of any portion of Trench Safety System. Comply with specified requirements for bedding and backfill.
- B. Coordinate backfilling and removal of trench supports from bottom of trench upward so that trench safety is maintained. Do not completely remove braces or trench supports until all personnel have evacuated the trench.
- C. Backfill trench to within five feet of natural ground prior to removal of entire Trench Safety System.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes the following administrative and procedural requirements:
 - 1. Selection of products for use in Project.
 - 2. Delivery, storage, and handling.
 - 3. Manufacturers' standard warranties on products and special warranties.
 - 4. Product options, substitutions, and comparable products.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

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 Product: Product that is 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, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," 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.

1.4 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures" and the following.
- B. **Substitution Requests:** Submit one (1) electronic copy of each request for consideration. No faxes will be accepted. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. **Substitution Request Form:** Use "Substitution Request Form" in Division 01 or other form approved by Architect.
 - 2. **Documentation:** Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.

- j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.
 - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 3. Completed List: Within 30 days after date of commencement of the Work, submit one electronic copy of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 4. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures". Show compliance with requirements.

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and Specifications for additional requirements. Bring all conflicts and discrepancies to the attention of the Architect and applicable Engineer and do not start work until such conflicts and discrepancies are clarified and corrected.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

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 manufacturer's 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 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 materials 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 manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. 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. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Refer to Divisions 02 through 48 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures".

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- 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. Standard Products: 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. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
1. Product:
 - a. Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
 - b. Substitutions will not be considered, unless otherwise indicated.
 2. Manufacturer/Source:
 - a. Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
 - b. Substitutions will not be considered, unless otherwise indicated.
 3. Products:

- a. Where Specification paragraphs or subparagraphs titled “Products” introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - b. Substitutions will not be considered, unless otherwise indicated.
4. **Manufacturers:**
 - a. Where Specification paragraphs or subparagraphs titled “Manufacturers” introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - b. Substitutions will not be considered, unless otherwise indicated.
 5. **Available Products:** Where Specification paragraphs or subparagraphs titled “Available Products” introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in “Comparable Products” Article to obtain approval for use of an unnamed product.
 6. **Available Manufacturers:** Where Specification paragraphs or subparagraphs titled “Available Manufacturers” introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in “Comparable Products” Article to obtain approval for use of an unnamed product.
 7. **Product Options:** Where Specification paragraphs titled “Product Options” indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in “Product Substitutions” Article.
 8. **Basis-of-Design Products:**
 - a. Where Specification paragraphs or subparagraphs titled “Basis-of-Design Product(s)” are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in “Comparable Products” Article to obtain approval for use of an unnamed product.
 - b. Substitutions will not be considered, unless substitution is submitted in accordance with Division 01 Section "Product Requirements" and on "Substitution Request Form" in Division 01 or other Architect approved form for each product, material, or equipment for which a substitution is requested. One form is required for each item substituted.
 9. **Visual Matching Specification:**
 - a. 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.
 - b. 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.

10. Visual Selection Specification:
 - a. 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.
 - b. 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.
 - c. Full Range: Where Specifications include the phrase “full 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.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions for Consideration: Architect will consider Contractor's request for substitution when the following conditions are satisfied and the Division 01 "Substitution Request Form" or other Architect approved substitution form is submitted for Architect's/Engineer's approval.
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.
 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.
 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2
2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION

Not Used

END OF SECTION

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Package 1, Addendum#2

SECTION 01 63 10

SUBSTITUTION REQUEST FORM

Submit Form in accordance with Division 01 Section "Product Requirements", Paragraph 2.2

DATE: _____

TO: _____

ATTENTION: _____

PROJECT: _____

We submit for your consideration the following product as a substitution for the specified product:

Section No.	Paragraph	Specified Product
_____	_____	_____

Proposed Substitution: _____

Reason for Substitution: _____

Product Data:

Attach complete technical data for both the specified product and the proposed substitution.
Include information on changes to Contract Documents that the proposed substitution will require
for its proper installation.

Samples:

_____ Attached _____ Will be furnished upon request

Does the substitution affect dimensions shown on Drawings?

_____ No _____ Yes (explain) _____

Effects of proposed substitution on other Work: _____

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5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

Differences between proposed substitution and specified Product: _____

Manufacturer's warranties of the proposed substitution are:

_____ Same _____ Different (explain) _____

Maintenance service and spare parts are available for proposed substitution from:

Previous installations where proposed substitution may be seen: _____

Owner: _____ Owner: _____

Architect: _____ Architect _____

Date Installed: _____ Date Installed: _____

Cost savings to be realized by Owner, if proposed substitution is approved: _____

Change to Contract Time, if proposed substitution is approved:

_____ No Change _____ Add _____ days _____ Deduct _____ days

Submittal constitutes a representation that Contractor has read and agrees to the provisions of Division 01 Section "Product Requirements".

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5212 Anderson Rd, Houston, Texas 77053

12102 McLain, Houston, Texas 77071

Package 1, Addendum#2

Submitted by Contractor:

Signature

Firm

For Use by Architect:

Based on the information supplied by the Contractor, the Architect has reviewed the proposed substitution on the basis of design concept of the Work and conformance with information given in Contract Documents.

_____ Approved _____ Approved as Noted _____ Rejected

Submit Additional Information: _____

By: _____ Date: _____

SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.

- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures".
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal, if any.

1.4 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Utilities: The existence and location of utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of utilities and other construction affecting the Work.
 - 1. Before construction, verify the location of sanitary sewer, water-service piping; electrical services; and gas piping, as applicable.
 - 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 where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 5. 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 Owner that is necessary to adjust, move, or relocate existing utility lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than two (2) days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.

- C. 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.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. 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.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage professional engineer to lay out the Work using accepted surveying practices.
 - 1. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 2. Inform installers of lines and levels to which they must comply.
 - 3. Check the location, level and plumb, of every major element as the Work progresses.
 - 4. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
- C. Building Lines and Levels: Locate and lay out control lines and levels for 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.
- D. 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, 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. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. 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 without prior written approval of Architect. 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.
- C. 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.

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.
 4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- 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 directed by Architect.
 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 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 seven (7) days during normal weather or three (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. Comply with Division 01 Section "Cutting and Patching".
 - 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: Comply with Division 01 Section "Construction Waste Management and Disposal". 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.

3.7 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 01 Section "Quality Requirements".

3.8 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.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Specification Section of material damaged and restore to match undamaged material.
- B. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired, to satisfaction of Architect.

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- F. Remove and replace chipped, scratched, and broken glass, or reflective surfaces.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes procedural requirements for cutting and patching for new construction.
- B. Related Sections: Work of all sections, including Division 01 Sections, as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place 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.

1.4 SUBMITTALS

- A. Submit under provisions of Division 01 Section "Submittal Procedures".
- B. Cutting and Patching Proposal: Submit a proposal describing procedures at least ten (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 they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to In-Place 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. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems 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.

1.5 QUALITY ASSURANCE

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. If any jurisdictional regulations, the Drawings, or other Specifications have more stringent standards or requirements, the most stringent standards or requirements shall apply. Bring all conflicts and discrepancies to the attention of the Architect, Engineer, or appropriate Consultant and do not start work until such conflicts and discrepancies are clarified and corrected.
- B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- C. 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.
- D. Miscellaneous Elements: Do not cut and patch miscellaneous 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.
- E. 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.

1.6 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.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place 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 in-place 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 in-place finishes or primers.
- B. 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 in-place 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 Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption 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 in-place 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 in-place 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. 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.
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.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION

SECTION 01 74 00

WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for general warranty on the Project and special warranties specified.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 WARRANTIES

- A. The Contractor shall submit to the Architect the project warranty for the entire Work and special warranties required by the Specifications, on the Contractor's letterhead, and in the forms identical to those included in pages 2 and 3 of this Section.
 - 1. The period of time for the Project Warranty shall be one year from Date of Substantial Completion.
 - 2. The period of time for Special Warranty work shall be as required by the applicable Section of the Specifications.
 - 3. Submittal of all warranties is required as prerequisite to the final payment.

YES Prep. Southwest Elementary and Brays Oaks Elementary
5212 Anderson Rd, Houston, Texas 77053
12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

PROJECT WARRANTY FOR GENERAL CONSTRUCTION

WHEREAS, _____ (Contractor),

Telephone () _____ has performed general construction work on the

following project: _____

Address _____

For _____ (Owner),

Address _____, and,

WHEREAS, Contractor has agreed to warrant said work to be new, unless otherwise specified in the Contract Documents, and that all Work is of good quality, free from faults and defects, and in accordance with the Contract Documents.

NOW THEREFORE, Contractor hereby warrants said work in accordance with terms hereof, complying with terms of Contract with Owner dated _____, 20__, that:

We agree to repair or replace to the satisfaction of the Architect all work that may prove defective in workmanship or materials within the warranty period, ordinary wear and tear and unusual abuse or neglect excepted, together with all other work which may be damaged or displaced in so doing.

All repairs or replacements shall have a warranty period equal to the original warranty period as herein stated, dated from the final acceptance of repairs or replacement.

WARRANTY PERIOD One year, STARTING _____, TERMINATING _____.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day of

_____, 20__, for Contractor by

(signature)

(typed name)

as its _____
(position)

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12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

SPECIAL WARRANTY FOR

WHEREAS, _____ (Contractor),
Address _____
Telephone () _____ has performed _____
work on the following project: _____
Address _____,
For _____ (Owner),
Address _____, and,

WHEREAS, Contractor has agreed to warrant said work to be new, unless other-wise specified in the Contract Documents, and that all Work is of good quality, free from faults and defects, and in accordance with the Contract Documents.

NOW THEREFORE, Contractor hereby warrants said work in accordance with terms hereof, complying with terms of Contract with Owner dated _____, 20__, that:

We agree to repair or replace to the satisfaction of the Architect all work that may prove defective in workmanship or materials within the warranty period, ordinary wear and tear and unusual abuse or neglect excepted, together with all other work which may be damaged or displaced in so doing.

All repairs or replacements shall have a warranty period equal to the original warranty period as herein stated, dated from the final acceptance of repairs or replacement.

WARRANTY PERIOD ____ years, STARTING _____, TERMINATING _____.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, 20__, for Contractor by

(signature) (typed name)

as its _____
(position)

And has been countersigned in accordance with terms and conditions, for Installer by

(signature) (typed name)

as its _____
(position)

Name of Firm _____

Address _____

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions, if any, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion and Final Inspection procedures.
 - 2. Post-occupancy inspection procedures.
 - 3. Project Record Documents
 - 4. Operation and maintenance manuals.
 - 5. Warranties.
 - 6. Instruction of Owner's personnel.
 - 7. Final cleaning.
- B. Related Sections: Work of all sections, including Division 01 Sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work.

1.3 QUALITY ASSURANCE

- A. This Section outlines only minimum standards and requirements. Refer to the Drawings and other sections of the specifications for additional requirements. Bring all conflicts and discrepancies to the attention of the Architect and appropriate Engineer or Consultant and do not start work until such conflicts and discrepancies are clarified and corrected.

1.4 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.
 - a. Apply for and obtain from the Building Official a Temporary Certificate of Occupancy in the Owner's name.

- b. The Certificate is to be obtained and posted as required by the Building Official prior to the final inspection by the Owner.
 - c. Temporary Certificate in lieu of a Certificate of Occupancy will be sufficient, as the Owner's prerequisite for his final inspection, only when his specific written approval has been obtained.
5. Prepare and submit one hard copy and one electronic PDF copy of Project Record Documents (As-Built Drawings) and send both copies to Architect, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver tools, keys, spare parts, extra materials, operation and maintenance manuals, 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. Change all air conditioning filters and permit Owner or his representative to inspect.
- 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.

1.5 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 Section 01 29 00, 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:

1. 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.
2. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: General Contractor shall be responsible for transcribing and submission of punch list. Architect will walk the Project and assist General Contractor in the development of the list. Submit one electronic copy of list in Microsoft Word format. 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, where applicable.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.7 POST-OCCUPANCY INSPECTION

A. Conduct a post-occupancy inspection of the Work in the company of the Owner's Representative and the Owner before expiration of the one-year correction period.

1. Schedule the post-occupancy inspection not later than 20 days before the end of the one-year correction period.
2. Provide not less than 5 day's written notice to the Owner prior to the anticipated date of post-occupancy inspection.
3. Prepare a list of those portions of the Work found not to be in compliance with the Contract Documents by the Owner's Representative and the Owner and forward a copy of the list to the Owner.

4. Correct the Work to comply with the Contract Documents to the satisfaction of the Owner's Representative and the Owner.
 5. The Contractor shall endeavor to correct the Work before the end of the one-year correction period. Where corrective Work cannot be completed in this time period, the Contractor shall be required to complete corrections within a reasonable time after the end of the one-year correction period.
- B. The Contractor shall not be responsible for correction of Work which has been damaged because of neglect or abuse by the Owner nor shall the Contractor be responsible for the replacement of parts necessitated by normal wear in use.

1.8 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. Record Drawings (As Built-Drawings): Maintain and submit one electronic copy in PDF format of Contract Drawings and Shop Drawings.
1. Mark Record prints 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. Subject to Architect's approval, mark Contract Drawings showing actual physical conditions, completely and accurately.
 - e. Each sheet of the prints shall be certified as to correctness by the Contractor, and where any major portion of the Work is performed by a Subcontractor, the tracings reflecting said subcontract Work shall be properly countersigned by the Subcontractor. Certify record drawing prints as follows:

CERTIFIED CORRECT (3/8-inch high letters)
(Name of Subcontractor)

By: _____

Date: _____

- f. After all corrections, changes and deviations have been transferred to the prints, the Contractor shall submit the prints to the Architect for review and comments. If additional information is required, or if the drawings are incomplete, the Architect will return the prints to the Contractor for

required action. If the record drawings are complete, the Contractor shall, upon notice by the Architect, submit the record drawing prints to the Architect for delivery to the Owner.

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.
- C. 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.
- D. 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.

1.9 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.

1.10 WARRANTIES

- A. General:
 1. All Work shall be warranted for one year, except where longer warranties are specified in the individual specification sections. All warranties shall start from date of Substantial Completion as determined by the Architect.
 2. Execute warranties required by the Contract Documents in the Owner's name.
 3. Warranties for materials, appliances, and equipment furnished by others and incorporated in the Work must be transferable/assignable to the Owner in such manner that warranty provisions will be enforceable by the Owner.
 4. Prior to making application for final payment, collect and deliver all required warranties to the Architect for review and transmittal to the Owner.

- B. 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.

- C. 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.

- D. 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.
- E. 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 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, through Architect, 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. Submit video of each training module to Owner for future training of Owner's personnel. 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.

3.2 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 anti-pollution regulations.

B. Cleaning:

1. 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.
2. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. 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.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - 1) Do not remove UL and similar labels, including mechanical and electrical nameplates.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over UL and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, where applicable and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.

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12102 McLain, Houston, Texas 77071
Package 1, Addendum#2

- o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. 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.
 - s. Leave Project clean and ready for occupancy.
 - t. Change all air conditioning filters and permit Owner or his representative to inspect.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- 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.

END OF SECTION