

ADDENDUM NO. 1

To the Contract Documents for:

Menlo Park City School District

Encinal Elementary School

Lighting & Ceiling Upgrades

Bid #001-2019-01

April 9, 2019

This addendum shall supersede all previously issued specifications, addenda and drawings. All other conditions remain unchanged. The following clarifications, changes, modifications, corrections and/or additions as set forth herein shall apply to the above documents and shall be made a part thereof and shall be subject to all the requirements thereof as though originally specified and/or shown.

This addendum consists of **1** page, plus attachments.

Attachments:

Bid Announcement: *No changes.*

Project Manual: *As noted below/attached.*

Drawing Sheets: *No changes.*

CHANGES TO THE BID ANNOUNCEMENT:

No Changes.

CHANGES TO THE PROJECT MANUAL:

Item No 1.1

Reference: DOCUMENT 07 21 00 – Thermal Insulation

Description: **ADD** Document 07 21 00 Thermal Insulation to the Project Manual.

CHANGES TO THE DRAWINGS:

No Changes.

END OF ADDENDUM #1

SECTION 07 21 00
THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Thermal and acoustical insulation within the building.
 - 1. Glass-fiber blanket.
- B. Related Documents: The Conditions of the Contract and Division 1 apply to this section as fully as if repeated herein.

1.2 REFERENCES

- A. The editions of the specifications and standards referenced herein, published by the following organizations, apply to the work only to the extent specified by the reference. Refer to Section 01 42 19 for information concerning availability and use of references.
 - ASTM International
 - U.S. General Services Administration, Federal Specification (FS)
 - Underwriters Laboratories (UL)

1.3 DESCRIPTION OF INSULATION SYSTEMS

- A. Sound retardant insulation over suspended ceilings:
 - 1. Type: Fire resistant, kraft-foil faced mineral fiber batts or blankets.
 - 2. Thickness: Not less than 3-1/2 inches.
 - 3. Surface Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
 - 4. Installation Method: Loose laid over suspended ceilings.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Submittal procedures and quantities are specified in Section 01 33 00.

1.5 INFORMATIONAL SUBMITTALS

- A. Certificates of Conformance: Submit certificates from the manufacturer stating that materials meet the R-value and fire resistance and surface burning characteristics specified herein.

1.6 REGULATORY REQUIREMENTS

- A. Certificate: As required by CBC Title 24, post a certificate containing the building permit number and the insulation manufacturer's name, material identification and R-value and stating that the insulation has been installed in accordance with the plans and specifications.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver insulation to the site in unopened containers labeled with the manufacturer's name and brand designation and R-value rating.
- B. Store insulation in a dry, well ventilated, water-tight enclosure providing protection from damage. Do not store plastic insulation where it will be exposed to sunlight or to sources of ignition.

1.8 SEQUENCING AND SCHEDULING

- A. Do not install insulation until construction has progressed to the point that inclement weather will not damage or wet the insulation material.
- B. Install insulation after electric wiring, plumbing and other concealed work is in place.
- C. Insulation shall not be closed-in until it has been inspected and approved.

PART 2 - PRODUCTS

2.3 GLASS-FIBER BLANKET INSULATION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. CertainTeed Corporation; www.certainteed.com
 - 2. Johns Manville; www.jm.com
 - 3. Knauf Insulation; www.knaufinsulation.us
 - 4. Owens Corning; www.owenscorning.com
- B. Reinforced-Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- C. Sustainability Requirements: Provide glass-fiber blanket insulation as follows:
 - 1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
 - 2. Low Emitting: Insulation tested according to ASTM D 5116 and shown to emit less than 0.05-ppm formaldehyde.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

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

3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions.
- B. Kraft and Foil Faced Blankets:
 - 1. Loose lay insulation on top of suspended acoustical ceiling. Size insulation to fit snugly between suspended ceiling grid members.

END OF SECTION

05/23/18

These paragraphs not used:

- C. Sound retardant insulation surface-applied to gypsum board ceilings:
 - 1. Type: Semi-rigid, semi-refractory insulation with black facing.
 - 2. Thickness: 2-inch.
 - 3. Surface Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
 - 4. Installation Method: Spindle anchors to backing surface.

3.4 RAIN SCREEN/CAVITY WALL CONTINUOUS INSULATION

- A. Acceptable Manufacturer: Thermafiber, Inc., www.thermafiber.com
- B. Description: Non-combustible, semi-rigid mineral wool insulation board that is water repellent and resists temperatures above 2,000 degrees F, meets ASTM C 612, IVA.
 - 1. Thickness: As noted on drawings.
 - 2. Type: Thermafiber RainBarrier 45 Insulation
 - a. R-value of 4.2 per inch.
 - b. Facing: Unfaced.
 - c. Density: 4.5 pcf.
 - d. Surface Burning Characteristics: Unfaced- Flame Spread 0 and Smoke Developed 0
 - e. Moisture Resistance: Absorbs less than 0.03% by volume, ASTM C 1104.
 - f. Non-corrosive, ASTM C 665.
 - g. Pre-consumer recycled content:
 - 2) Special "Green" Fiber: 90%.
 - 3) Dark Fiber Mineral Wool Products: 84%.
 - 4) EPA Choice Fiber (US Government Buildings): 75%.
 - 5) Standard Mineral Wool Products: 70%.
 - 6) Post-consumer recycled content: 0%.
- A. Hardware: RainBarrier Insulation Retaining Clip for securing RainBarrier continuous insulation to exterior substrate. This clip is recommended by manufacturer as it is compatible with multiple types of masonry and façade tie systems.
- C. Thermal insulation within light gage metal framed exterior walls:
 - 1. Type: Fire resistant, kraft-foil faced, mineral fiber, batts or blankets.
 - 2. Thickness: As required to obtain an R-value of not less the R-19.
 - 3. Surface Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
 - 4. Installation Method: Taped to face of studs.

3.5 INSULATION MATERIALS

- A. Batt or Blanket Mineral Fiber Insulation: ASTM C665-06, Types and Classes as listed below. Insulation shall be rated non-combustible when tested in accordance with ASTM E136-04.
 - 1. Flame Resistant Foil-Scrim-Kraft Faced Insulation: Type III, Class A.
 - 2. Foil Faced Insulation: Type III, Class B.
 - 3. Kraft Faced Insulation: Type II, Class C.
 - 4. Unfaced Insulation: Type I.

3.6 POLYISOCYANURATE FOAM-PLASTIC BOARD

- A. Polyisocyanurate Board, Glass-Fiber-Mat Faced, ASTM C 1289, glass-fiber-mat faced, Type II, Class 2.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- B. Black Faced Acoustical Insulation: Minimum 3.0 pounds per cubic foot, black neoprene coated glass fiber insulation, black fabric faced mineral fiber insulation, or black bonded acoustical cotton insulation. The coated material shall have a flame spread rating not to exceed 25 and a smoke developed rating not to exceed 50 when tested in accordance with ASTM E84. Provide facing without manufacturer's logo or other information printed on the exposed face. Acceptable products or equal:

Owens-Corning; www.owenscorning.com; SelectSound™ Black Acoustic Board
Johns-Manville; www.johnsmanville.com; Insul SHIELD
USG; www.usg.com; SoundZero
Acoustical Surfaces, Inc.; www.acousticalsurfaces.com; Echo Eliminator.

3.7 AUXILIARY INSULATING MATERIALS

- A. Fasteners: Fasteners shall be pneumatically driven fasteners, powder actuated fasteners of concrete stub nails. Fasteners shall be of sufficient length to penetrate at least 1 inch into the masonry substrate.
- B. Duct Tape: As recommended by the insulation manufacturer.
- C. Wire Mesh: Wire mesh shall be hexagonal zinc-coated steel poultry netting having a 1-1/2 inch mesh size and 0.048-inch diameter (18 gage) wire, conforming to ASTM A390.
- D. Line Wires: Soft annealed steel with light zinc coated finish not lighter than 16 gage.

3.8 INSTALLATION OF BATT INSULATION

- A. Install batt insulation in accordance with the manufacturer's recommendations. Install insulation the full height of the walls and between framing members as indicated.

- B. Fully insulate all small areas between closely spaced framing members.
- C. End match neatly with ends fitting snugly or overlapped.
- D. Insulation shall be continuous behind all pipes, lighting switches, convenience outlet boxes, etc. Where pipes are installed in spaces to receive insulation, place insulation between exterior wall and the pipe, compressing insulation if necessary.
- E. Kraft and Foil Faced Blankets: Where possible, recess foil faces 3/4 inch from face of framing members. Tape flanges to metal framing members. Maintain kraft or foil facings intact or patch all tears or holes using plastic tape or other approved means.
 - 1. Between Wood Framing Members: Where insulation is cut to fit small or irregular spaces, form flanges for attachment to framing members. Insert flanged blankets between framing members with facing toward the building interior. Staple flanges to wood framing members at the end of each blanket and not more than 6 inches apart between ends.
 - 2. Between Metal Framing Members: Size insulation to fit tightly between light gage metal framing. Where insulation is cut to fit small or irregular spaces, cut the insulation slightly larger than the space to ensure a tight friction fit. Insert blankets between the studs from the inside face of the wall, recessed slightly from the face of the studs. Where blankets are not adequately supported by friction, attach the blankets with tape, adhesive, 9/16 inch long divergent point staples located at four corners and center of each blanket, or tie wires spaced not more than 36 inches on center.
 - 3. To Concrete or Masonry Walls Deck: Cut insulation to cover walls. Apply adhesive to the wall and set clip fasteners in adhesive. Space fasteners as recommended by the insulation manufacturer. After curing of adhesive, install insulation over fasteners and bend the split prongs flush with the insulation to secure. Butt all edges of insulation and seal edges with tape.
- F. Unfaced Batts and Blankets: Where insulation is cut to fit small or irregular spaces, cut the insulation slightly larger than the space to ensure a tight friction fit. Insert blankets between the studs, recessed slightly from the face of the studs. Where blankets are not adequately supported by friction, attach the blankets with adhesive, 9/16 inch long divergent point staples located at four corners and center of each blanket, or with tie wires spaced not more than 36 inches on center.
- G. Thermal insulation within wood framed roof construction:
 - 1. Type: Fire resistant, kraft-foil faced, mineral fiber batts or blankets except aluminum foil faced mineral fiber batts or blankets may be used where insulation is fully concealed as defined in 2013 California Building code (CBC), Title 24, Part 2, Sec. 720.2.
 - 2. Thickness: As required to obtain an R-value of not less than R-30.
 - 3. Surface Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
 - 4. Installation Method: Stapled to inside face of joists or rafters.
 - 5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
 - a. Where possible, recess foil faces 3/4-inch from face of framing members.

- b. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
 - c. Staple flanges to wood framing members at the end of each blanket and not more than 6-inches apart between ends.

- H. Installation Using Z-Shaped Furring Channels: Erect insulation vertically and hold in place with Z-shaped furring channels spaced 24-inches on center. Except at exterior corners, attach narrow flanges of furring channels to the wall with concrete stub nails, power driven fasteners or pneumatically driven fasteners spaced 24-inches on center. At exterior corners, attach wide flange of furring channel to the wall with the short flange extending beyond the corner. Start from this furring channel with a 3-inch strip of insulation followed by a furring channel installed in the normal manner. At interior corners, place one channel at the corner with a second channel no more than 12-inches from the corner and cut insulation to fit. Hold insulation in place until gypsum board is installed using 10-inch staples field fabricated from 18-gage tie wire and inserted through a slot in the channel. Apply wood blocking around door and window openings and as required for support of fixtures and furnishings. Cut insulation boards as necessary to fit around windows, doors and electrical conduit.

- I. Installation Using U-Shaped Furring Channels: Install the insulation board beginning at one corner with each board butted tightly to form an uninterrupted surface. Cut and fit the board as necessary to accommodate doors, windows and electrical conduit. Position the U-shaped channels in one of the pregrooved areas of the board beginning at the corner. Space studs not more than 24-inches on center. Press the back of the channel nearly flush with the face of the insulation board. Position additional channels around windows and door openings and at outside corners as necessary to provide firm attachment for the gypsum drywall. Drive hardened concrete nails or pneumatically driven fasteners through the channel and insulation board and not less than 1-inch into the substrate. Space fasteners not more than 24-inches on center.

3.9 INSTALLATION OF RIGID INSULATION SYSTEM

- A. General: Install rigid insulation board of the thickness indicated on interior side of framed exterior metal stud walls where indicated, and as detailed.

- B. Black Faced Acoustical Insulation: Install black faced acoustic blanket on drywall plenum areas using impaling pins or appropriate adhesives.
 - 1. When installing insulation with adhesive, follow adhesive manufacturer's recommendations for surface preparation and pattern.
 - 2. When using impaling pins, follow the pin manufacturer's recommendations for surface preparation, location and amount of pins. Pin length should be selected to ensure tight fit.

3.10 AUXILIARY INSULATING MATERIALS

- A. Spindle Anchors:

1. Zinc-coated steel consisting of a perforated base plate with a projecting split prong of appropriate type and length to penetrate the full thickness of the insulation and be bent back flush with the insulation surface.
2. Provide one safety washer with each clip fastener.
3. Adhesive shall be capable of bonding spindle anchors securely to substrates indicated without damaging or corroding insulation, anchors, or substrates. Adhesive shall have a bonding strength of 70-pounds per clip after a 3-day drying time at 70-degrees F and shall have a temperature range of minus 20-degrees to plus 225-degrees F.
4. Fasteners: Acceptable products or equal:

Stic-Klip Mfg. Co.; Type A or B
 Miracle Adhesives Corp.; Miracle Stuk-Ups
 Goodloe E. Moore; Gemco or Tuff-Weld

- B. Metal Furring Strips: Z-shaped members of not lighter than 25-gage steel with inner flange not less than 1-3/8 inches wide knurled to accept drywall screws; or an insulation systems consisting of factory grooved polystyrene insulation boards with serrated U-shaped metal furring channels. Acceptable factory grooved polystyrene insulation and serrated U-shaped metal furring channels system or equal:

W. R. Grace and Co.; Thermo-Stud
 Dow Chemical Co.; TGIF

- C. Fasteners: Fasteners shall be pneumatically driven fasteners, powder actuated fasteners of concrete stub nails. Fasteners shall be of sufficient length to penetrate at least 1-inch into the masonry substrate.
- D. Duct Tape: As recommended by the insulation manufacturer.
- E. Wire Mesh: Wire mesh shall be hexagonal zinc-coated steel poultry netting having a 1-1/2 inch mesh size and 0.048-inch diameter (18 gage) wire, conforming to ASTM A390.
- F. Line Wires: Soft annealed steel with light zinc coated finish not lighter than 16 gage.

3.11 REGULATORY REQUIREMENTS

- A. Fire Performance Characteristics: Where insulation is used within a fire rated wall assembly, provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, in accordance with methods specified below, by UL or other testing and inspecting agency acceptable to State Fire Marshal.
1. Surface Burning Characteristics: As determined by testing identical products according to ASTM E84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 2. Fire Resistance Ratings: ASTM E119.
 3. Combustibility: ASTM E136.

- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.