ADDENDUM

Project: Renovation and Expansion Alpha Zeta Pi Kappa Alpha Fraternity house  Addendum #: 1

Location: 320 Arkansas Avenue, Fayetteville Arkansas  Addendum Date: June 28, 2013

This Addendum forms a part of the Pricing Documents and modifies previous Documents, Specifications, and Drawings pertaining to these items dated 6.20.13. The Construction Manager and Bidders shall notify the Engineer immediately with any discrepancies, or errors found in these documents.

<table>
<thead>
<tr>
<th>Item No</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADD 1.10</td>
<td>Section 00410 – Bid Form</td>
</tr>
<tr>
<td>A. Revise Bid Time from 2:30 pm to 2:00 pm.</td>
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<tr>
<td>B. Revise Bid Date from July 11, 2013 to July 9, 2013.</td>
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<tr>
<td>ADD 1.2</td>
<td>Section 00830 - Prevailing Wage Rates</td>
</tr>
<tr>
<td>A. Add section 030 Prevailing Wage Rates attached to this addendum #1.</td>
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<tr>
<td>ADD 1.3</td>
<td>Section 072100 – Thermal Insulation (Refer to attached revised section; changes are shown in bold red).</td>
</tr>
<tr>
<td>A. Part 1, A. Section Includes:</td>
<td></td>
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<tr>
<td>Delete the following:</td>
<td></td>
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<tr>
<td>2. Glass fiber board insulation.</td>
<td></td>
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<tr>
<td>7. Spray applied cellulose insulation.</td>
<td></td>
</tr>
<tr>
<td>9. Vapor retarders.</td>
<td></td>
</tr>
<tr>
<td>B. Part 2.4 Glass-Fiber Blanket Insulation</td>
<td></td>
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<tr>
<td>Delete D K raft Faced Glass Fiber insulation.</td>
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</tr>
</tbody>
</table>

Drawing Revisions (Note: revisions below are narrative only)

| ADD 1.3 | Drawing C102: |
| A. Grading/Drainage Plan 1/C102 |
| Revise foundation drain notes and perimeter drain notes to “Coordinate 4 inch rigid PVC tie-in connection with total drain drainage system as specified in specification section 071416”.

ADD 1.4 | Structural Sheets Title Block: |
| A. Remove delta A from title block, all structural sheets. |

ADD 1.5 | Drawings: AD102, AD103, AD104, AD105: |
| A. Sleeping Wing Demolition Scope note #9 |
| Revise note #9 – “Existing masonry construction to remain. Remove only those portions of existing masonry specifically noted on the demolition plan. At contractors discretion remove carefully protect and prepare brick for reuse”.

Cyntergy AEC - 320 South Boston - 12th Floor - Tulsa OK 74103 - P 918.877.6000 – F 918-877-4000 - www.cyntergyaec.com
Page 1 of 3
ADD 1.6 Drawing AD105:
A. Sleeping Wing Roof Demolition Plan 1/AD105
   Add note to sleeping wing roof plan; “Remove Zonolite insulating concrete roof deck to structural slab, patch, repair, and prep structural slab for new ground finish as specified”.

ADD 1.7 Drawing A103:
A. Commons Wing Second Floor & Low Roof Plan RE:1/A103
   Remove note “Multi-ply SBS modified Bitumen membrane roof system over ¼” recovery board over tapered polyiso insulation on galv. steel deck” from sheet. RE: A100.5 for roofing requirements.

ADD 1.8 Drawing A104:
A. Commons Wing Roof Plan RE: 1/A104
   Remove note “24”x24” wood tile roof deck on protection board over SBS modified waterproofing SIM. to Siplast “Teranap” above tapered light weight insulated concrete on composite concrete and galv. steel deck” from sheet. RE: A104 & A100.5 Construction Legend for roofing requirements.

ADD 1.9 Drawing A602:
A. Finish Material Key, General Notes RE: A602
   Add General Note #4: “For surface preparation of galvanized metal surfaces to be painted follow MPI #25 – Etching Cleaner. Test a 12 inch radius area using copper sulfate solution prior to applying scheduled finish. During testing process provide the Owner with photo documentation showing removal of anti-corrosion treatment.”

ADD 1.10 Drawing A603:
A. Window Types RE: A603
   Aluminum doors are full lite eliminate 2” horizontal rails on all elevations.

Drawing Revisions (Note: revised drawings are attached to this Addendum #1)

ADD 1.11 Drawing A105:
A. Section Detail @ Brick Ledge RE: 2/A105
   a. Remove termination bar.
   b. Revise note “Apply Tremco Vulkem 350NF continuous from above joint tape & a minimum of 4” over waterproofing to create a moisture barrier over brick shelf and wall to slab joint”.
   c. Revise note “Drainage board over cold fluid applied waterproofing”.

ADD 1.12 Drawing A108:
A. Section at Stair to Commons Wing Roof Looking East RE:3/108
   Add expansion joint detail to section.
B. Section at Stair to Commons Wing Roof Looking West RE:4/A108
   Delete detail 4 on A108.

ADD 1.13 Drawing A303:
A. Section Detail @ Roof Deck Entrance RE:8/A303
   Revise detail as indicated.
ADD 1.14  Drawing A306:
    A. Wall Section Through Foyer West Wall Looking North RE: 1/A306
       Revise detail as indicated.
    B. Wall Section Through Foyer East Wall Looking North RE: 2/A306
       Add Split slab Detail to section.

ADD 1.15  Drawing A401:
    A. Commons Wing South Stair Section Looking North RE: 3/A401
       Revise detail as indicated.
    B. Exterior Stair Detail RE: 6/A401
       Add detail to sheet.

End of Addendum 1
Dear Mr. Eberhard:

In response to your request, enclosed is Arkansas Prevailing Wage Determination Number 12-618 establishing the minimum wage rates to be paid on the above-referenced project. These rates were established pursuant to the Arkansas Prevailing Wage Law, Ark. Code Ann. §§ 22-9-301 to 22-9-315 and the administrative regulations promulgated thereunder.

If the work is subject to the Arkansas Prevailing Wage Law, every specification shall include minimum prevailing wage rates for each craft or type of worker as determined by the Arkansas Department of Labor Ark. Code Ann. § 22-9-308 (b) (2). Also, the public body awarding the contract shall cause to be inserted in the contract a stipulation to the effect that not less than the prevailing hourly rate of wages shall be paid to all workers performing work under the contract. Ark. Code Ann. § 22-9-308 (c).

Additionally, the scale of wages shall be posted by the contractor in a prominent and easily accessible place at the work site. Ark. Code Ann. § 22-9-309 (a).

Also enclosed is a "Statement of Intent to Pay Prevailing Wages" form that should be put in your specifications along with the wage determination. The General/Prime Contractor is responsible for getting this form filled out and returned to this office within 30 days of the Notice to Proceed for this project.

When you issue the Notice to Proceed for this project, please send a copy of the notice to my office.

If you have any questions, please call me at (501) 682-4536 or fax (501) 682-4508.

Sincerely,

Lorna K. Smith
Preventing Wage Division
Arkansas Department of Labor

Prevailing Wage Determination

BUILDING RATES

Date: 6/25/2013

Project: Alpha Zeta Pi Kappa Alpha Fraternity House Renovation and Expansion

Site: University of Arkansas

City: Fayetteville, Arkansas

Project County: Washington

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>Basic Hourly Rate</th>
<th>Fringe Benefits</th>
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<tbody>
<tr>
<td>Asbestos Worker/Insulator</td>
<td>$13.40</td>
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<td>Bricklayer/Pointer, Cleaner, Caulker, Stone Mason</td>
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<td>Carpenter</td>
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<td>Concrete Finisher/Cement Mason</td>
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<td>Elevator Mechanic</td>
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<td>Glazier</td>
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<td>HVACR Mechanic (Excludes Duct Work)</td>
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<td>Millwright</td>
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<td>Plasterer</td>
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<tr>
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<td>Roofer</td>
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<td>Truck Driver</td>
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<td>Waterproofer</td>
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<td>Group 1 - Operator</td>
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<td>Group 3 - Operator</td>
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<td></td>
</tr>
<tr>
<td>Group 4 - Operator</td>
<td>$14.00</td>
<td></td>
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</table>

Welders-receive rate prescribed for craft performing operation to which welding is incidental.

Certified 8/1/2012

Classifications that are required, but not listed above, must be requested in writing from the Arkansas Department of Labor, Prevailing Wage Division. Please call (501) 682-4536 for a request form.
Power Equipment Operators:

**Group I**
Operators engaged in operating the following equipment: Cranes, draglines, shovels and piledrivers with a lifting capacity of 50 tons or over, and operators of all tower climbing cranes and derricks required to work 25 feet or over from the ground, blacksmith and mechanics.

**Group II**
Operators engaged in operating the following equipment or performing work relative to the engineer's jurisdiction: Hydraulic cranes, cherry pickers, backhoes, and all derricks with a lifting capacity less than 50 tons, as specified by the manufacturer, all backhoes, tractor or truck type, all overhead & traveling cranes, or tractors with swinging boom attachments, gradealls all above equipment irrespective of motive power, leverman (engineer), hydraulic or bucket dredges, irrespective of size, trackhoes, excavators.

**Group III**
Heavy Equipment Operators. Operators engaged in operating the following equipment: all bulldozers, all front end loaders, all sidebooms, skytracks, forklifts, all push tractors, all pull scrapers, all motor graders, all trenching machines, regardless of size or motive power, all backfillers, all central mixing plants, 10S and larger, finishing machines, all boiler fireman high or low pressure, all asphalt spreaders, hydro truck crane, multiple drum hoist, irrespective of motive power, all rotary, cable tool, core drill or churn drill, water well and foundation drilling machines, regardless of size, regardless of motive power and dredge tender operator, asphalt paving machines.

**Group IV**
Light Equipment Operators. Operators engaged in operating the following equipment: Oilerdriver motor crane, single drum hoists, winches and air tuggers, irrespective of motive power, winch or A frame trucks, rollers of all types and pull tractors, regardless of size, elevator operators inside and outside when used for carrying workmen from floor to floor and handling building material, Lad-A-Vator Conveyor, batch plant, and mortar or concrete mixers, below 10S, end dump euclid, pumpcrete spray machine and pressure grout machine, air compressors, regardless of size. All light equipment, welding machines, light plants, pumps, all well point system dewatering and portable pumps, space heaters, irrespective of size, and motive power, equipment greaser, oiler, mechanic helper, drilling machine helper, asphalt distributor and like equipment, safety boat operator and deckhand.
STATEMENT OF INTENT TO PAY PREVAILING WAGES

PROJECT:  ALPHA ZETA PI KAPPA ALPHA FRATERNITY HOUSE RENOVATION AND EXPANSION
           UNIVERSITY OF ARKANSAS
           FAYETTEVILLE, ARKANSAS
           WASHINGTON COUNTY

This is to certify that we, the following listed contractors, are aware of the wage requirements of the Arkansas Prevailing Wage Law and by signature below indicate our intent to pay no less than the rates established by Arkansas Prevailing Wage Determination Number 12-618 for work performed on the above noted public project. I understand that contractors who violate prevailing wage laws, i.e., incorrect classification/scope of work of workers, improper payments of prevailing wages, etc., are subject to fines and will be required to pay back wages due to workers.

<table>
<thead>
<tr>
<th>Business Name</th>
<th>Address</th>
<th>Phone#</th>
<th>Signature and Title of Business Official</th>
</tr>
</thead>
<tbody>
<tr>
<td>General/Prime Contractor</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Subcontractor</td>
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<tr>
<td>Mechanical Subcontractor</td>
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<td></td>
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<tr>
<td>Plumbing Subcontractor</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Roofing/Sheet Metal Subcontractor</td>
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</tr>
</tbody>
</table>

THE GENERAL/PRIME CONTRACTOR IS RESPONSIBLE FOR GETTING THIS FORM FILLED OUT AND RETURNING IT TO THE ARKANSAS DEPARTMENT OF LABOR WITHIN 30 DAYS OF THE NOTICE TO PROCEED FOR THIS PROJECT. RETURN COMPLETED FORM TO THE ARKANSAS DEPARTMENT OF LABOR, PREVAILING WAGE DIVISION, 10421 W. MARKHAM, LITTLE ROCK, ARKANSAS, 72205.
SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Foam-plastic board insulation.
2. Glass-fiber board insulation.
7. Spray-applied cellulosic insulation.
8. Spray polyurethane foam insulation.
9. Vapor retarders.
10. Polyisocyanurate Board Insulation

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

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

   a. DiversiFoam Products.
   b. Dow Chemical Company (The).
   c. Owens Corning.
   d. Pactiv Building Products.

2. Type X, 15 psi.
3. Type IV, 25 psi.
4. Type VI, 40 psi.
5. Type VII, 60 psi.
6. Type V, 100 psi.
B. Molded-Polystyrene Board Insulation: ASTM C 578, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. DiversiFoam Products.
   b. Plymouth Foam, Inc.

2. Type I, 10 psi.
3. Type II, 15 psi.
4. Type VIII, 20 psi.

2.2 GLASS-FIBER BOARD INSULATION

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

1. CertainTeed Corporation.
2. Johns Manville.
4. Owens Corning.

B. Glass-Fiber Board Insulation: ASTM C 612, Type IA; foil faced, 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. Nominal density of 2.25 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F.
2. Nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F.
3. Nominal density of 4.25 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F.
4. Nominal density of 6 lb/cu. ft., thermal resistivity of 4.4 deg F x h x sq. ft./Btu x in. at 75 deg F.

2.3 MINERAL-WOOL BOARD INSULATION

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

1. Fibrex Insulations Inc.
2. Isolatex International.
3. Owens Corning.
4. Roxul Inc.
5. Thermafiber.
B. Unfaced, Mineral-Wool Board Insulation: ASTM C 612; with maximum flame-spread and smoke-developed indexes of 15 and zero, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Nominal density of 4 lb/cu. ft., Types IA and IB, thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F.
2. Nominal density of 6 lb/cu. ft., Type II, thermal resistivity of 4.16 deg F x h x sq. ft./Btu x in. at 75 deg F.
3. Nominal density of 8 lb/cu. ft., Type III, thermal resistivity of 4.35 deg F x h x sq. ft./Btu x in. at 75 deg F.
4. Fiber Color: Darkened, where indicated.

C. Foil-Faced, Mineral-Wool Board Insulation: ASTM C 612; faced on one side with foil-scrim or foil-scrim-polyethylene vapor retarder; with maximum flame-spread and smoke-developed indexes of 25 and 5, respectively, per ASTM E 84.

1. Nominal density of 4 lb/cu. ft., Types IA and IB, thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F.
2. Nominal density of 6 lb/cu. ft., Type II, thermal resistivity of 4.16 deg F x h x sq. ft./Btu x in. at 75 deg F.
3. Nominal density of 8 lb/cu. ft., Type III, thermal resistivity of 4.35 deg F x h x sq. ft./Btu x in. at 75 deg F.

2.4 GLASS-FIBER BLANKET INSULATION

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

1. CertainTeed Corporation.
2. Guardian Building Products, Inc.
5. Owens Corning.

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.

C. Polypropylene-Scrim-Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class A (faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier).

D. Kraft-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type II (non-reflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).

E. 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.
F. Foil-Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (reflective faced), Class B (faced surface with a flame-propagation resistance of 0.12 W/sq. cm); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.

G. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide cross ventilation between insulated attic spaces and vented eaves.

2.5 MINERAL-WOOL BLANKET INSULATION

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

1. Fibrex Insulations Inc.
2. Owens Corning.
3. Roxul Inc.
4. Thermafiber.

B. Unfaced, Mineral-Wool Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

C. Reinforced-Foil-Faced, Mineral-Wool Blanket Insulation: ASTM C 665, Type III (reflective faced), Class A (faced surface with a flame-spread index of 25 or less per ASTM E 84); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.

2.6 SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

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

   a. BASF Corporation.
   b. BaySystems NorthAmerica, LLC.
   c. Dow Chemical Company (The).
   d. ERSystems, Inc.
   e. Gaco Western Inc.
   f. Henry Company.
   g. NCFI; Division of Barnhardt Mfg. Co.
   h. SWD Urethane Company.
   i. Volatile Free, Inc.

2. Minimum density of 1.5 lb/cu. ft., thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F.
B. Open-Cell Polyurethane Foam Insulation: Spray-applied polyurethane foam using water as a blowing agent, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. BaySystems NorthAmerica, LLC.
   b. Demilec (USA) LLC.
   c. Gaco Western Inc.
   d. Icynene Inc.
   e. SWD Urethane Company.

2. Minimum density of 0.4 lb/cu. ft., thermal resistivity of 3.4 deg F x h x sq. ft./Btu x in. at 75 deg F.

2.7 Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.

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

4. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
   b. Carlisle SynTec Incorporated.
   c. Dyplast Products.
   d. Firestone Building Products.
   e. GAF Materials Corporation.
   f. Hunter Panels.
   g. Insulfoam LLC; a Carlisle company.
   h. Johns Manville.
   i. Rmax, Inc.

PART 3 - EXECUTION

3.1 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 unless multiple layers are otherwise shown or required to make up total thickness.

3.2 INSTALLATION OF CAVITY-WALL INSULATION

A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face, and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.

1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 042000 "Unit Masonry."

3.3 INSTALLATION OF INSULATION FOR FRAMED CONSTRUCTION

A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

B. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

C. Glass-Fiber or Mineral-Wool Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
5. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
6. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
   a. With faced blankets having stapling flanges, secure insulation by inset, stapling flanges to sides 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.
7. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
   a. Exterior Walls: Set units with facing placed toward exterior of construction as indicated on Drawings.
   b. Interior Walls: Set units with facing placed as indicated on Drawings.

D. Loose-Fill Insulation: Apply according to ASTM C1015 and manufacturer's written instructions. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.
   1. For cellulosic-fiber loose-fill insulation, comply with CIMA's Bulletin #2, "Standard Practice for Installing Cellulose Insulation."

E. Spray-Applied Insulation: Apply spray-applied insulation according to manufacturer's written instructions. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of studs by using method recommended by insulation manufacturer.

F. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
   1. Loose-Fill Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.
   2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.4 INSTALLATION OF INSULATION FOR CONCRETE SUBSTRATES

A. Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
   1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application indicated.
   2. Apply insulation standoffs to each spindle to create cavity width indicated between concrete substrate and insulation.
   3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation below indicated thickness.
   4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

3.5 INSTALLATION OF CURTAIN-WALL INSULATION

A. Install board insulation in curtain-wall construction where indicated on Drawings according to curtain-wall manufacturer's written instructions.
1. Hold insulation in place by securing metal clips and straps or integral pockets within window frames, spaced at intervals recommended in writing by insulation manufacturer to hold insulation securely in place without touching spandrel glass. Maintain cavity width of dimension indicated between insulation and glass.

2. Install insulation where it contacts perimeter fire-containment system to prevent insulation from bowing under pressure from perimeter fire-containment system.

### 3.6 INSTALLATION OF VAPOR RETARDERS

A. Place vapor retarders on side of construction indicated on Drawings. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives or other anchorage system as indicated. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs.

1. Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.

2. Before installing vapor retarders, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing members or other solid substrates.

3. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder fasteners as recommended by vapor-retarder manufacturer.

C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

END OF SECTION 072100