**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Provisions of Division 01 apply to this section.

B. Section Includes:

1. Thermal batt insulation for exterior walls and under roof decks.

2. Thermal batt insulation in furring at concrete or masonry walls.

3. Acoustical batt insulation in partitions and above acoustical ceilings where indicated.

C. Related Sections:

1. Section 05 30 00: Metal Deck.

2. Section 05 41 00: Structural Metal Studs.

3. Section 09 10 00: Metal Support Assemblies.

**1.02 SUBMITTALS**

A. Product Data:

1. Material List: Provide a list of materials for installation under this section.

2. Provide manufacturer's printed Product Data for each type insulation and accessory.

B. Manufacturer's Instructions: Submit manufacturer's printed installation instructions.

C. Certification: Provide certification that insulation materials conform to requirements of CBC Chapter 7, CEC 120.7.

D. Recycled Content: Provide certification that insulation materials contain a minimum of 30 percent recycled materials.

**1.03 QUALITY ASSURANCE**

A. Surface Burning Characteristics: Flame spread rating shall not exceed 25 and smoke density shall not exceed 50 when tested in accordance with ASTM E 84.

B. Comply with following as a minimum requirement:

1. ASTM C 177 - Standard Test Method for Steady-State Heat Flux-Measurements and Thermal Transmission Properties by Means of the Guarded-Heat-Plate Apparatus.

2. ASTM C 518 - Standard Test Method for Steady-State Heat Flux-Measurements and Thermal Transmission Properties by Means of Heat-Flow-Meter Apparatus.

3. ASTM C 665 – Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

4. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

5. ASTM E 119 - Standard Test Method for Fire Tests of Building Construction and Materials.

6. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750º C.

C. CHP Low-Emitting Materials Table: Materials submitted for building insulation must be listed as low emitting on the CHPS website, [www.CHPS.net](http://www.CHPS.net), or must be tested by an independent laboratory to meet CHPS Section 01 81 13. All components of an assembly must meet Section 01 81 13 individually or in an assembly.

**1.04 DELIVERY, STORAGE AND HANDLING**

A. Deliver materials to Project site and store in a safe, dry place, with labels intact and legible at time of installation.

B. Protect building insulation materials from damage.

**1.05 PROJECT CONDITIONS**

A. Avoid exposure to humidity and moisture. Protect from exposure to sunlight.

**PART 2 - PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

A. Owens Corning.

B. Johns Manville.

C. CertainTeed Corporation.

**2.02 MATERIALS**

A. General:

1. Provide Unfaced, friction-fit batt insulation where both sides of installation are enclosed

2. Provide batt insulation with integral vapor barrier when one side of installation will be unenclosed.

3. Provide batt insulation with integral vapor barrier where at least one side of installation will be exposed to high humidity, such as showers.

4. Recycled content shall be a minimum of 30 percent.

B. Thermal Insulation:

1. Unfaced Mineral Fiber Batt Insulation: Provide friction-fit, unfaced mineral fiber batts. Insulation shall consist of mineral fibers, glass or slag, and thermosetting resins complying with ASTM C 665, Type I.

2. Faced Mineral Fiber Batt Insulation: Provide mineral fiber batts with vapor barrier consisting of mineral fibers, glass or slag, and thermosetting resins complying with ASTM C 665, Type III, Class A, with vapor-retardant membrane facing.

C. Acoustic Insulation: Fiberglass batts, with or without facing, friction fit, incombustible, minimum 3‑1/2" thickness unless otherwise indicated, nominal 0.65 to 2.50 pcf density.

D. Fasteners for Attaching Insulation to Wood Framing:

1. For faced batt insulation provide one of following types of staples: Stainless steel, monel, or copper-coated steel, size as required by manufacturer or applicable code.

2. For un-faced batt insulation provide 18 gage, minimum, galvanized steel wire where required to maintain proper insulation placement.

E. Fasteners for Attaching Insulation to Underside of Metal Roof Decks:

1. Spindle Anchors: Stic-Klip Mfg. Co., Type A or B as required, with Type S adhesive; Miracle Adhesives Corp. "Miracle StukUps" with Type HT994 adhesive; or Goodloe E. Moore Gemco or Tuff-Weld with G-P Improved or Tuff-Bond Quik-Set Type Adhesive as applicable; or equal. Provide adhesives of correct type for substrates and type of anchor.

2. String Wires: Minimum 18 gage galvanized steel wire.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

A. Examine Work to verify suitability to receive insulation. Do not proceed until unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

A. General:

1. Fit batt insulation, of R-value indicated on Drawings, snugly between framing members.

2. Maintain total insulation integrity over entire area to be insulated, including areas between closely spaced members.

3. Extend full thickness insulation over entire area to be insulated. Furnish manufacturer's recommended clips to tightly fit batts at joints.

4. Cut and fit batt insulation tightly around pipes, conduits and penetrations.

5. Do not compress batt insulation in excess of 10 percent (R-19 may be installed in 2x6 stud walls).

6. Prevent batt insulation from sagging during and after installation by installing adequate wire.

7. Metal door and window frames in acoustically insulated walls shall be filled with insulation, unless otherwise indicated.

8. Where vapor barrier is provided, install with vapor barrier facing room.

a. Batts In Metal Framing: Provide friction-fit batts tightly fitted to stud webs and to metal furring.

b. Batts Under Metal Roof Decks where underside of insulation will be exposed install foil-faced flanged-type insulation batts and staple flanges together at maximum 4" centers and seal joints at abutting vertical surfaces with a pressure-sensitive plastic tape. Where underside of insulation will be inaccessible, install secure with spindle anchors. Provide 18 gage galvanized string wires under batts wherever necessary to prevent sagging. Stretch wire taut.

c. Batts In Horizontal or Sloped Applications: Provide tightly stretched string wires along center of horizontal or sloping batts where support spacing exceed 16" on centers.

d. Batts in Ceiling Framing: Install batts between joists, so top of insulation is level with top of framing members. Do not install insulation over recessed lighting fixtures, speakers, or other heat producing elements in ceilings. At junction boxes, access panels, and other items requiring access from above or below ceiling, cut insulation on each side to fit item and install loosely on top. Fit insulation snugly around ducts, conduits, pipes, and other items projecting through ceiling construction.

**3.03 PROTECTION**

A. Protect Work of this section until Substantial Completion.

**3.04 CLEANUP**

A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

**END OF SECTION**