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# SECTION 07 21 00 THERMAL INSULATION

**PART 1 GENERAL**

* 1. SUMMARY
     1. Section Includes: Fiberglass thermal and acoustical insulation for use in multi-family construction in concealed spaces between floors (JM Formaldehyde-free Cavity-SHIELD Fiberglass Batts).
     2. Related Sections:
        1. Division 7: Section - Joint Sealants.
        2. Division 9: Section - Gypsum Board.
        3. Division 9: Section - Acoustical Ceilings.
        4. Division 21: Fire Suppression
        5. Division 22: Plumbing
        6. Division 23: Heating, Ventilating, and Air Conditioning
  2. REFERENCE STANDARDS

1. ASTM International:
   1. ASTM C165 Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
   2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   3. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
   4. ASTM C1104 Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
   5. ASTM C1304 Standard Test Method for Assessing the Odor Emission of Thermal Insulation Materials.
   6. ASTM C1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
   7. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
   8. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
   9. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
   10. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
   11. ASTM E736 Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
   12. ASTM E759 Standard Test Method for Effect of Deflection on Sprayed Fire-Resistive Material Applied to Structural Members.
   13. ASTM E970 Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.
2. National Fire Protection Agency:
   1. NFPA 13 Standard for the Installation of Sprinkler Systems.
3. California Integrated Waste Management Board (CIWMB):
4. Leadership in Energy and Environmental Design (LEED):
   1. SUBMITTALS
5. General: Submit listed submittals in accordance with provisions of Section 01 30 00 Administrative Requirements.
6. Product Data: Submit manufacturer’s product data, performance criteria, and installation instructions.
7. Samples: Submit manufacturer’s standard selection and verification samples.
8. Quality Assurance/Control Submittals:
   1. Test Reports: Upon request, submit [Fire] [Sound] [And] [Thermal] test reports from recognized test laboratories.
   2. Certificates: Submit manufacturer’s certificate that products meet or exceed specified requirements.
9. LEED Submittals: Provide documentation indicating how the requirements will be met.
   1. QUALITY ASSURANCE
10. Obtain each type of building insulation through a single source.
11. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity.
12. Regulatory Requirements and Approvals:
    1. National Fire Protection Agency (NFPA)
       1. NFPA 13 Standard for the Installation of Sprinkler Systems
    2. DELIVERY, STORAGE & HANDLING
13. General: Comply with Division 1 Product Requirement Section.
14. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.
15. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
16. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

# PART 2 PRODUCTS

* 1. FORMALDEHYDE-FREE™ BUILDING INSULATION
     1. Manufacturer: Johns Manville.
        1. Contact: 717 17th Street 80202, Denver, CO 80217-5108; Telephone: (303) 978-2434; E-mail: Jeffrey.job@jm.com; website: [www.JM.com.](http://www.specJM.com/)
     2. Fiberglass batt insulation for use in multi-family construction in concealed spaces between floors: Flexible preformed batt, friction fit.
        1. JM Formaldehyde-free Cavity-SHIELD Fiberglass Batts:
           1. Material Standard: ASTM C665, Type I.
           2. Thermal Resistance (R-Value) (ASTM C518): [Specify R-value].
           3. Thickness: [Specify thickness].
           4. Combustion Characteristics (ASTM E136): Pass.
           5. NFPA 13: Section 9.2.1 compliant
           6. Critical Radiant Flux (ASTM E970): Greater than 0.11 Btu/ft2 × s (0.12 W/cm2).
           7. Water Vapor Sorption (ASTM C1104): 5% or less.
           8. Odor Emission (ASTM C1304): Pass.
           9. Corrosiveness (ASTM C665): Pass.
           10. Fungi Resistance (ASTM C1338): Pass.
           11. Flame Spread Index (ASTM E84): 25, maximum.
           12. Smoke Developed Index (ASTM E84): 50, maximum.
           13. Recycled Content: Certified by Scientific Certification Systems to contain minimum of 30% post-consumer on average of manufacturer’s products.
           14. GREENGUARD GOLD Certification.
  2. PRODUCT SUBSTITUTIONS:

1. Substitutions: No substitutions permitted.
   1. ACCESSORIES
2. Insulation Fasteners (optional):
   1. Lengths of unfinished, 13 gage (0.072 inch) high carbon spring steel with chisel or mitered tips, held in place by tension, length to suit insulation thickness and substrate, capable of securely supporting insulation in place.

# PART 3 EXECUTION

* 1. MANUFACTURER’S INSTRUCTIONS
     1. Comply with the instructions and recommendations of the building insulation manufacturer.
  2. EXAMINATION

1. Site Verification of Conditions:
   1. Verify that site conditions are acceptable for installation of building insulation.
   2. Do not proceed with installation of building insulation until unacceptable conditions are corrected.
   3. PREPARATION
2. Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
   1. INSTALLATION
3. General: Comply with insulation manufacturer's written instructions applicable to products and application indicated.
   1. Install insulation that is undamaged, dry and unsoiled and that has not been left exposed at any time to ice and snow.
   2. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
   3. Install insulation in thickness indicated to envelop entire cavity volume to be insulated. Cut and fit tightly around obstructions and fill voids to ensure uniform depth and coverage within cavity space.
   4. Apply multiple layers of insulation as needed to completely fill height of cavity space.
   5. NFPA 13 allows for a maximum 2 inch air gap between insulation and subfloor – install insulation at proper density to ensure material does not exceed 2 inch allowance.
   6. Maintain acoustical rating of assembly as required per applicable building code.
   7. PROTECTION
      1. Protect installed work from damage due to subsequent construction activity on the site. Repair damage to installed products prior to installation of finish materials.

# END OF SECTION