SECTION 07210CP -- BUILDING INSULATION

PART 1 - GENERAL

1.01 This Section includes batt insulation and vapor barrier in exterior wall construction, expanding foam insulation, insulation for filling perimeter window crevices in exterior wall, acoustic batt insulation for interior partitions and board insulation at cavity wall, perimeter foundation wall and underside of floor slabs.

1.02 This section shall include thermal and acoustical insulation. It shall not include waterproofing.

1.03 All insulation materials shall be specified to comply with the fire retardance/resistance requirements of Section 12000CP Furnishings, Fabrics, & Seating[1], and submittals shall substantiate this compliance specifically.

1.03 Reference standards include the American Society for Testing of Materials (ASTM), the National Fire Protection Association (NFPA) and Underwriter's Laboratory (UL).

1.04 Data shall be provided on product characteristics, performance criteria, limitations and manufacturer's installation instructions indicating preparation, requirements and techniques.

1.05 Work shall be coordinated with related sections for installation of thermal, vapor and air barrier seals.

1.06 All interior partitions shall be acoustically insulated with particular attention to offices, dormitory rooms and rooms with special audio / visual requirements or equipment. The following shall be the minimum sound isolation requirement (Sound Transmission Class (STC) rating) for all paths (walls, ceilings and floors) between the source and the receiver:

Source room	Reciever Room	Minimum STC rating
Confidential Offices	Adjacent Offices	STC 50 – 55
Normal Offices	Adjacent Offices	STC 45 – 50
General offices	Corridors, lobbies	STC 40 – 45
Mechancal Equip. Rooms	Any Spaces	STC 50 – 60+
Bedrooms	Bedrooms	STC 48 – 55
	Bathrooms	STC 52 – 58
	Kitchens	STC 52 – 58

[1] Listing of related sections is for convenience and is not all-inclusive. Affected sections or drawings where specific design requirements are to be specified, or related sections where applicable Brown Guidelines may appear, are indicated. 00100 sections means all related 00100 sections including any sections from 00100 through 00199.

Source room	Reciever Room	Minimum STC rating
	Living Rooms	STC 48 – 55
	Corridors	STC 52 – 58
Living Rooms	Living Rooms	STC 48 – 55
	Bathrooms	STC 50 – 57
	Kitchens	STC 48 – 50
Classrooms	Adjacent Classrooms	STC 50
	Laboratories	STC 50
	Corridors	STC 45
Music or Drama	Adj. Music or Drama	STC 60
Music Practice	Music Practice	STC 55

The use of a qualified acoustical consultant to assist in the design of construction details shall be required for critical areas and occupancies.

1.07 All mechanical and utility penetrations and chases shall be acoustically insulated.

1.08 RELATED WORK[2]

A. Section 00100 General Conditions for as-built samples
B. Section 07190 Water Repellants
C. Section 12000CP Furnishings, Fabrics, & Seating

PART 2 - PRODUCTS

2.01 Insulation shall be used which meets current performance requirements and which, at a minimum, provides the insulating value required by all applicable building and energy codes. No R-value per inch must be specified; instead, all current energy codes shall be met as well as specific Brown University energy requirements.

2.02 The following manufacturers of insulation shall be used unless otherwise approved by a Brown University Project Manager:

U.S. GYPSUM
OWENS-CORNING
JOHNS MANVILLE
ICYNENE

2.03 MATERIALS

[2] Listing of related sections is for convenience and is not all-inclusive. Affected sections or drawings where specific design requirements are to be specified, or related sections where applicable Brown Guidelines may appear, are indicated. 00100 sections means all related 00100 sections including any sections from 00100 through 00199.

A. Foam Board Insulation: Extruded polystyrene shall be used, expanded polystyrene is not allowed. Do not use or specify any foam insulation which is produced with CFC (chlorofluorocarbon) blowing agents that can damage the Earth's ozone layer. Consider the potential for recyclability when choosing foam insulation for any application where the foam may need to be discarded in the future.

B. Expanding foam insulation: Semi-rigid spray applied foam consisting of a two-component, open celled, spray applied polyurethane or polyisocyanate MDI foam system. Do not use or specify any foam insulation which is produced with CFC (chlorofluorocarbon) blowing agents that can damage the Earth's ozone layer.

B. Exterior Wall Batt Insulation: Preformed glass fiber batt. Batt insulation is available with combustible vapor barrier facings; Class A facings are available and should be used if possible. Batt Insulation must be held securely in place as it is flexible and may sag in areas. Kraft-faced shall be used on the interior side to assist in installation only and shall not be considered an adequate vapor barrier.

C. Interior Acoustic Insulation: Thermafiber Sound Attenuation Fire Blanket (SAFB) mineral fiber blanket insulation weighing 2.5 pounds pcf, in thicknesses as required to fill the cavities.

C. Vapor Barriers: Minimum 6 mil. Polyethalene sheet.

D. Sill Seal: Sill Seal Gaskets of ¼" to ½" thick by width as required ribbed polyethylene foam as a protective air infiltration barrier between the sill plate and the foundation wall shall be specified at new construction.

2.04 Internal duct lining shall not be allowed; only external duct lining shall be used.

PART 3 - EXECUTION

3.01 ENVIRONMENTAL REQUIREMENTS:

A. Comply with manufacturer's environmental requirements for storage, handling and installation.

3.02 Insulation shall be installed in exterior walls, roof and ceiling spaces without gaps or voids and trimmed to fit neatly and tightly in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.

3.03 When using expanding foam insulations, care shall be taken not to disrupt or displace other building components.

3.04 Acoustical insulation shall be in a contiuous manner with tightly butted joints and extend to the abutting structure. Install acoustic sealant at all joints of the partitions including concealed joints and around all items that penetrate the partitions including electrical recepticals, piping, etc.

3.05 Install insulation and vapor barrier in accordance with insulation manufacturer's instructions and Section 07190.

3.06 Vapor barriers shall be placed on the warm side of the insulation. Vapor and air barriers must be continuous and undamaged to function properly. Seams, penetrations for utilities and other similar critical areas shall be sealed tightly. Vapor and air barriers shall be extended tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane and shall be lapped, taped and sealed in place. Tears or cuts in the membrane shall be tape sealed. Tape seal butt ends, and lapped flanges.

END OF SECTION