

Plasti-Fab Design Manual

Roof & Deck Insulation Specifications



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Specification: Roof and Deck Insulation

DISCLAIMER: The information in this specification is organized and presented to assist the designer/specifier working on a Canadian construction project in selecting the appropriate product and to save time in writing the project specific specification section. The designer/specifier is responsible for product selection as well as the use and application of this information, and should contact the manufacturer to ensure that types, finishes, etc are available in Canada and that the associated specification information is valid and correct.

1 GENERAL

1.1 SECTION INCLUDES

SPEC NOTE: List significant generic types of products, work or requirements specified.

- .1 This Section specifies expanded polystyrene rigid insulation board for roof and deck applications.

1.2 RELATED SECTIONS

SPEC NOTE: List statements that draw the reader's attention to other specification sections dealing with work directly related to this Section.

- .1 Section 07510 - Built-Up Bituminous Roofing.
- .2 Section 07530 - Elastomeric Membrane Roofing: Ethylene propylene diene monomer (EPDM) roofing.
- .3 Section 07540 - Thermoplastic Membrane Roofing: Polyvinyl chloride (PVC) roofing.
- .4 Section 07550 - Modified Bituminous Membrane Roofing.
- .5 Section 07560 - Fluid-Applied Roofing

1.3 REFERENCES

SPEC NOTE: List standards referenced in this Section, complete with full designations, titles and dates. Edit the following lists and delete standards not required for the specific project.

- .1 ASTM International (ASTM)
 - .1 ASTM C 578-01, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - .2 ASTM E 84-01, Standard Test Method for Surface Burning Characteristics of Building Materials.
 - .1 Plasti-Fab BuildSelect 2003 Datasheet Section 07220 - Roof and Deck Insulation.
 - .2 BuildSelect, Reed Construction Data.

- .3 FM Global Technologies, LLC (FM Approvals)
 - .1 FM Approval Guide for Building Materials, 2002.
- .4 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S107, Fire Tests of Roof Coverings.
 - .2 CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Cover.
 - .3 ULC List of Equipment and Materials, March 2000.

1.4 SYSTEM DESCRIPTION

- .1 Performance requirements: Provide EPS rigid insulation board manufactured and installed to [Plasti-Fab's] [manufacturer's] stated performance criteria without defects, damage or failure

1.5 SUBMITTALS

SPEC NOTE: Include requests for relevant data to be furnished by the Contractor, before, during or after construction.

- .1 Product data: Submit [Plasti-Fab's] [manufacturer's] printed product literature, specifications and [Plasti-Fab BuildSelect 2003 Datasheet Section 07220 - Roof and Deck Insulation] [datasheet] in accordance with Section 01330 – Submittal Procedures.
- .2 Shop drawings: Submit shop drawings in accordance with Section 01330 - Submittal Procedures.
 - .1 Indicate board orientations, direction of slope, ridge and valley angles and drain locations.
- .3 Samples: Submit samples in accordance with Section 01330 - Submittal Procedures.
 - .1 Submit 304.8 mm (12") long pieces of insulation.
- .4 Third party certification: Provide proof of [Plasti-Fab] [manufacturer] participation in recognized third party certification program to assure conformance with specified performance characteristics and physical properties in accordance with Section 01300 - Submittal Procedures.

SPEC NOTE: Specify which test reports are required and identify material to which they are to apply.

- .5 Test reports: Submit test reports for [thermal resistance,] [compressive strength,] [flexural strength,] [water vapour permeance,] [compliance with requirements for fire-rated roof assemblies].
- .6 Product evaluations: Submit copy of current Canadian Construction Materials Centre (CCMC) evaluation listings for [PlastiSpan type 1 insulation] [PlastiSpan HD Type 2 insulation] [PlastiSpan Type 3 insulation] [Type [] insulation].

SPEC NOTE: Include standards, limitations and criteria that establish an overall level of quality for products and workmanship for this Section. Co-ordinate with Section 01430 - Quality Assurance.

1.6 QUALITY ASSURANCE

- .1 Installer: Company or person specializing in roof and deck insulation installations [with [5]-years [documented] experience] [approved by Plasti-Fab] [materials manufacturer].

SPEC NOTE: Describe requirements for meetings to co-ordinate materials and techniques, and to sequence related work.

1.7 PRE-INSTALLATION MEETINGS

- .1 Pre-installation meetings: Conduct pre-installation meeting [one week] prior to commencing [work of this Section] [and] [on-site installations] to verify project requirements, conditions and co-ordination with other building subtrades, and to review [Plasti-Fab's] [manufacturer's] installation instructions and warranty requirements. Comply with Section 01310 – Project Management and Co-ordination, Project Meetings.

SPEC NOTE: Specify special and unique packing, shipping or handling instructions, and special measures needed to prevent damage to products prior to application or installation. Co-ordinate with Section 01650 - Product Delivery Requirements or Section 01660 - Product Storage and Handling Requirements.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle in accordance with Section 01610 - Basic Product Requirements.
- .2 Comply with [Plasti-Fab's] [manufacturer's] recommendations for handling, storage and protection.
- .3 Protect insulation from physical damage. Provide adequate protection of materials and work of this trade from damage by weather, traffic and other causes.
- .4 Protect insulation material from prolonged exposure to sunlight (more than 1 week). Store under light-coloured tarpaulins. Secure stored product against movement from wind storms at storage location.

1.9 WASTE MANAGEMENT AND DISPOSAL

SPEC NOTE: Include the following Articles to specify information that will provide direction to the Contractor for the disposal of construction waste materials using environmentally responsible methodology other than landfill resources.

- .1 Deposit packaging materials in designated container on site for recycling or reuse.

SPEC NOTE: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Dispose of corrugated cardboard, polystyrene, and plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .4 Fold up metal and plastic banding, flatten and place in designated area for recycling.

SPEC NOTE: Co-ordinate this Article with CCDC 2 and Section 01780 - Closeout Submittals, Product Warranties. Consult with Plasti-Fab for specific warranty requirements.

1.10 WARRANTY

- .1 Project warranty: Refer to CCDC 2 for project warranty provisions.
- .2 Manufacturer's warranty: Submit, for Owner's acceptance, [Plasti-Fab's] [manufacturer's] standard warranty document executed by authorized company official. [Plasti-Fab's] [manufacturer's] warranty is in addition to and not intended to limit rights Owner may have under Contract Conditions.

SPEC NOTE: Co-ordinate this Article with manufacturer's warranty requirements. Plasti-Fab offers a normal 20-year insulation warranty from time of purchase. See Plasti-Fab BuildSelect 2003 Datasheet Section 07220 - Roof and Deck Insulation for details. Consult with Plasti-Fab for specific warranty details and provisions.

2 PRODUCTS

SPEC NOTE: For information on PlastiSpan roof and deck insulation, its physical, chemical, performance and dimensional attributes, refer to Plasti-Fab BuildSelect 2003 Datasheet Section 07220 - Roof and Deck Insulation (also available on the Web at www.buildcore.com/plas22se.htm), the manufacturer's architectural catalogue or visit the Plasti-Fab's Web site at www.plastifab.com where you can view the information on line or download it and read at your convenience.

2.1 MANUFACTURERS

- .1 Plasti-Fab, 3015 - 5 Ave NE, #270, Calgary, AB T2A 6T8; Toll-Free Phone: 888-446-5377, Phone: 403-248-9306; Fax: 403-248-9325; E-mail: mailbox@plastifab.com; Web site: www.plastifab.com.

2.2 MATERIALS

SPEC NOTE: Select insulation type and thickness based upon thermal resistance and loading requirement for application. Use CAN/ULC-S701, Type 1 or ASTM C 578-01, Type I where roof system will be subject to normal superimposed loads, such as ballasted single-ply roofing subject to pedestrian traffic. Use CAN/ULC-S701, Type 2 or ASTM C 578-01, Type VIII or II where roof system will be subject to heavier than normal superimposed loads. Use CAN/ULC-S701, Type 3 or ASTM C 578-01, Type IX where roof system will be subject to significantly heavier than normal superimposed loads.

- .1 Expanded polystyrene (EPS): Roof system subjected to normal superimposed loads:
 - .1 To CAN/ULC-S701, Type 1, thermal resistance: RSI of 0.65 per 25 mm (R-3.75 per inch).
 - .2 To ASTM C 578, Type I, thermal resistance: RSI of 0.63 per 25 mm (R-3.6 per inch).
 - .3 CFC free, board thickness [____ mm (____")]
[as indicated], edges [____], [tapered to provide [1] [2] % slope].

SPEC NOTE: Use the following Article to indicate manufacturer's name, address, product name, model number, style number or other product identifier, as well as means of contacting manufacturer, if not listed elsewhere.

- .4 Acceptable material: PlastiSpan insulation board, manufactured by Plasti-Fab.
- .2 Expanded polystyrene (EPS): Roof system subjected to heavier than normal superimposed loads:
 - .1 To CAN/ULC-S701, Type 2, thermal resistance: RSI of 0.70 per 25 mm (R-4.04 per inch).

SPEC NOTE: Use the following Article to indicate manufacturer's name, address, product name, model number, style number or other product identifier, as well as means of contacting manufacturer, if not listed elsewhere.

- .1 Acceptable material: PlastiSpan HD insulation board, manufactured by Plasti-Fab.
- .2 To ASTM C 578:
 - .1 Type II, thermal resistance: RSI of 0.70 per 25 mm (R-4.0 per inch).
 - .2 Type VIII, thermal resistance: RSI of 0.67 per 25 mm (R-3.8 per inch).

SPEC NOTE: Use the following Article to indicate manufacturer's name, address, product name, model number, style number or other product identifier, as well as means of contacting manufacturer, if not listed elsewhere.

 - .1 Acceptable material: PlastiSpan insulation board, manufactured by Plasti-Fab.
 - .3 CFC free; board thickness [____ mm (____")]
[as indicated], edges [____], [tapered to provide [1] [2] % slope].

- .3 Expanded polystyrene (EPS): Roof system subjected to significantly heavier than normal superimposed loads:

- .1 To CAN/ULC-S701, Type 3, thermal resistance: RSI of 0.74 per 25 mm (R-4.27 per inch).
- .2 To ASTM C 578, Type IX, thermal resistance: RSI of 0.74 per 25 mm (R-4.2 per inch).
- .3 CFC free, board thickness [____ mm (____")]
[as indicated], edges [____], [tapered to provide [1] [2] % slope].

SPEC NOTE: Use the following Article to indicate manufacturer's name, address, product name, model number, style number or other product identifier, as well as means of contacting manufacturer, if not listed elsewhere.

- .4 Acceptable material: PlastiSpan insulation board, manufactured by Plasti-Fab.

2.3 ADHESIVES

SPEC NOTE: Any adhesive used in contact with polystyrene insulation must be recommended by the manufacturer as suitable for use with expanded polystyrene insulation.

- .1 Compatible with expanded polystyrene (EPS) insulation.

2.4 THERMAL BARRIER BOARDS

- .1 In compliance with requirements contained in [National Building Code,] [Provincial Building Code,] [approved roof system].

2.5 FASTENERS

SPEC NOTE: Check fastening requirements with Plasti-Fab. Proprietary fasteners may be required.

- .1 Insulation to substrate: Fasteners and plates to meet [Plasti-Fab's] [manufacturer's] recommendations.

3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with [Plasti-Fab's] [manufacturer's] written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and [Plasti-Fab BuildSelect 2003 Datasheet Section 07220 - Roof and Deck Insulation] [datasheet].

3.2 PREPARATION

- .1 Sweep areas to receive roof insulation clean prior to commencing insulation work.

3.3 INSTALLATION

SPEC NOTE: Refer to the Plasti-Fab application instructions contained in the following PlastiSpan brochures for Roof & Deck Insulation: Selection, Application and Specification; Sloped Roof Insulation; Built Up Roofing; Single Ply Roofing; Modified Bitumen Roofing; Fire Rated Roof Assemblies; Standing Seam Roofing; and Cathedral Ceilings.

- .1 Apply roof insulation in accordance with reviewed shop drawings.

SPEC NOTE: The following Article is intended for use with roof assemblies requiring an Underwriters' Laboratory of Canada (ULC) fire resistance for a specific length of time as per CAN/ULC-S101 (fire exposure originating within the structure).

- .2 Apply insulation boards to comply with ULC Design Numbers R210 or R220 as per ULC List of Equipment and Materials and with [Plasti-Fab's] [insulation manufacturer's] installation requirements.
- .3 Install thermal barrier to metal deck [in accordance with CAN/ULC-S107].
 - .1 Install insulation boards at right angles to run of deck.
 - .2 Butt boards snugly together.
 - .3 Apply membrane in accordance with [Plasti-Fab's] [manufacturer's] requirements and [to conform to appropriate ULC Class A fire-rated roof assembly] [selected roof assembly listed in FM Approval Guide for Building Materials].

SPEC NOTE: Use the following Article when insulation boards are to be applied in multiple layers.

- .4 Install roof insulation in two layers, with joints of top layer staggered in both directions with joints of layer below.

3.4 TAPERED INSULATION INSTALLATION

SPEC NOTE: Co-ordinate embedment, application procedures and requirements with project's roofing sections to avoid duplication and conflicts.

- .1 Co-ordinate installation of tapered insulation with specification requirements in roofing Section [07510 - Built-up Bituminous Roofing] [_____].
- .2 Install tapered insulation as [first] [second] insulation layer, in accordance with shop drawings. Stagger joints between layers 152.4 mm (6") minimum.
- .3 Taper insulation board at roof drains for minimum of 1219.2 mm (4') beyond opening.
- .4 Provide [1] [2] % slope with tapered roof insulation.

3.5 FIELD QUALITY CONTROL

SPEC NOTE: Use the following Articles only when manufacturer's field services are desired to verify the quality of the installed components. Establish the number and duration of periodic site visits required by Plasti-Fab and specify below. Consult with Plasti-Fab for services required. Delete if field services are not required.

- .1 Have [Plasti-Fab] [manufacturer of products supplied under this Section] review work involved in handling, installation/application, protection and cleaning of its product[s], and submit written reports, in acceptable format, to verify compliance of work with Contract.
- .2 Manufacturer's field services: Provide [Plasti-Fab's] [manufacturer's] field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with [Plasti-Fab's] [manufacturer's] instructions.
- .3 Schedule site visits to review work at stages listed:
 - .1 After delivery and storage of products, and when preparatory work on which the work of this Section depends is complete, but before installation begins.
 - .2 [Twice] during progress of work at [25%] and [60%] complete.
 - .3 Upon completion of the work, after cleaning is carried out.
 - .4 Obtain reports within [three] days of review and submit immediately to Consultant.

3.6 CLEANING

- .1 Remove temporary coverings and protection to adjacent work areas. Repair damage to installed products.
- .2 Remove construction debris from project site and legally dispose of debris.

END OF SECTION ROOF & DECK INSULATION SECTION 07220