

ENERTITE 1-2-1 by BASF Canada Inc, is a thermal insulation intended for building enclosures, located in appropriate assembly locations in buildings during enclosure construction. This section includes on site (in situ) applied polyurethane foam, by spray, primarily for use as thermal insulation, supplied by BASF Canada Inc. This specification includes components required by the spray polyurethane foam (SPF) manufacturer for the foam application.

Building code regulations often require a fire protective coating or cover over this insulation type, if left exposed, often referred to as a 15-minute Thermal Barrier.

NOTE: This material is not intended to be used for roofing applications. This section includes proprietary and descriptive type specifications; edit text to avoid conflicting requirements.

For more information, refer to our technical webpage on: www.walltiteeco.com

Part 1 General

1.1 SECTION INCLUDES

In this article, select the components or assemblies that are intended to be part of the content of this section and will not be included in other sections.

- .1 Foamed-in-place polyurethane [in masonry cavity walls] [in interior framed walls] [to locations indicated], intended to function as an air barrier assembly to and provide thermal protection.

1.2 RELATED SECTIONS

In this article, indicate those other sections that inter-rely on this section. The listing below is only partial and should be edited to include those sections specific to the project that describes subjects or products affecting this section directly.

- .1 Section [04 26 16 - Veneer Masonry] [____]: Cavity wall flashings.
- .2 Section [04 27 23 - Cavity Wall Unit Masonry] [____]: Wall construction.
- .3 Section 07 26 00 - Vapour Retarders: Materials continuing the vapour seal.
- .4 Section 07 27 00 - Air Barriers: Materials continuing the air barrier seal.

1.3 REFERENCES

Edit this article after editing the rest of this section. Only list reference standards below, that are included within the text of this section, when edited for a project specification - delete other references that do not apply.

- .1 ASTM C411-05 - Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
- .2 ASTM C518-10 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

THIS MASTER SPECIFICATION IS A GUIDE ONLY AND MUST BE REVIEWED AND MODIFIED AS REQUIRED TO SUIT INDIVIDUAL PROJECT CONDITIONS. IT IS THE RESPONSIBILITY OF THE ARCHITECT, ENGINEER AND/OR DESIGN PROFESSIONAL, AS APPLICABLE, TO ENSURE THE ACCURACY AND COMPLETENESS OF THE SPECIFICATIONS ISSUED. WALLTITE ECO v.2 MUST BE APPLIED BY PERSONNEL TRAINED AND QUALIFIED BY BASF AND IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES, REGULATIONS AND GUIDELINES.

- .3 ASTM C1338-08 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- .4 ASTM D1622-08 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- .5 ASTM D2126-09 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- .6 ASTM D2369-10, Standard Test Method for Volatile Content of Coatings.
- .7 ASTM D2842-06 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.
- .8 ASTM E96/E96M-10 - Standard Test Methods for Water Vapor Transmission of Materials.
- .9 CAN/ULC S102-10 - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .10 CAN/ULC S127-07 - Standard Corner Wall Method of Test for Flammability Characteristics of Non-Melting Building Materials.
- .11 ASTM E2178-03 Standard Test Method for Air Permeance
- .12 Canadian Construction Materials Center (CCMC) Evaluation Report CCMC 13489-R

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Section [01 31 00] [____]: Project management and coordination procedures.
- .2 Coordination:
 - .1 Coordinate with other work having a direct bearing on work of this section.
 - .2 Coordinate work to ensure timely placement of insulation within construction spaces.
- .3 Pre-installation Meetings: Convene [one (1)] [____] week before starting work of this section.

1.5 SUBMITTALS FOR REVIEW

- .1 Section [01 33 00] [____]: Submission procedures.
- .2 Sprayed polyurethane foam (SPF) installer certificate: Submit name of SPF installer with copy of certification card verifying that the SPF installer is licensed by the source manufacturer.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed [specified requirements] as evidenced by a current CCMC Evaluation Report.

THIS MASTER SPECIFICATION IS A GUIDE ONLY AND MUST BE REVIEWED AND MODIFIED AS REQUIRED TO SUIT INDIVIDUAL PROJECT CONDITIONS. IT IS THE RESPONSIBILITY OF THE ARCHITECT, ENGINEER AND/OR DESIGN PROFESSIONAL, AS APPLICABLE, TO ENSURE THE ACCURACY AND COMPLETENESS OF THE SPECIFICATIONS ISSUED. WALLTITE ECO v.2 MUST BE APPLIED BY PERSONNEL TRAINED AND QUALIFIED BY BASF AND IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES, REGULATIONS AND GUIDELINES.

- .4 Product Data: Provide product description, insulation properties, preparation requirements [and overcoat properties].

Include the following ONLY if specifying for a LEED project. Specify only the technical requirements necessary to achieve the credits desired for this project.

- .5 Sustainable Design:
- .1 Section [01 35 18] [____]: LEED documentation procedures.
 - .2 Provide required LEED documentation for Product [recycled content,] [regional material content,] [low-emitting material information].

1.6 SUBMITTALS FOR INFORMATION

The following submittals are optional for confirmation of specified products. Products intended to be provided by other non-specified manufacturers require conformation of acceptance by these submittals and will be assessed for acceptability.

- .1 Section [01 33 00] [____]: Submission procedures.

When manufacturer's instructions for specific installation requirements are referenced in PART 3 Execution, include the following request for submittal of those instructions. Edit the PART 3 statements to avoid conflict with manufacturer's instructions.

- .2 Installation Data: Submit manufacturer's special installation requirements, perimeter conditions requiring special attention, and [____].
- .3 Testing Reports: Submit as performed by manufacturer's approved testing agency
- .4 Daily Reports: As required by the Quality Assurance & Training Program (QATP) from BASF

1.7 CLOSEOUT SUBMITTALS

Include the following submittal requirements when confirmation of changes that that are intended to be made or may have been made, prior to project completion; and prior to final inspection or project completion. Consider altering the following text according to questionable or un-expected conditions.

- .1 Section [01 78 10] [____]: Submission procedures for products not approved in an initial submission or where changes were made, apply.

Include the following ONLY if specifying for a LEED project.

- .2 Sustainable Design Closeout Documentation: [____].

1.8 QUALITY ASSURANCE

This article includes statements that require quality applicable to the whole section. If it is desirable or required for a manufacturer of a product to be ISO 9000/14000 certified, include such statement below. Select the appropriate optional text to suit a Project's expectations or intent.

- .1 Products of This Section:

- .1 Listed with Canadian Construction Materials Centre (CCMC) certifying the product for use as insulation in accordance with the National Building Code of Canada 2005.
- .2 [Greenguard Indoor Air Quality Certified under the Greenguard for Children and Schools program.]
- .3 [EcoLogo™ certified.]
- .4 Eco-efficiency, life cycle assessment approved by NSF or equivalent
- .2 Spray Polyurethane Foam (SPF) Manufacturer Qualifications: Company specializing in manufacturing spray polyurethane with minimum [twenty-five (25)] [_____] years [documented] experience.
- .3 Spray Polyurethane Foam (SPF) Contractor Qualifications:
 - .1 Company specializing in performing the work of this section with minimum [one (1)] [_____] year documented experience.

BASF offer a "Quality Assurance and Training Program, RAISING PERFORMANCE TO NEW HEIGHTS®". BASF also certify installers who successfully complete the BASF Air Barrier System Training Course.

- .2 Certified by BASF Canada as having successfully completed the BASF Quality Assurance and Training Program, RAISING PERFORMANCE TO NEW HEIGHTS.
- .4 Independent Testing Agency:

The authorized agent for BASF is Morrison Hershfield.

- .1 Arrange for site reviews by Manufacturer's authorized agent. Schedule the number of site reviews in accordance with the following schedule:

Coverage Area, sq. m. (sq. ft.)	No. of Site Reviews
3,252 – 6,503 (35,000 – 70,000)	1
6,503 –9,755 (70,001 – 105,000)	2
9,755 – 13,006 (105,001 – 140,000)	3
over 13,006 (over 140,000)	4+

- .5 On-Site Documentation:
 - .1 Maintain a copy of the manufacturer's technical manual on site during application of polyurethane foam.
 - .2 Compile Daily Reports chronologically and maintain on site during application.

1.9 REGULATORY REQUIREMENTS

Only include this article when required by applicable code criteria.

- .1 Conform to applicable code for protection of foamed plastics.

1.10 MOCK-UP

Use this article for assessing full sized erected assemblies for review of construction, coordination of work of several sections, testing, or observation of operation. A mock-up may also be used for assessing field applied finishes.

- .1 Section [01 43 00] [_____]: Requirements for mock-up.
- .2 Provide a [<[_____] sq m><<[_____] sq ft>>] mock-up including [wall construction] [window and frame] [door frame] [_____].
- .3 Locate [where directed by Consultant] [_____].
- .4 Approved mock-up [may] [may not] remain as part of the Work.

1.11 ENVIRONMENTAL REQUIREMENTS

- .1 Section [01 35 26] [_____]: Environmental conditions affecting products on site.

Ensure the specified ambient and surface temperature requirements required by specified manufacturers are included in this article.

- .2 Do not install insulation when ambient temperature is outside [<-10°C to +40°C><<+14°F to +104°F>>].
- .3 Occupancy: In accordance with CAN/ULC-S774, occupancy is only permitted following delivery of minimum 0.3 air changes per hour for 24 hours following installation.

1.12 COORDINATION

- .1 Coordinate with other work having a direct bearing on work of this section.
- .2 Coordinate work to ensure timely placement of insulation within construction spaces.

Part 2 Products

2.1 MANUFACTURERS

This article is for proprietary specifying. If specifying products by reference to standards only, care must be exercised in editing this delete this article.

- .1 [BASF Canada Inc.]; Product: [ENERTITE 1-2-1].
- .2 Substitutions: [Refer to Section 01 62 00] [Not permitted].

Edit the following descriptive specifications to identify project requirements and to eliminate any conflict with manufacturer's products cited.

2.2 SPRAY POLYURETHANE FOAM INSULATION

Insulation material may be specified either by generic name with identifying insulation characteristics OR by reference to a CCMC number. . Coordinate with Article 2.1.

- .1 Polyurethane Foam: [To CCMC 13489-R] low-density open-cell polyurethane foam air barrier and thermal insulation:

*ENERTITE 1-2-1 has a Water Vapour Permeance (to ASTM E96) of more than 60ng/Pa*s*m2..*

IMPORTANT: Use of ENERTITE 1-2-1, a vapour barrier membrane is required.

- .1 Performance Requirements:
 - .1 Water Vapour Permeance ASTM E96: 1449 ng/Pa-s-sq m (25.3 Perms).
 - .2 Flame Spread Classification CAN/ULC S102: Flame Spread < 500, Smoke Developed <500.

Hot surface performance as may be requested by Authorities Having Jurisdiction.

- .3 Hot Surface Performance ASTM C411: Passed when exposed to 93 deg C for 96 hours.
- .4 Fungi Resistance ASTM C1338: No fungal growth after 28 day incubation.
- .5 Thermal insulation value ASTM C518: 0.61 m².°K/W/25.4 mm (R value, 3.5 [ft².h.°F/Btu]/in)
- .2 Physical Requirements:
 - .1 Colour: Yellow
 - .2 Density ASTM D1622: Minimum 8.08 kg/cu m (0.5 lb/cu ft).
 - .3 Water Absorption ASTM D2842: 74 % by volume.
 - .4 Air Permeance ASTM E2178-03: At 3.5 inches 0.0170 L/(s.m²), at 5.5 inches 0.0104 L/(s.m²), at 5.5
- .3 Sustainable Requirements:
 - .1 Zero ozone depleting blowing agents.
 - .2 EcoLogo certified; 5% by weight.
 - .3 Greenguard certified: Children & SchoolsSM
 - .4 Eco-efficiency, life cycle assessment approved by NSF or equivalent

2.3 EQUIPMENT

- .1 Comply with the manufacturer and the equipment manufacturer's recommendations for specific type of application.

Part 3 Execution

3.1 EXAMINATION

- .1 Section [01 70 00] [_____]: Verify existing conditions before starting work.
- .2 Verify work within construction spaces or crevices is complete prior to insulation application.
- .3 Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.

3.2 PREPARATION

- .1 Mask and protect adjacent surfaces from over spray or dusting.

Determine if a primer is required for certain substrates.

- .2 Apply primer in accordance with manufacturer's written instructions.
- .3 Prime all metal and non-porous surfaces when required by polyurethane foam manufacturer's written instructions.

3.3 INSTALLATION

The Consultant should review the installation details included in the BASF Technical Binder and ensure that applicable plan and section details are included on the Drawings. The Consultant is advised to contact a BASF representative for applications not specifically included in the BASF Technical Binder.

- .1 Apply insulation to [CCMC report] and manufacturer's written instructions.
- .2 Apply insulation by spray method, to a uniform monolithic density without voids, in lifts not exceeding 305 mm (12 inches) thickness in a single pass.

Specify insulation either by applied thickness or by required insulation value. In selecting the first option, product data information is required; site verification of applied thickness is necessary. Where thickness varies with location, include a schedule at the end of this section.

- .3 Apply to a minimum cured thickness of [<[_____] mm><<[_____] inches>>].

Refer to BASF Technical Binder for proper installation details and ensure that those details are shown on Drawings.

- .4 Finished surface of foam to be free of voids and imbedded foreign objects.
- .5 Remove masking materials and over spray from adjacent areas immediately after foam surface has hardened.
- .6 Repair damaged areas in accordance with SPF manufacturer's application guidelines for insulation.

3.4 FIELD QUALITY CONTROL

Other special field inspection services may be required, such as building envelope testing, thermographic surveys, etc. If such testing procedures are required, ensure that applicable Division 01 section states who will do the testing and who will pay the cost.

- .1 Section [01 45 00] [____]: Field [inspection and] testing.
- .2 Conduct daily visual inspection, and density measurements as required by the QATP manufacturer's application guidelines

3.5 PROTECTION OF FINISHED WORK

- .1 Section [01 78 40] [____]: Protecting installed work.
- .2 Do not permit subsequent construction work to disturb applied polyurethane foam.

3.6 SCHEDULES

The following article will assist in preparing a schedule (of insulation locations) for the project. The following schedule includes are EXAMPLES only. Edit the paragraphs below to create a schedule for the components specified in this section. Do not repeat statements that may exist on drawings.

- .1 Exterior walls including perimeters joists.
- .2 Cathedral ceilings.
- .3 Floor separating living spaces from a garage.
- .4 Cantilever overhang floors; and interior below-grade foundations walls.
- .5 In other locations as noted on the drawings.

END OF SECTION

ENERTITE is a registered trade-mark of BASF Corporation, used with permission by BASF Canada Inc. RAISING PERFORMANCE TO NEW HEIGHTS® are registered trade-marks of BASF Canada Inc. All other trade-marks, registered or otherwise, used herein are either a) the trade-marks of the BASF group of companies and may not be used without permission; or b) the trade-marks and trade names of other companies, products and services, and are the property of their respective owners.