TECH TIP # 20

ENERTITE® Unvented Attic End-Use Configuration Approvals without Ignition Barriers

Residential attics can be designed and constructed to be either ventilated or unvented in any climate zone. Either method is utilized to address or control ice dams, moisture accumulation and heat gain. From BASF Tech Tip # 5, we find that in non-vented cathedral or attic spaces insulated with ENERTITE, the open-cell spray foam eliminates the need to insulate ductwork and piping, creates a conditioned space in which the HVAC equipment will operate more efficiently, and effectively eliminates hot and cold spots.

It is important for builders, designers and contractors to understand ignition and thermal barrier requirements per local Code when using foam plastics in residential attic applications. The International Residential Code requires in section R316.4 "Thermal barrier" that "*foam plastic shall be separated from the interior of a building by an approved thermal barrier of not less than 1/2-inch (12.7 mm) gypsum wallboard, 23/32-inch (18.2 mm) wood structural panel or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.*"

Some attics or crawl spaces will qualify to allow for foam plastics without the use of a thermal barriers (per R316.5.3 or R316.5.4), when the space is entered only for purposes of repair or maintenance (i.e. no storage), where the foam is protected against ignition using one of the listed prescriptive ignition barrier (IB) materials.

Allowing for further flexibility, the IRC created an exemption in section R316.6 "Specific approval", which states "*Foam plastic not meeting the requirements of Sections R316.3 through R316.5 shall be specifically approved based on one of the following approved tests: NFPA 286 with the acceptance criteria of Section R302.9.4, FM 4880, UL 1040 or UL 1715, or fire tests related to actual end-use configurations*." Leveraging this alternative, BASF conducted end-use configuration testing allowing designers, builders or contractors the option to eliminate the prescribed ignition barrier when using ENERTITE open-cell foam systems as part of an Unvented Attic Assembly as indicated in Intertek Code Compliance Research Report CCRR-1032.

BASF has conducted end use configuration testing (per IRC Section 316.6 and IBC 2603.9) and analysis to qualify the use of BASF ENERTITE Max and ENERTITE G series insulations without a prescriptive ignition barrier or intumescent coating, in unvented attics conforming with IRC Section R806.5 and R316.5.3 as described above. The BASF ENERTITE insulations may be installed per the details of CCRR-1032, without the prescriptive ignition barrier, when the following requirements are met:

- Entry to the attic or crawl space is only for the service of utilities and no storage is permitted.
- There are no interconnected attic or crawl space areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Combustion air is provided in accordance with International Mechanical Code section 701.

The design requirements when using ENERTITE Max or ENERTITE G in Unvented Attics without the prescribed ignition barriers (or alternative IB coatings) include the following:

1. Minimum thickness of 3.5" ENERTITE Series foam over the roof deck and wall surfaces.
2. Maximum thickness of 16" on the underside of roof sheathing or on vertical wall surfaces.
3. Rafters may be left exposed or may be covered with foam up to the maximum thickness.
4. Attic access complying with IRC Section 807 must be installed. This access may be either an outward opening access (toward the living space) horizontally placed in the attic floor OR a Rockfon Pacific ceiling tile as the access panel (in lieu of gypsum board or an outward opening hatch access) with minimum dimension of 22" x 30", edges resting on trim lip no more than ½ inch.
5. The outward opening access hatch may be reduced to the sizes in Table 1, as long as there is another code-compliant sized attic access (including scuttle or ladder type) installed WITHIN the unvented attic area of the home.
6. The original test criteria required items penetrating the roof deck or walls, such as skylight wells or vents, to be covered with a minimum of 1.5" of ENERTITE insulation. Additional testing has subsequently been conducted to allow the majority of these penetrations to be present without full coverage (just encapsulated at the point of entry through the roof deck). See the charts attached for the criteria to be met to eliminate the full coverage on the items penetrating the roof deck / walls.
7. Signage shall be permanently affixed in the attic and shall be visible from all points within the attic. See example on page 2.

Table 1

Attic Volume (Cubic Feet)	Total Hatch or Access size (in^2)
768	8" x 8" = 64
2304	12" x 12" = 144
5376	15" x 15" = 225
10752	20" x 20" = 400
21504	24" x 24" = 576

For further details, reference CCRR-1032 and your respective local code requirements. Follow all local codes and secure professional design expertise when deciding on materials and methods.

For any additional information about BASF spray foam systems, please visit www.spf.basf.com.

For a referral to an applicator in your area or to speak with a technical sales representative, please call 800-706-0712 x2.

BASF Corporation- Inside Technical Sales
1703 Crosspoint Avenue
Houston, TX 77054
Tel: (Toll Free) 800-706-0712 – Option 2
www.spf.basf.com

ATTENTION – THIS SIGN SHALL NOT BE REMOVED.

Caution: This is an unvented attic by design.

- No modification may be made to this unvented condition.
- The attic shall not be vented.
- Holes into the unvented attic shall be immediately repaired and sealed.
- Penetrations of the ceiling or wall membrane between the unvented attic and living space, other than the horizontal access hatch, must be protected in an approved manner.
- This unvented attic shall not be used for storage.

See Intertek Code Compliance Research Report CCRR-1032 for more details.

Applicator to Confirm the Below Additional Limitations of Use / Compliance per CCRR-1032:

☐ Entry to the attic is only to service utilities and no storage is permitted.
☐ There are no interconnected attic areas.
☐ Air in the attic is not circulated to other parts of the building.
☐ Combustion air is provided in accordance with IMC (International Mechanical Code) Section 701 [Sections 701 and 703].
☐ Attic access complying with IRC Section R807, horizontally placed in the attic floor and opening outward toward the living space OR Rockfon panel has been installed in lieu of gypsum panel in access.
☐ Items, such as skylight wells or vents, penetrating the roof deck or wall into the attic are covered with a minimum 1 ½" of ENERTITE Max or ENERTITE G, unless exempt per testing (contact BASF).
☐ Insulation is minimum 3" away from recessed luminaires, fan motors and other heat-producing devices as per R302.14 of the International Residential Code.

If any of these limitations are not met, follow IRC Section R316 code requirements for thermal or ignition barrier fire protection.

Call BASF Technical Applications for additional guidance, 800-706-0712, ext. 2.

To be completed by Applicator:

SPF system Installed (check one): ENERTITE G☐ ENERTITE Max☐

Application Thickness: (3 ½" to 16") Click or tap here to enter text.

Applicator Name:Click or tap here to enter text.

Insulation Contractor:Click or tap here to enter text.

Applicator Signature:Click or tap here to enter text.

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