

Metal Building Insulation

Class 1 / Class A

Recommended For:

- Pre-Engineered Steel Buildings
- Post Frame / Pole Barns
- Agricultural Buildings
- Residential Metal Roofs
- Mini Storage
- Livestock Confinement

Why Install rFOIL[™]?

- Blocks 97% of Radiant Heat Transfer
- Prevents Interior Condensation
- Class 1 / Class A Fire-Rated (ASTM E84-08)
- Puncture and Tear-Resistant
- Unaffected by Humidity
- Will not Promote Mold and Mildew
- Safe, Non-Toxic and Non-Carcinogenic
- Easy to Handle and Install
- Various Tab Options
- UV-Resistant

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rFOIL[™] reflective Insulation is a single or double layer of polyethylene bubbles bonded to and sandwiched between a radiant barrier metalized foil and white polyethylene sheet.

rFOIL[™] is specifically designed to control heat gain or loss, and prevent interior condensation, in all types of metal and metal-clad buildings.





Metal Building Insulation

FEATURES

BENEFITS

| Reflective Metalized Aluminum Surface Facing | - Reduces Radiant Heat Gain and Loss - Blocks 97% of Radiant Heat Transfer - Saves Energy Use - Lowers Heating/Cooling Costs - Improves Interior Comfort |
|--|--|
| Multi-Layer Bubble Core | Provides Continuous Thermal Break Lowers Risk of Interior Surface Condensation Durable and Long-Lasting Superior Puncture, Tensile and Tear Strength Will Not Absorb Water or Vapor Does Not Harbor Moisture or Mold Clean, Safe, No-Itch Material |
| White Interior Facing Option | - Brightens Building Interior - Attractive Appearance - Easy to Clean |
| Practical Tab/Edge Options | - Various Options for All Metal Building Applications - Simplifies Installations - Improves Vapor-Sealing Efforts |
| QuickSeam (Adhesive Tape on Tab) | - Saves Time and Labor - Ensures a Continuous Vapor and Condensation Barrier - Simplifies and Speeds Installation |

PRODUCTS

SPECIFICATIONS

| AVAILABLE IN: | | DOUBLE | SINGLE |
|--|---|-------------------|--------------------|
| - Single or Double Bubble | NOMINAL THICKNESS | 5/16" | 3/16" |
| - Square Edge, Tab 1 Side, Tab 2 Sides, Quick Seam | WEIGHT | 0.78 oz/sq.ft | 0.47 oz/sq.ft |
| Adhesive Strip | TEMPERATURE RANGE - ASTM C411 | -50 °F to | o 180 °F |
| - Width: 12", 16", 18", 24", 48" and 72" | FLAME SPREAD (ASTM E84-08) | (|) |
| - Length: 102' and 125' | SMOKE DEVELOPMENT (ASTM E84-08) | 1 | 5 |
| rFOIL[™] meets ASTM Class 1 / Class A Testing | FIRE RATING - ASTM E84-08 | CLASS 1 / CLASS A | |
| | EMISSIVITY - ASTM C1371 | 0.03 - 0.04 | |
| | REFLECTIVITY - ASTM 3903 | 0.96 - | 0.97 |
| | WATER VAPOR PERMEANCE - ASTM | < 0.01 | Perms |
| | E96, ONGC 51.33-M89 | | |
| | TENSILE AND ELONGATION - ASTM D882 | MACHINE 69 lt | os/sq.in (173%) |
| | TENSILE AND ELONGATION - ASTM D882 | TRANSVERSE 7 | 5 lbs/sq.in (194%) |
| | LINEAR SHRINKAGE | NO | NE |
| | FLEXIBILITY - CAN / CGSB-51.33 M89 | NO CRA | ACKING |
| | RESISTANT TO FUNGI AND BACTERIA | DOES NOT PRO | MOTE GROWTH |

Specific Applications and Installation Guides can be found on our Applications Manuals









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Metalized Foil Barrier

Recommended For:

- Commercial Buildings
- Residential Buildings
- Manufactured Homes
- Mobile Homes
- DIY Applications
- And much more...

Insulates:

- Walls
- Ceilings
- Crawl Spaces
- Basement Walls
- Attic
- Between Joists

Why Install rFOIL[™]?

- Staple Tabs for Between Joists
- Minimal Product
- Thickness
- Easy to Handle and Install
- Vapor Barrier Protection
- Increases Insulating Value of Wall Systems



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rFOIL[™] reflective Insulation is a single or double layer of polyethylene bubbles bonded to and sandwiched between two radiant barrier metalized sheet.

Its unique construction is specially designed to reduce radiant heat gain or loss in Residential, Commercial and HVAC applications while increasing comfort.





| FEATURES | BENEFITS | |
|--|---|--|
| Square edge configuration for normal edges | Square edge metalized rFOIL[™] is a multi purpose insulation Easily cut and configured around obstacles Tape seals can be made at any angle | |
| 1" tabs running the length of the rFOIL [™] | Staple tabs can be stapled between joists Allows for quick and easy installation Helps create the air space necessary | |
| Tabs equipped with tape running the length of the rFOIL [™] | Quick seam tabs can be used in place of rFOIL[™] tape Seals the seams with ease Seals the metalized rFOIL[™] in order to avoid breaks in the insulation | |

PRODUCTS

SPECIFICATIONS

| AVAILABLE IN: | | SINGLE | DOUBLE |
|----------------------------------|---|--------------------------------------|----------------------------------|
| | NOMINAL THICKNESS | 3/16" | 5/16" |
| - Single or Double Bubble | WEIGHT | 0.47 oz/sq.ft | 0.74 oz/sq.ft |
| - Square Edge, Tab 1 Side, | TEMPERATURE RANGE - ASTM C411 | -50 $^{\circ}$ F to 180 $^{\circ}$ F | -50 $^\circ$ F to 180 $^\circ$ F |
| Tab 2 Sides, Quick Seam | FLAME SPREAD (ASTM E84-08) | 0 | 0 |
| - Width: 12", 16", 18", 24", 36" | SMOKE DEVELOPMENT (ASTM E84-08) | 20 | 20 |
| and 72" | FIRE RATING (ASTM E84-08) | CLASS 1 / CLASS A | CLASS 1 / CLASS A |
| - Length: 50', 75', 100', 102' | EMISSIVITY - ASTM C1371 | 0.03 - 0.04 (FOIL Side) | 0.03 - 0.04 (FOIL Side) |
| and 125' | REFLECTIVITY - ASTM 3903 | 0.96 - 0.97 (FOIL Side) | 0.96 - 0.97 (FOIL Side) |
| | WATER VAPOR PERMEANCE - ASTM E96, ONGC 51.33-M89 | < 0.01 Perms | < 0.01 Perms |
| | TENSILE AND ELONGATION - ASTM D882 | 94 lbs/sq.in (375%) | 94 lbs/sq.in (340%) |
| | TENSILE AND ELONGATION - ASTM D882 | 91 lbs/sq.in (368%) | 91 lbs/sq.in (322%) |
| | CORROSIVITY | Not Applicable | Not Applicable |
| | LINEAR SHRINKAGE | NONE | NONE |
| | FLEXIBILITY - CAN / CGSB-51.33 M89 | NO CRACKING | NO CRACKING |
| | RESISTANT TO FUNGI AND BACTERIA | DOES NOT PROMOTE GROWTH | DOES NOT PROMOTE GROWTH |

Specific Applications and Installation Guides can be found on our Applications Manuals

rFOIL[™] Code Compliance International code council (ICC) report ESR-1236

The above report has been issued based on rfoil compliant with the below codes:

- 2006 international building code (IBC)
 2006 international residential code (IRC)
- 1997 Uniform building code (UBC)











Fire Retardant Metal Building Insulation

Recommended For:

- Pre-Engineered Steel Buildings
- Post Frame / Pole Barns
- Agricultural Buildings
- Residential Metal Roofs
- Mini Storage
- Livestock Confinement
- Any Structure with Strict Fire Safety Requirements

Why Install rFOIL[™]?

- Blocks 97% of Radiant Heat Transfer
- Prevents Interior Condensation
- Class 1 / Class A Fire-Rated (ASTM E84-08)
- Puncture and Tear-Resistant
- Unaffected by Humidity
- Will Not Promote Mold and Mildew
- Safe, Non-Toxic and Non-Carcinogenic
- Easy to Handle and Install
- Various Tab Options
- UV-Resistant

rFOIL286[™] Reflective Insulation is a single layer of ¼" high-strength polyethylene bubble, bonded to and sandwiched between a layer of metalized aluminum film, with an interior facing of UV-Resistant polyethylene.

rFOIL286[™] Reflective Insulation is patented, and specifically designed for applications that require strict code compliance for exposed insulation and fire safety. **rFOIL286**[™] has a Class 1 / Class A fire rating (ASTM E84-08), and successfully meets the requirements of the NFPA Full Corner Room Burn Test.



Passes NFPA 286 Full Room Burn Test

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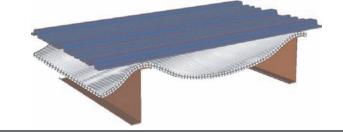


| FEATURES | BENEFITS |
|---|--|
| Patented Fire-Retardant Design and Composition | - Class 1 / Class A Fire Rating (ASTM E-84-05) - Passes the NFPA 286 Full Corner Room Burn Test - Safest Reflective Insulation Available - Reduces or Eliminates Fire-Related Liability |
| Reflective Metalized Aluminum Surface Facing | - Reduces Radiant Heat Gain and Loss - Blocks 97% of Radiant Heat Transfer - Saves Energy Use - Lowers Heating/Cooling Costs - Improves Interior Comfort |
| Multi-Layer Bubble Core | Provides Continuous Thermal Break Lowers Risk of Interior Surface Condensation Superior Puncture, Tensile and Tear Strength Durable and Long-Lasting Does Not Harbor Moisture or Mold Will Not Absorb Water or Vapor Clean, Safe, No-Itch Material |
| White Interior Facing Option | - Brightens Building Interior - Attractive Appearance - Easy to Clean |
| Practical Tab/Edge Options | - Various Options for All Metal Building Applications - Simplifies Installations - Improves Vapor-Sealing Efforts |
| QuickSeam (Adhesive Tape on Tab) | - Saves Time and Labor - Ensures a Continuous Vapor and Condensation Barrier - Simplifies and Speeds Installation |

PRODUCTS

AVAILABLE IN:

- Quick Seam Adhesive Strip or Tab 2 sides
- Width: 48" and 72"
- Length: 102' and 125'



Specific Applications and Installation Guides can be found on our Applications Manuals

rFOIL[™] Approvals - NFPA 286 Full Corner Room E - ASTM E84-08 Fire Test - ASTM 1225 Standard Specificat

Full Corner Room Burn Test Fire Test Standard Specifications for Reflective Insulations and Building Applications





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555 Lawton Ave. Beloit, WI 53512 p. 608.365.2161 Toll Free. 800.766.2825 f. 800.834.7447 www.cnbhnp.com

SPECIFICATIONS POLY / 1/4" BUBBLE / REFLECTIVE NOMINAL THICKNESS 1/4"

| WEIGHT | 0.78 oz/sq.ft |
|---|--------------------------------|
| TEMPERATURE RANGE - ASTM C411 | -50 °F to 180 °F |
| FIRE RATING - ASTM E84-05 | CLASS 1 / CLASS A |
| FIRE RATING NFPA 286 | CONFORMS |
| EMISSIVITY - ASTM C1371 | 0.03 - 0.04 |
| REFLECTIVITY - ASTM 3903 | 0.96 - 0.97 |
| WATER VAPOR PERMEANCE - ASTM | < 0.01 Perms |
| E96, ONGC 51.33-M89 | |
| TENSILE AND ELONGATION - ASTM D882 | MACHINE 69 lbs/sq.in (173%) |
| TENSILE AND ELONGATION - ASTM D882 | TRANSVERSE 75 lbs/sq.in (194%) |
| CORROSIVITY | 200 °F - 7 Days |
| LINEAR SHRINKAGE | NONE |
| FLEXIBILITY - CAN / CGSB-51.33 M89 | NO CRACKING |
| RESISTANT TO FUNGI AND BACTERIA | DOES NOT PROMOTE GROWTH |
| | |



Concrete Underpad

Recommended For:

- Insulating Under Concrete
- Slabs
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints

Why Install rFOIL[™]?

- Reduces Radiant Heat Loss through Floors
- High-Strength, Multi-Layer Vapor and Radon Barrier (7 mil)
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Reduces Slab Reaction Time at System Startup
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions
- Installs Easily Over any Grade
- Withstands Job Site Traffic

rFOIL[™] Concrete Underpad is an outstanding reflective insulation and puncture-resistant vapor barrier. It is composed of a double layer of high-strength polyethylene bubbles (up to 60 psi), sandwiched between one layer of metalized aluminum, and a layer of white polyethylene.

rFOIL[™] Concrete Underpad provides exceptional thermal value and a strong, permanent vapor and radon barrier. It is a cost-effective alternative to rigid foam insulation, and is always installed with the white side facing upwards.

Class 1 / Class A Fire Rating ASTM E84-08

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| FEATURES | BENEFITS |
|---|--|
| Reflective Metalized Aluminum Facing (installed facing down) | - Reduces Radiant Heat Loss - Redirects Radiant Heat Energy Back to Living Area - Saves Energy Usage and Lowers Heating Costs - Extends Life of Heating System - Faster Reaction Time for Radiant Floor Heating |
| White Polyethylene Facing | - Unaffected by Lime and other Corrosive Chemicals, often Found in Concrete. |
| Multi-Layer 7 mil Bubble Core | Provides Continuous Thermal Break below the Slab Keeps underground moisture away from slab Durable and Long-Lasting Polyethylene Strong Puncture Resistance and Tear Strength Outstanding Vapor and Radon Barrier Can also Insulate the Edge-Slab and Outside of Foundation |
| Lightweight, Flexible Materials | - Just Unroll, Overlap, and Tape the Seams - Easy to Cut and Configure around Obstructions - Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing) |

PRODUCTS

SPECIFICATIONS

| AVAILABLE IN: | Testing | FOIL / Double Bubble / POLY |
|---|---|---|
| - Configurations: Square Edge - Width: 48" | NOMINAL THICKNESS | 5/16" |
| | WEIGHT | 0.82 oz/sq. ft. |
| - Length: 125' | TEMPERATURE RANGE | -50°F to 180°F |
| - Lengin. 125 | FLAME SPREAD (ASTM E84-08) | 0 |
| | SMOKE DEVELOPMENT (ASTM E84-08) | 15 |
| | THERMAL RESISTANCE | See tech sheets for R-Value in specific applications |
| | FIRE RATING | CLASS 1 / CLASS A |
| | EMISSIVITY | 0.03 - 0.04 |
| | REFLECTIVITY | 0.96 - 0.97 (FOIL side) |
| Land | WATER VAPOR PERMEANCE | <0.01 Perms |
| | TENSILE STRENGTH (CAN/CGSB - 51.33-M89) | 21.13 lbs/sq. in. |
| | LINEAR SHRINKAGE | NONE |
| | FLEXIBILITY (CAN/CGSB - 51.33-M89) | NO CRACKING |
| | RESISTANT TO FUNGI AND BACTERIA | DOES NOT PROMOTE GROWTH |
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Specific Applications and Installation Guides can be found on our Applications Manuals

More Benefits

- Warmer, More Comfortable Floors
- Conforms Easily to Uneven Grades
- Strongly Bonded to Resist Delamination
- Sealed Seams Provide a Consistent Insulation







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ULTRA CBF Concrete Barrier Foil

Recommended For:

- Insulating Under Concrete Slabs
- In-Floor Radiant Heating
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints
- Outside Foundation Walls
- Snow Melt Systems
- Under Carpet

Why Install rFOIL[™]?

- Reduces Radiant Heat Loss through Floors
- Multi-Layer Vapor and Radon Barrier (10 mil)
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions
- Installs Easily Over any Grade
- Withstands Job Site Traffic



Patent No. US 6,562,439B2 US 6,514,596B1

Ultra CBF is an outstanding reflective insulation and puncture-resistant vapor barrier. Ultra CBF is composed of a single layer of pure aluminum, laminated between two layers of ultra-strong polyethylene bubble (up to 140 psi).

Ultra CBF is the ultimate under-slab insulation. It provides exceptional thermal value and a strong, permanent vapor and radon barrier. Ultra CBF typically costs less than 2" rigid PE board insulation. Ultra CBF is easier to handle, cut, and install than rigid foam insulation, yet has nearly six times the compression strength.





ULTRA CBF Concrete Barrier Foil

| FEATURES | BENEFITS |
|---------------------------------|--|
| Reflective Aluminum Inner Layer | Reduces Radiant Heat Loss Redirects Radiant Heat Energy Back to Living Area Saves Energy Usage and Lowers Heating Costs Extends Life of Heating System Faster Reaction Time for Radiant Floor Heating |
| Multi-Layer 10 mil Bubble Core | Provides Continuous Thermal Break below the Slab Keeps Underground Moisture Away from Slab Durable and Long-Lasting Polyethylene Superior Puncture Resistance and Tear Strength Outstanding Vapor and Radon Barrier Can also Insulate the Edge-Slab and Outside of Foundation |
| Lightweight, Flexible Materials | Simply Unroll, Overlap, and Tape the Seams Easy to Cut and Configure around Obstructions Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing) |

| PRODUCTS | SPECIFICATIONS | |
|-------------------------------|---|-------------------------|
| AVAILABLE IN: | NOMINAL THICKNESS | 5/16" |
| - Configurations: Square Edge | WEIGHT | 1.16 oz/sq. ft. |
| - Width: 48" - Length: 125' | TEMPERATURE RANGE | -50°F to 180°F |
| | EMISSIVITY | 43% |
| | REFLECTIVITY | 57% |
| | WATER VAPOR PERMEANCE - ASTM | <0.01 Perms |
| | E96, ONGC 51.33-M89 | |
| | TENSILE STRENGTH (CAN/CGSB - 51.33-M89) | 21.13 lbs/sq. in. |
| | DEFLECTION (ASTM 1621) | <10% under 0.5 psi |
| | PUNCTURE RESISTANCE | 85 lbs/sq. in. |
| +++++ | COMPRESSIVE STRENGTH | 140 psi |
| | LINEAR SHRINKAGE | NONE |
| | FLEXIBILITY (CAN/CGSB - 51.33-M89) | NO CRACKING |
| | RESISTANT TO FUNGI AND BACTERIA | DOES NOT PROMOTE GROWTH |

Specific Applications and Installation Guides can be found on our Applications Manuals

More Benefits

- Warmer, More Comfortable Floors
- Conforms Easily to Uneven Grades
- Strongly Bonded to Resist Delamination
 Sealed Seams Provide a Consistent Insulation
- Will not deteriorate over time
- Aluminum Radiant Barrier Permanently Protected from
- Corrosive Ground Elements, such as Lime and Soil Alkaline





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Adhesive Tapes

METALIZED FOLL TAPE

WHITE POLY TAPE

Recommended For:

- All rFOIL[™] Insulation Products and Related Applications
- Maintaining a Vapour Barrier and Constant Insulator

Seals:

- Seams
- Gaps
- Tab sections
- Rips
- Tears

Why Install rFOIL[™]?

- Economical
- Quick and Easy to Install
- Approved Vapour Barrier
- Available in a Variety of Sizes to Suit Your Needs



rFOIL[™]Adhesive Tapes are available in two varieties: White Poly and Metalized Foil.

Both **rFOIL**[™] tapes provide an excellent vapour barrier seal and are specifically designed for use with all **rFOIL**[™] Insulation Products.

Acrylic pressure sensitive adhesive combines superior quick-stick at normal temperatures, with excellent low temperature performance below freezing.

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BENEFITS

FEATURES

Aluminium Tape

- Soft, Metalized Foil
- Pressure Sensitive Acrylic Adhesive

White Poly Tape

- Polypropylene Material

- Conforms to irregular surfaces
- Maintains reflective / radiant barrier
- Adheres well to rFOIL[™], sheet metal, and more!
- Effective in hot and cold climates
- Forms strong bond for long life adhesion
- Durable to withstand installation
- Adheres to any polyethylene or related material
- Conforms to foil or poly to give the seamless look
- Will adheres to poly or aluminium faced rFOIL[™]
- Adheres in all four seasons
- Will seal seams effectively for many years

PRODUCTS

AVAILABLE IN:

- Metalized Foil or White Poly
- Lengths: 30' and 150'
- Widths: 2" and 3"

| | ALUMINIUM | WHITE POLY | UL-181B-FX |
|-----------------------------|---------------------|---------------------|---------------------|
| THICKNESS | 1.3 MILS (.0015") | 3 MILS (.003") | 3 MILS (.003") |
| ADHESION PEEL (PSTC #1) | 42 oz / inch | 16 oz / inch width | 41 oz / inch width |
| SHEAR (PSTC #7) | 2.2 PSI | 2.2 PSI | 2.2 PSI |
| TENSILE (PSTC #7) | 22 lbs / inch width | 20 lbs / inch width | 22 lbs / inch width |
| ELONGATION (PSTC #31) | 150% | 136% | 150% |
| MIN TEMPERATURE APPLICATION | -305 °F | N/A | -35 °F to 260 °F |
| TEMP RESISTANCE | 250 °F | N/A | 260 °F |
| MOLD GROWTH | 0 | N/A | 0 |
| | | | |

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555 Lawton Ave. Beloit, WI 53512 p. 608.365.2161 Toll Free. 800.766.2825 f. 800.834.7447 www.cnbhnp.com

- Acrylic Adhesive

SPECIFICATIONS