Comfort in harmony with the environment

ESD5

GENERAL GUIDELINES ESD 5 INSTALLATION

ESD 5 is a reflective insulation composed of the reinforced aluminum facers on a Polyethylene foam core. ESD 5 can be installed in Roof assemblies, Floors and walls.

ESD5 is packaged in rolls and is presented in widths of 16", 24" and 48". The suitable width to be used depends on the distance between rafters, studs or joists. 48" is mainly used in commercial applications and 16" and 24" is more suitable for residential applications. ESD 5 is available perforated and nonperforated.

All proposed installations are retrofit applications and in all applications nonperforated ESD 5 is used.

To ensure the greatest possible protection Prodex recommends the use of following Personal protective equipment:

- Use goggles with flexible fitting with regular ventilation and Filter Lenses.
- Use 30+ sunblock when working outdoors.
- Use class A helmet that provides electrical protection from low-voltage conductors.
- Use leather gloves when cutting insulation.

TOOLS NEEDED FOR INSTALLATION:

- Stapler or staple hammer.
- Razor knife or scissors.
- Aluminum foil tape (Use 2" wide 1 mil thick Alu Foil tape).
- Tape measure.
- Step or extension ladders or scaffolding.

ESD 5 ROLLS HANDLING:

- Make sure to use factory sealed rolls.
- Store insulation in a dry and sunlight protected place to avoid packaging damage.
- Check for foil damage before installation.
- In case of holes or tears, please use aluminum foil tape to cover the foam core and continue with the installation.
- In case of other anomalies contact your supplier.
- Unpack the ESD 5 using a utility knife or scissors.

PRODEX THERMIC

CRAWLSPACE ASSEMBLY R18.5 AND R24.5

The crawlspace is the area underneath the house. Insulation in the floor assembly between the ground floor and the crawl space is necessary to avoid heat loss or heat gain through the floor.

The crawlspace assembly consists of R9 or R15 mass Insulation and one Layer of ESD 5 between the Floor Joists (see Error! Reference source not found. for explanation on R values and climate zones). The floor assembly consists of minimum nominal 2" by 10" wood floor joists spaced 24 inches on center, with a minimum of one layer of ¾ inch thick (19 mm) plywood on the upper surface, attached in accordance with the applicable code.

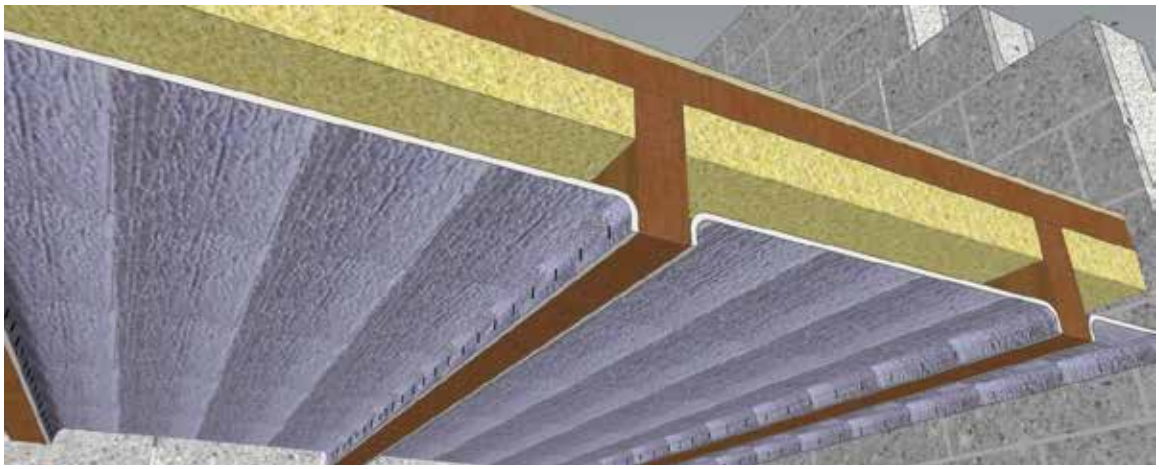


Image 1: crawlspace assembly 3D, R24.5, Climate Zone 1-4

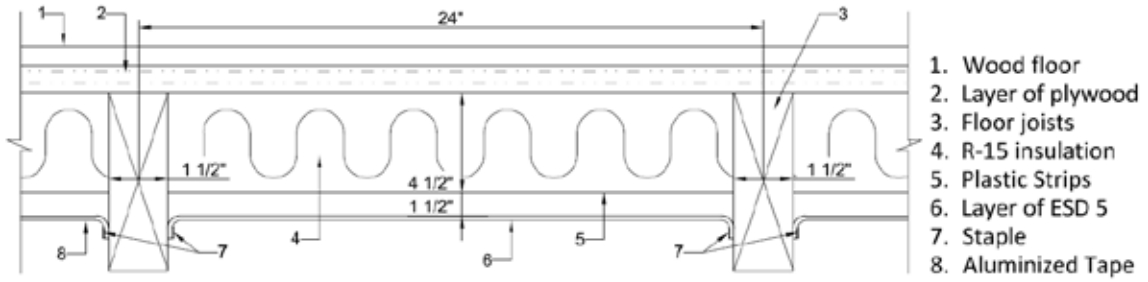


Image 2: crawlspace assembly 2D, R24.5, Climate Zone 1-4

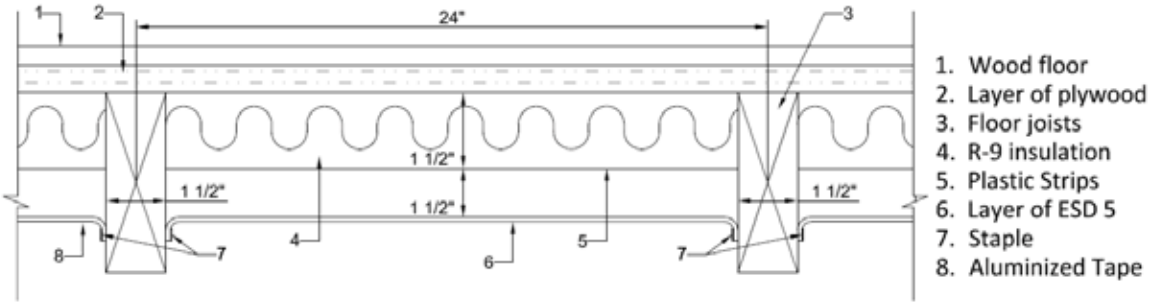


Image 3: crawlspace assembly 2D, R18.5, Climate Zone 1-2

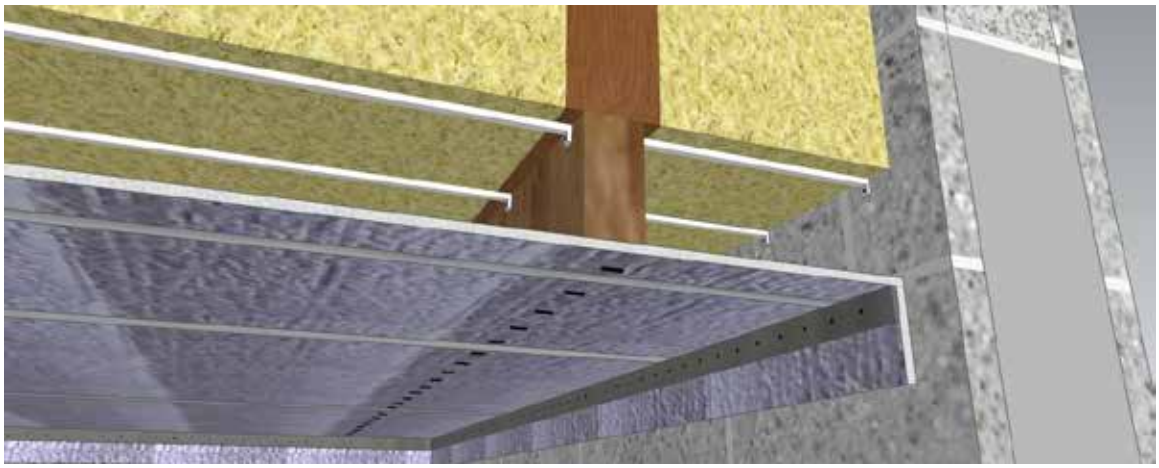
CRAWLSPACE ASSEMBLY R18.5 AND R24.5

- Locate electric cables and be careful not to cut any power line.
- Make sure that all electrical and mechanical facilities are working correct. When facility maintenance is required, fix it before ESD 5 is installed.
- If plumbing or electrical installation needs to be removed consult a professional.
- Note that the Joist space should not be used as plenum space.
- For dwellings in climate zone 1 and 2 install a minimum of R 9 mass insulation as noted in img 2. For dwellings in climates zones 3 and 4 install a minimum of R 15 insulation as mentioned in img 3. For dwellings in climate zones 5 and up follow de R35 assembly instructions.
- Install mass insulation between the rafters following manufacturer's recommendations. The mass insulation can be faced or unfaced. A faced mass insulation will be easier to install.
- Install wire or metal banding perpendicular to the floor joists to avoid sagging of the mass insulation. Cut the wires at 24" length. Fixate the wires on the inside of the floor joist every 18 inches.
- Use 24" ESD 5 product for this assembly. In case of another distance between the rafters use the wide of the product equal to the distance between the rafters.
- Install ESD 5 between the floor joists 1 ½ inch below the mass insulation.
- Cut the length of ESD 5 at least 6 inch longer than the length of the floor joist.
- Staple the insulation on the side of the floor joist as mentioned in img 1. The minimum distance between the staples should be 6 inch. Leave at least 3 inch length on both ends of the sheet of ESD 5 to attach to the wall.
- Use a 1/16" gauge metal strip to fixate de the end of the sheets of ESD 5 to the concrete wall. The metal strip shall be at least 1" wide. Place the strips on the extra 3 inch ESD 5 pressing the ESD 5 between the strip and the wall as mentioned in img 4. Screw the metal strip to the wall.
- Seal all seams with foil tape to create a vapor barrier to prevent ground water vapor from rotting the framing in areas of the country with high water tables. In case of ductwork, plumbing piping, or any electromechanical facilities crossing the crawl space, cut the ESD5 with a utility knife giving it the proper shape around the object. Seal any gap or seam between the ESD 5 and the object with aluminum foil tape to avoid any air leak.
- The joists have to be covered with ESD 5 up to the wall. Fixate ESD 5 to the wall with staples every 3". In case of masonry walls use screws. Seal all gaps and seams between the wall and the ESD 5 with aluminum foil tape.

CRAWLSPACE ASSEMBLY R35.5

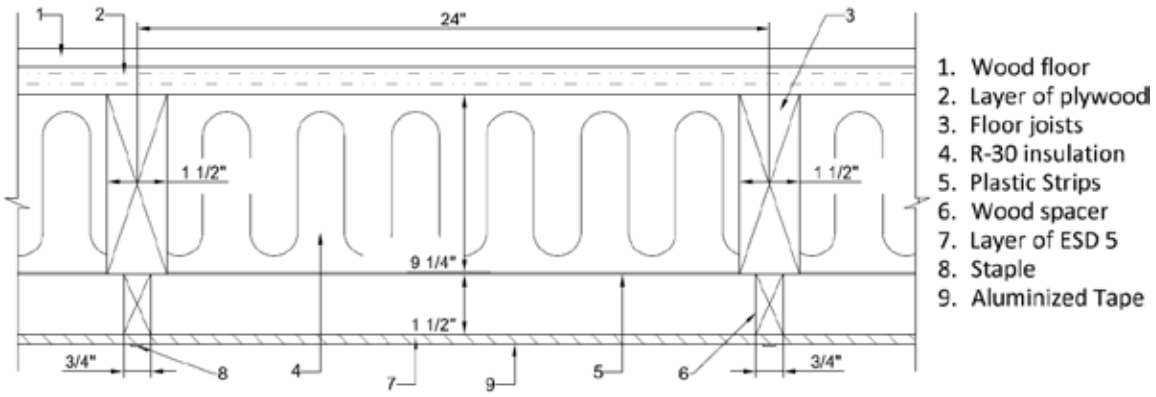
The crawlspace is the area underneath the house. Insulation in the floor assembly between the ground floor and the crawl space is necessary to avoid heat loss through the floor.

The crawlspace assembly consists of R30 mass between the floor joists and ESD 5 installed below the floor joists (see Error! Reference source not found. for explanation on R values and climate zones). The floor assembly consists of minimum nominal 2" by 10" wood floor joists spaced 24 inches on center, with a minimum of one layer of ¾ inch thick (19 mm) plywood on the upper surface, attached in accordance with the applicable code.



Img 4: crawlspace assembly 3D, R35.5, Climate Zone 1-6. Use a metal strip to fixate the ESD 5 to the walls. Use Aluminum foil tape the seal al seams.

Img 5: crawlspace assembly 3D, R35.5, Climate Zone 1-



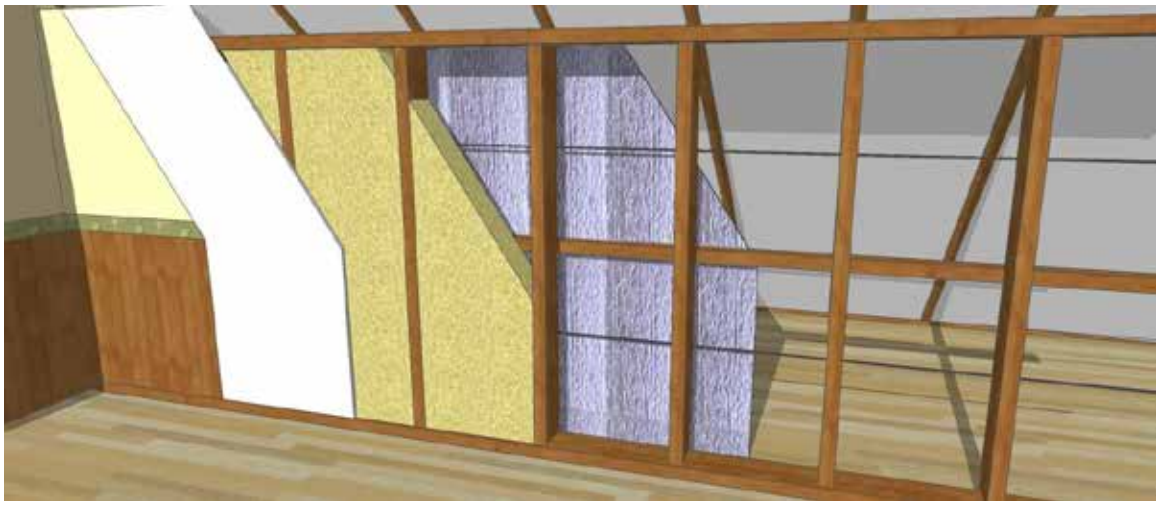
Img 6: R35.5 Assembly, Climate Zone 1-6

- Locate electric cables and be careful not to cut any power line.
- Make sure that all electrical and mechanical facilities are working correct. When facility maintenance is required, fix it before ESD 5 is installed.
- If plumbing or electrical installation needs to be removed consult a professional.
- Note that the Joist space should not be used as plenum space.
- Install a minimum of R 26 mass insulation between the rafters following manufacturers' recommendations. The mass insulation can be faced or unfaced. A faced mass insulation will be easier to install.
- Install wire or metal banding perpendicular to the floor joists to avoid sagging of the mass insulation. Fixate the wires on the bottom of the joist every 18 inches.
- Install 1 ½" spacers below the floor joists. Wood strips can be used as a spacer.
- Use 48" ESD 5 product for this assembly.
- Install ESD 5 perpendicular to the floor joists.
- Cut the length of ESD 5 at least 6 inch longer than the wide of the crawls space.
- Staple the insulation on the bottom of the spacers. The minimum distance between the staples should be 6 inch Leave at least 3 inch length on both ends of the sheet of ESD 5 to attach to the wall. Use a 2 inch overlap between the sheets.
- Use a 1/16" gauge metal strip to fixate de the end of the sheets of ESD 5 to the concrete wall. The metal strip shall be at least 1" wide. Place the strips on the extra 3 inch ESD 5 pressing the ESD 5 between the strip and the wall as mentioned in img 4. Screw the metal strip to the wall.
- Seal all seams with foil tape to create a vapor barrier to prevent ground water vapor from rotting the framing in areas of the country with high water tables. In case of ductwork, plumbing piping, or any electromechanical facilities crossing the crawl space, cut the ESD5 with a utility knife giving it the proper shape around the object. Seal any gap or seam between the ESD 5 and the object with aluminum foil tape to avoid any air leak.
- The joists have to be covered with ESD 5 up to the wall. Fixate ESD 5 to the wall with staples every 3". In case of masonry walls use screws. Seal all gaps and seams between the wall and the ESD 5 with aluminum foil tape.

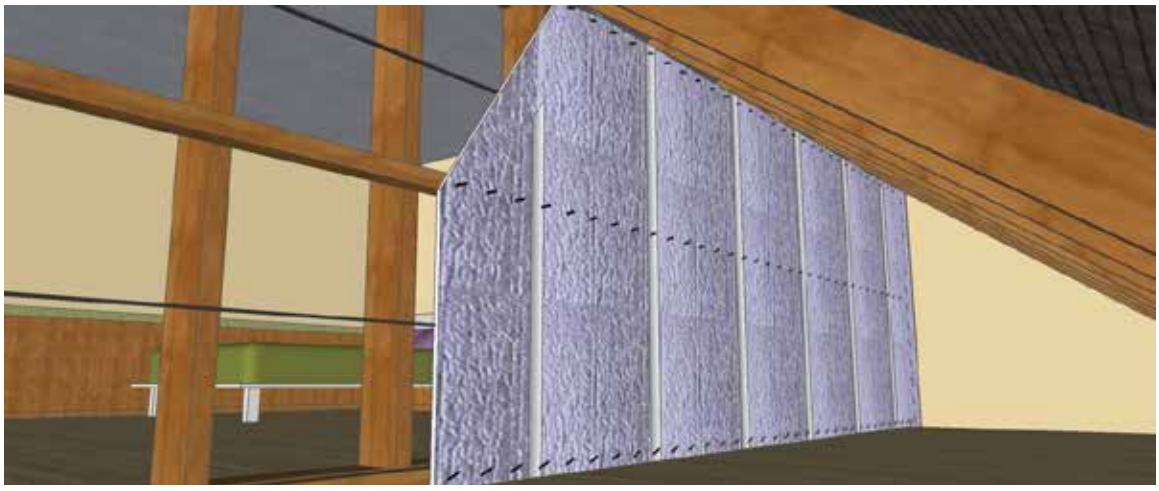
KNEE WALL ASSEMBLY R20

Knee walls are used to convert the attic space in a usable living space. Insulation in the knee wall is needed to avoid heat loss or heat gain in the attic space.

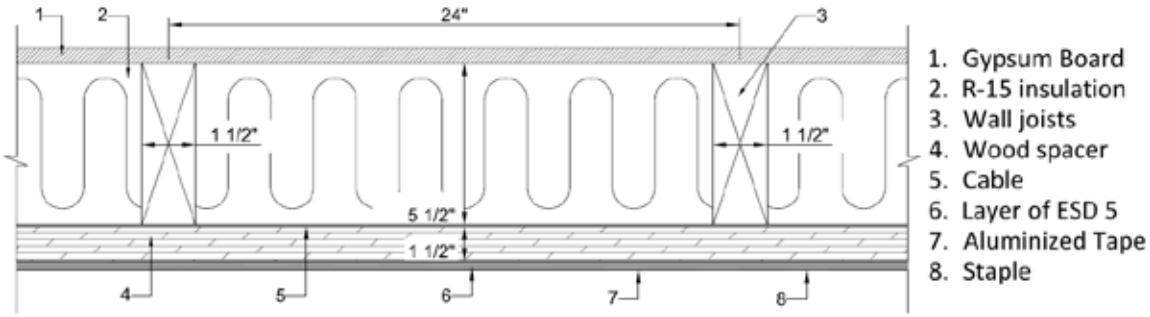
The knee-wall consists of 2" x 6" studs, spaced 24 inches on center. R15 insulation is placed within the cavity of the knee wall according to manufacturer's instructions. The wall is finished with a ½" gypsum board installed according to the applicable code. The Insulation is kept in place by cables fixated on the back surface of the studs.



Img 7:



Img 8:



Img 9: R20 assembly, climate zone 1-5

- Locate electric cables and be careful not to cut any power line.
- Make sure that all electrical and mechanical facilities are working correct. When facility maintenance is required, fix it before ESD 5 is installed.
- If plumbing or electrical installation needs to be removed consult a professional.
- Install a minimum of R14 mass insulation between the rafters following manufacturers' recommendations. The mass insulation can be faced or unfaced. A faced mass insulation will be easier to install.
- An air gap should be created between ESD 5 and the mass insulation. Screw wood spacers horizontally on the back of the knee wall. Fixate one spacer on top and one spacer in the bottom. The maximum distance between the wood spacers is 4 ft, make sure to install as many wood spacers needed on the back of the wall to cover the wall distance height In the majority of cases a total of 3 spacers (one on top, one on the middle and one on the bottom) is sufficient.
- To avoid sagging of the mass-insulation cables can be installed parallel to the wood spacers. Fixate the cables to the back of the studs. Install as many cables as need to assure the mass insulation will not come out of the cavity. See img 7 and img 8.
- Measure the distance of the wall between the floor and the ceiling. This dimension will determine the length of ESD5.
- Cut strips of ESD 5 from the factory sealed roll to the right length.
- Staple ESD 5 at the upper spacer and let it roll down until in touches the floor. Staple ESD 5 to the bottom spacer. Make sure to cover the cavity. Staple the material to all wood elements of the framing. Leave 2" – 3" between staples. Leave an overlap of 1 inch between the sheets of ESD 5.
- All penetrations or openings into or through the enclosed cavity should be sealed to ensure the cavity is unvented. Seal all gaps and seams between the wall and the ESD 5 with aluminum foil tape. Seal the overlap between the sheets of ESD 5 with aluminum foil tape. See img 8.

TECHNICAL DATA SHEET

PRODEX® THERMIC

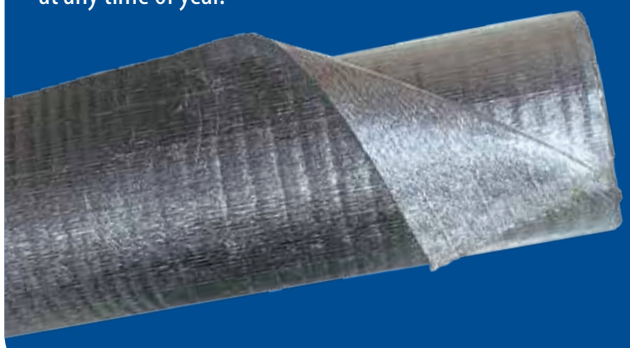
REFLECTIVE THERMAL INSULATION

ENERGY EFFICIENCY HAND IN HAND WITH THE ENVIRONMENT • AT ALL TIMES • FOR BUILDINGS

ESD5 REINFORCED ALUMINUM FACER + POLYETHYLENE FOAM + REINFORCED ALUMINUM FACER

0.19" closed cell polyethylene foam sandwiched between low E reinforced aluminum on both sides

Reflective thermal insulation developed according to the highest standards of quality, designed to save energy eliminating the radiant heat emitted by roofs, floors, and walls within the constructions. Besides, it protects your home, business or project providing COMFORT at any time of year.



This product meets the criteria set forth in the 2006/2009 IBC when evaluated according to NFPA 286.

ESD 5 INSULATION (REINFORCED ALUMINUM FACER + POLYETHYLENE FOAM + REINFORCED ALUMINUM FACER)		
DIMENSIONS AND TOLERANCES OF THE STANDARD PRODUCT		
THICKNESS: 0.19 ± 0.013 (in)	LENGTH: ± 11 (in)	WIDTH: 4 ± 0.032 (ft)
TECHNICAL CHARACTERISTICS OF THE PRODUCT		
CHARACTERISTICS	VALUE	STANDARD
FOAM CELL STRUCTURE	CLOSED	-
EFECTIVE WIDTH	3,83 ft	-
AVERAGE WEIGHT	0.0381 lb/ft²	-
THERMAL CONDUCTIVITY	0.0186 Btu/ft.h.°f	ASTM C 518
THICKNESS	0.19 in	-
WATER VAPOR PERMEANCE	0.011 perms (impermeable)	ASTM E 96-05
FLAME INDEX	0	ASTM E-84-10
CRITICAL RADIANT FLUX	0.50 W/cm²	ASTM E 970-10
SMOKE DEVELOPMENT	5	ASTM E-84-10
EMITANCE	0.04	ASTM C-1371-04
FUNGI RESISTANCE	NO GROWTH	ASTM C 1338
ADHESIVE PERFORMANCE	NO BLEEDING / NO DELAMINATION	ASTM C-1224
TEMPERATURE AND HUMIDITY RESISTANCE	NO CORROSION/NO DELAMINATION/NO LOSS OF METALIZATION	ASTM C-1258-08
PLIABILITY	NO CRACKING/ NO DELAMINATION	ASTM C-1224
TEMPERATURE RANGE	-4 °f / 180 °f	ASTM C-1224
TENSILE STRENGTH AT BREAK (MD)	9.9 LbF/inch	ASTM D-638
ROOM CORNER BURN TEST	PASS	NFPA 286, 2006/2009 IBC

- It is recommended a distance of 4 ft to 7.20 ft between supports
- Do not install at soffits when the insulation can be permanently exposed to UV radiation.

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