

# ROOFING

## PREPARATION FOR NEW CONSTRUCTION AND REROOF: ALL DECK TYPES

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Sweep and remove all loose particles and debris from the roof deck surface. The roof deck should be sound, smooth, and free of moisture. If a vapor retarder is required, it should be applied before the installation of the expanded polystyrene roof insulation. If a thermal barrier is required, local building codes must be followed regarding thermal barriers separating insulation from the building interior. All pre-existing and new components of the roof assembly must be expanded polystyrene compatible.

## METAL DECKS

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### Fully Adhered Single Ply, Modified Bitumen, or Built-Up Roofing

**Thermal Barrier:** Local building codes must be followed regarding thermal barriers. The International Building Code allows for the elimination of the thermal barrier if the roofing assembly complies with UL 1256. Please refer to UL Roof Deck Construction No. 458 for metal deck installations meeting UL 1256 without a thermal barrier.

Place thermal barrier (if required) on the metal roof deck with all joints tightly butted. The thermal barrier shall be gypsum board, a glass faced gypsum board meeting ASTM C1177, or perlite roof insulation meeting ASTM C728 in sufficient thickness to provide a 15 minute thermal barrier. Thermal Barrier attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as specified by the fastener or membrane manufacturer.

Note: Mechanical attachment may occur after insulation and coverboard placement when approved by the membrane manufacturer.

- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.

**Insulation:** Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings. R-Shield insulation ASTM C578 Type shall be as specified by the membrane manufacturer. R-Shield insulation attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as recommended by the fastener or membrane manufacturer.

Note: Mechanical attachment may occur after coverboard placement when approved by the membrane manufacturer.

- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.

- c. Hot asphalt over thermal barrier. For best adhesion, thermal barrier should be primed using an asphalt primer meeting ASTM D41 at a rate of 0.4 gallons per 100 square feet. Alternatively, a thermal barrier with a factory applied primer may be used. The thermal barrier shall be mopped with EVT temperature steep asphalt at a rate of 25-30# per 100 square feet. Mop an area large enough to accommodate one piece of R-Shield insulation with care to not contact insulation already in place. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C). Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings.

## METAL DECKS (CONT.)

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### Fully Adhered Single Ply, Modified Bitumen, or Built-Up Roofing (cont.)

**Coverboard:** Single ply and modified bitumen systems may require a coverboard. Follow manufacturer's coverboard specifications. Modified bitumen membrane systems that are attached using torch application or with hot asphalt require a coverboard as specified by the membrane manufacturer. Built-up roofing requires a coverboard as specified by the membrane manufacturer. Coverboard attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as specified by the fastener or membrane manufacturer.
- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.
- c. Hot asphalt attached coverboard shall be back mopped with EVT temperature steep asphalt. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C) before placing on the R-Shield insulation. Coverboard shall be placed with all joints tightly butted. Joints shall be staggered from the joints of the R-Shield insulation.

Note: Coverboard joint taping is required when membrane installation is by means of hot asphalt.

**Membrane:** Apply fully adhered single ply, modified bitumen, or built-up roofing following membrane manufacturer's specifications.

### Ballasted Single Ply

**Thermal Barrier:** Local building codes must be followed regarding thermal barriers. The International Building Code allows for the elimination of the thermal barrier if the roofing assembly complies with UL 1256. Please refer to UL Roof Deck Construction No. 458 for metal deck installations meeting UL 1256 without a thermal barrier.

Place thermal barrier (if required) on the metal roof deck with all joints tightly butted. The thermal barrier shall be gypsum board, a glass faced gypsum board meeting ASTM C1177, or perlite roof insulation meeting ASTM C728 in sufficient thickness to provide a 15 minute thermal barrier.

**Insulation:** Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings. R-Shield insulation ASTM C578 Type shall be as specified by the membrane manufacturer.

**Membrane:** Apply membrane following membrane manufacturer's specifications for application over expanded polystyrene. Ballast shall be the type, size, and weight as specified by the membrane manufacturer.

Note: Membrane manufacturer may require a coverboard, separator sheet, or fire resistant layer between the insulation and the membrane. Follow membrane manufacturer's specifications.

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## CONCRETE DECKS (INCLUDING GYPSUM AND CEMENTITIOUS WOOD FIBER)

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### Fully Adhered Single Ply, Modified Bitumen, or Built-Up Roofing

**Thermal Barrier:** Not required.

**Insulation:** Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings. R-Shield insulation ASTM C578 Type shall be as specified by the membrane manufacturer. R-Shield insulation attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as specified by the fastener or membrane manufacturer.

Note: Mechanical attachment may occur after coverboard placement when approved by the membrane manufacturer.

- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.
- c. Hot asphalt used as an adhesive over concrete roof decks. The deck should be primed using an asphalt primer meeting ASTM D41 at a rate of 0.4 gallons per 100 square feet. The prepared deck shall be mopped with EVT temperature steep asphalt at a rate of 25-30# per 100 square feet. Mop an area large enough to accommodate one piece of R-Shield expanded polystyrene with care to not contact insulation already in place. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C). Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings.
- d. Hot asphalt used as an adhesive over gypsum and cementitious wood fiber decks. Follow NRCA minimum recommendations for roofing felt attachment. The prepared deck shall be mopped with EVT temperature steep asphalt at a rate of 25-30# per 100 square feet. Mop an area large enough to accommodate one piece of R-Shield insulation with care to not contact insulation already in place. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C). Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings.

**Coverboard:** Single ply and modified bitumen systems may require a coverboard. Follow manufacturer's coverboard specifications. Modified bitumen systems that are attached using torch application or with hot asphalt require a coverboard as specified by the membrane manufacturer. Built-up roofing requires a coverboard as specified by the membrane manufacturer. Coverboard attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as specified by the fastener or membrane manufacturer.
- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.
- c. Hot asphalt attached coverboard shall be back mopped with EVT temperature steep asphalt. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C) before placing on the R-Shield insulation. Coverboard shall be placed with all joints tightly butted. Joints shall be staggered from the joints of the R-Shield insulation.

Note: Coverboard joint taping is required when membrane installation is by means of hot asphalt.

**Membrane:** Apply fully adhered single ply, modified bitumen, or built-up roofing following membrane manufacturer's specifications.

### Ballasted Single Ply

**Thermal Barrier:** Not required.

**Insulation:** Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings. R-Shield insulation ASTM C578 Type shall be as specified by the membrane manufacturer.

**Membrane:** Apply membrane following membrane manufacturer's specifications for application over expanded polystyrene. Ballast shall be the type, size, and weight as recommended by the membrane manufacturer.

Note: Membrane manufacturer may require a coverboard, separator sheet, or fire resistant layer between the insulation and the membrane. Follow membrane manufacturer's specifications.

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## COMBUSTIBLE DECKS

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### Fully Adhered Single Ply, Modified Bitumen, or Built-Up Roofing

**Thermal Barrier:** Place thermal barrier on the roof deck with all joints tightly butted. The thermal barrier shall be gypsum board, a glass faced gypsum board meeting ASTM C1177, or perlite roof insulation meeting ASTM C728 in sufficient thickness to provide a 15 minute thermal barrier. Thermal Barrier attachment shall be either:

- a. Mechanically attached with suitable UL or FM listed fasteners. The fastener pattern shall be as specified by the fastener or membrane manufacturer. Note: Mechanical attachment may occur after insulation and coverboard placement when approved by the membrane manufacturer.
- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.

Note: The International Building Code (IBC) allows the use of wood structural panel sheathing as a thermal barrier in roofing. Refer to the IBC for details.

**Insulation:** Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings. R-Shield insulation ASTM C578 Type shall be as specified by the membrane manufacturer. R-Shield insulation attachment shall be either:

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Note: Mechanical attachment may occur after coverboard placement when approved by the membrane manufacturer.

- b. Cold adhesives listed by UL or FM and compatible with expanded polystyrene. Adhesives must not contain solvents (VOC's) that damage the expanded polystyrene insulation. Adhesive placement shall be as specified by the adhesive or membrane manufacturer.
- c. Hot asphalt over gypsum board, glass faced gypsum board, or perlite thermal barrier. For best adhesion, thermal barrier should be primed using an asphalt primer meeting ASTM D41 at a rate of 0.4 gallons per 100 square feet. Alternatively, a thermal barrier with a factory applied primer may be used. The thermal barrier shall be mopped with EVT temperature steep asphalt at a rate of 25-30# per 100 square feet. Mop an area large enough to accommodate one piece of R-Shield insulation with care to not contact insulation already in place. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C). Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings.
- d. Hot asphalt without a thermal barrier. Follow NRCA minimum recommendations for roofing felt attachment to deck prior to hot asphalt application. The prepared deck shall be mopped with EVT temperature steep asphalt at a rate of 25-30# per 100 square feet. Mop an area large enough to accommodate one piece of R-Shield insulation with care to not contact insulation already in place. Allow asphalt to cool to 225°F to 250°F (107°C to 121°C). Place R-Shield insulation on the deck with all joints tightly butted. All crickets and/or R-Shield Tapered insulation shall be installed per approved shop drawings.

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Note: Coverboard joint taping is required when membrane installation is by means of hot asphalt.

**Membrane:** Apply fully adhered single ply, modified bitumen, or built up roofing following membrane manufacturer's specifications.

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## COMBUSTIBLE DECKS (CONT.)

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### Ballasted Single Ply

**Thermal Barrier:** Place thermal barrier on the roof deck with all joints tightly butted. The thermal barrier shall be gypsum board, a glass faced gypsum board meeting ASTM C1177, or perlite roof insulation meeting ASTM C728 in sufficient thickness to provide a 15 minute thermal barrier.

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**Membrane:** Apply membrane following membrane manufacturer's specifications for application over expanded polystyrene. Ballast shall be the type, size, and weight as specified by the membrane manufacturer.

Note: Membrane manufacturer may require a coverboard, separator sheet, or fire resistant layer between the insulation and the membrane. Follow membrane manufacturer's specifications.

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**Notice:** R-Shield EPS insulation contains a flame retardant; however, it should be considered combustible and should not be exposed to sources of ignition. The product will ignite when exposed to open flame or welding torches.

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