Malarkey Roofing Products®

SPEC MANUAL

B.U.R., MODIFIED & SHINGLE ROOFING SYSTEMS

Chapter 2A

Low Slope Roofing Installation Instructions

2A.1 STORAGE & HANDLING

The following is a list of Malarkey's basic requirements for handling and storing roof insulations, roofing products, and construction materials.

Unload, handle, and store all roofing products and construction materials with care.

Store roll roofing and materials on pallets, keeping them off the ground or roof deck.

Check all materials delivered to the work site for damage. If any material is damaged, contact your roofing products distributor to resolve the issue. All damaged material must be removed and replaced. Malarkey will assume no liability for damaged material once it has been released from Malarkey's manufacturing or warehouse facilities.

Protect roofing materials and construction products from weather before, during, and after delivery.

Store roll goods on end in a cool, dry, well-ventilated area until applied. Use breathable tarpaulin or covers to allow venting and protection from the weather. At the end of each working day, ensure unused materials are protected as described above.

Lightweight insulation products must be stored and properly weighted-down to avoid wind-related damage.

Protect roll goods, adhesives, and coatings from freezing. When storing materials, ensure the container and/or area are designed for that purpose and will not endanger any of the occupants or contents of the building being roofed.

Materials stored on the roofing surface shall be dispersed to avoid concentrated loading. Set larger concentrations over major structural members.

Materials should be stored at temperatures above 50°F (10°C) for a minimum of 24 hours prior to installation. When temperatures exceed 80˚F (27°C), leave self-adhering materials rolled-up and stored out of direct sunlight until immediately prior to installation. Unrolling and allowing the material to heat up may result in extreme difficulty removing the release film.

2A.2 SAFETY

Malarkey recommends all applicable safety standards and good roofing practices be followed. Roofing personnel must be properly trained to operate and install roofing systems safely and effectively.

Roofing and construction personnel are responsible for their own safety on the work site, as well as for those around them.

Roofers should always wear and maintain their *personal protection equipment* (PPE) when handling or installing components of the roofing system.

Roofing and construction materials should be stored and protected in a manner that does not endanger any personnel, personal property, building occupants or contents of the building being roofed.

Always keep first-aid kits, emergency telephone numbers, escape routes, and area maps to emergency facilities in a place easily located and accessible. Train personnel in first-aid procedures and how to prevent and safely extinguish fires.

Never allow contact between the heated surface of roofing membranes, adhesives, and flame equipment to your skin, hair, or clothing.

Have the correct type and number of fire extinguishers near the area being roofed and the area where the roofing kettle or tanker is located. Properly store and handle flammable materials. Only use flammable materials in safe, well-ventilated areas.

Regularly service and maintain all roofing equipment. Keep the roofing and staging areas clean.

2A.3 INSULATION

Malarkey recommends research be done to determine the types and advantages of the many insulation products available when considering incorporating insulation into your Malarkey roofing system.

Installation can vary greatly depending on deck type, wind uplift requirements, roof slope, and performance.

Should you have any questions whether the insulation you are considering will work with and meet Malarkey's minimum standards, contact our Technical Services Department.

2A.3.1 POLYISOCYANURATE

Polyisocyanurate (polyiso) is a rigid foam insulation board that consists of closed cell, blown pentane derivatives with a facer.

Polyiso is the most commonly used insulation in roofing systems because of its great thermal resistance, lightweight nature, and ability to be installed with conventional roofing practices.

Polyiso can be manufactured in various thicknesses and made to provide roof slope.

Malarkey requires a cover board or layer of ventilating base sheet be installed over the polyiso before the application of Malarkey roofing membranes. Specific brands of polyiso are included in the Malarkey Total System Warranty. Contact Malarkey's Technical Services Department for details.

2A.3.2 POLYSTYRENE INSULATION: EPS & XPS

Expanded polystyrene (EPS) foam is a closed cell, rigid plastic insulation manufactured by "expanding" a polystyrene polymer made from petroleum derived from crude oil.

Extruded polystyrene (XPS) foam is also a closed cell, rigid insulation formed with polystyrene polymer but manufactured using an extrusion process. Distinctive color is often used to identify product brand.

Polystyrene insulation is manufactured in a variety of board sizes – usually a minimum of 1-inch thick. Tapered units are also available for use in roofing assemblies where the insulation is used to create slope for positive drainage.

While EPS and XPS are two different products, they do have some similar characteristics and fall under the same manufacturing standard: ASTM C578, *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*.

Malarkey requires a gypsum cover board be installed over EPS and XPS insulation before application of Malarkey roofing membranes. Joints in the cover board must be taped per Malarkey instructions. Do not use in systems where solvent-based adhesives are employed. Contact Malarkey's Technical Services Department for details.

2A.3.3 PERLITE

Perlite is an expanded volcanic ore, blended with selected binders and fibers, and formed into a homogeneous board.

Perlite can be manufactured in various thicknesses and used as fill insulation, a tapered insulated system, cant strip or tapered edge strips, or as cover board.

2A.3.4 WOOD FIBER

Wood fiber insulation/cover or re-cover boards consist of wood pulp, sugar cane, and water blended with a binder that are formed into a solid sheet/board.

The boards can be coated with asphalt slurry on one or all six sides to reduce blisters and eliminate the need for priming in some roof systems. Specific brands of wood fiber cover boards are included in the Malarkey Total System Warranty. Contact Malarkey Technical Services or your sales rep for details.

2A.3.5 GYPSUM AND ASPHALTIC ROOF COVER BOARDS

Gypsum roof boards are manufactured with a gypsum slurry, fire retardant chemicals, water, and have various facers. DensDeck® by Georgia-Pacific (GP) is a very popular gypsum roof board. GP cautions that DensGlass®, their *other* product line, should NOT be used for roofing although it is often installed on the inside of parapet walls over metal studs. DensDeck® should be installed at the lower portion of a wall where roof base flashings will be adhered.

Asphaltic roof boards are composed of a mineral fortified asphaltic core between two layers of fiberglass mat and have a sanded surface or removable plastic separator sheet.

Gypsum and asphaltic roof boards can be used as substrate panels for torch, cold adhesive, hot asphalt, or self-adhesive applications.

Contact Malarkey for approval when using gypsum or asphaltic cover boards as a re-cover or roofing substrate.

2A.3.6 RIGID INSULATION WITH FACTORY-LAMINATED NAILABLE SUBSTRATE

The following information is for steep slope commercial applications when enhanced fastening is required. This is an alternative to the installation of an insulated, steep slope commercial application that uses pressure treated wood nailers and/or insulation stops for back-nailing of roofing plies and the cap sheet.

For residential shingle application over rigid insulation with a nailable substrate, refer to the installation instructions in this manual's ***Steep Slope*** section, subsection *RIGID INSULATION AND VENTING*.

Above-roof-deck, rigid insulation with a factory-laminated, nailable substrate can be used under Malarkey roofing systems, but the use and installation of this product must be in strict compliance with the manufacturer's requirements and recommendations.

Malarkey recommends a thermal barrier (a low permeance underlayment, vapor retarder/barrier, or gypsum roof utility board) be installed directly to the roof deck, staggered and secured, prior to installation of rigid roof insulation with a factory-laminated nailable substrate. A barrier of this type has been shown effective in reducing thermal transfer between the joints/gaps in the decking that cause "picture framing" of the rigid insulation.

Contact Malarkey if you have any questions regarding above-roof-deck insulation with a factory-laminated, nailable substrate. Malarkey will accept no responsibility for damage to the decking, building, or contents of the building when above-roof-deck insulation is used.

2A.4 INSULATION ATTACHMENT REQUIREMENTS FOR SPECIFIC DECK TYPES

Note: See Malarkey's requirements for the following deck types in the ***General Requirements*** section of this manual.

2A.4.1 STRUCTURAL CONCRETE DECKS

Structural concrete decks are to be primed with asphalt-based primer and the insulation set in a uniform mopping of asphalt at a nominal rate of 30 lbs. (13.6 kg) per square.

Other options for attachment are concrete fasteners with insulation plates or roof insulation adhesive.

Contact Malarkey's Technical Services Department if considering *lightweight* structural concrete.

2A.4.2 PRE-CAST CONCRETE DECKS

Pre-cast concrete decks are to be primed with asphalt-based primer and the insulation set in a uniform mopping of asphalt at a nominal rate of 30 lbs. (13.6 kg) per square.

Other options for attachment are concrete fasteners with insulation plates or roof insulation adhesive.

2A.4.3 WOOD DECKS

Wood decks require the use, number, and pattern of approved screw fasteners for securing roof insulation.

Alternate attachments may be used only after submission and approval by Malarkey's Technical Services Department prior to job start.

2A.4.4 POURED GYPSUM DECKS

Poured gypsum decks require a layer of Malarkey Paragon® MOD Base (SKU: 501) SBS base sheet, mechanically attached with approved fasteners, over the entire roof deck surface. Roof insulation, if specified, is installed on the base sheet using a uniform mopping of asphalt at a nominal rate of 30 lbs. (13.6 kg) per square.

2A.4.5 LIGHTWEIGHT INSULATING CONCRETE DECKS

Lightweight concrete decks require either a layer of 501 SBS base sheet or an inverted Malarkey Pano™ Cap (SKU: 502) cap sheet, mechanically attached with approved lightweight concrete fasteners, over the entire roof deck surface. Roof insulation, if specified, is installed on the base sheet using a uniform mopping of asphalt at a nominal rate of 30 lbs. (13.6 kg) per square.

2A.4.6 STEEL DECKS

Steel decks require the use of approved screw fasteners and plates that are secured through the roof insulation to the steel deck. Fastener attachment shall penetrate the top of the decking flutes, and extend a minimum of ¾" (19 mm) from the bottom side of the steel decking.

Alternate attachments may be used only after submission and approval by Malarkey Technical Services before job start.

2A.4.7 STRUCTURAL (CEMENTITIOUS) WOOD FIBER DECKS

Structural wood fiber decks require a layer of SBS base sheet, mechanically attached with approved fasteners, over the entire roof deck surface. Roof insulation, if specified, is installed on the base sheet using a uniform mopping of asphalt at a nominal rate of 30 lbs. (13.6 kg) per square.

2A.5 INSULATION FASTENING PATTERNS

Design pressures, board size, thickness, and type determine the number of fasteners, insulation plates, and spacing. Always use screws and 3" diameter (76 mm) plates when fastening boards.

The following patterns are Malarkey's standard attachment patterns for 4' x 8' (1.2 m x 2.4 m) rigid insulation boards. ***(See Figures 1 and 2)***

When the roof system is required to meet a specified wind uplift, contact Malarkey Technical Services. Patterns shown are for warranties only.

2A.5.1 MECHANICAL ATTACHMENT

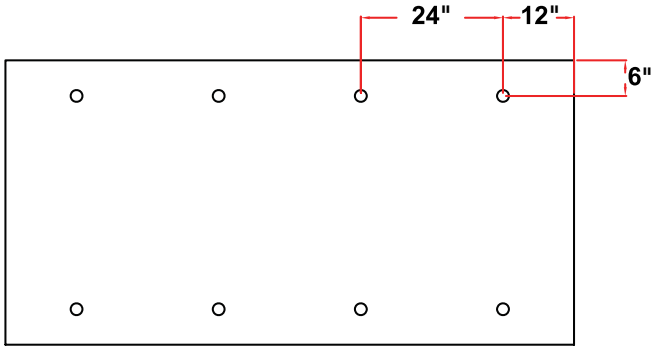


Figure 1 - One Fastener per 4 Square Feet (Rigid Insulation Thickness of 1.1" and Greater)

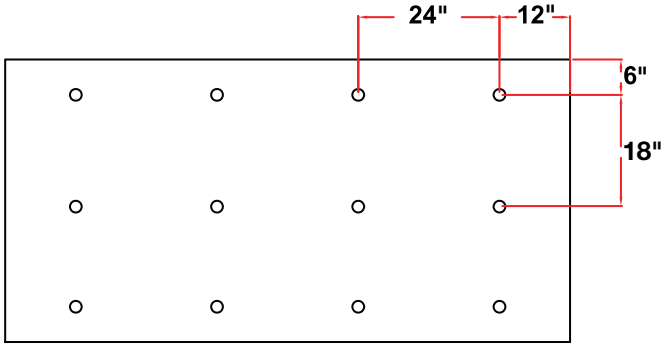


Figure 2 - One Fastener per 2.66 Square Feet (Rigid Insulation Thickness up to 1")

2A.5.2 STAGGERING OF INSULATION BOARDS

Stagger all end joints in adjacent rows. In multi-layer applications, joints in one layer should *never* line up with joints in previous layers.

2A.5.3 ADHERED ATTACHMENT OF ROOF INSULATION

Note: Malarkey recommends any insulation (other than cover or re-cover boards) installed with asphalt or low rise foam be limited to 4' x 4'. Contact Malarkey for details.

Install asphalt directly to an approved substrate (see general requirements for approved deck types and conditions prior to installing roof insulation) at a rate of 30 lbs. (13.6 kg) per square.

Set the insulation into a fresh mopping of asphalt, and carefully walk over the surface of the insulation to promote contact between the insulation and asphalt.

Do not kick or damage the insulation at any time during the roofing process.

2A.5.4 LOW RISE FOAM ADHESIVE ATTACHMENT

Refer to adhesive manufacturer's installation requirements.

2A.5.5 ADDITIONAL INSULATION REQUIREMENTS

Install only as much insulation as can be completed (insulation, base, and interply) that workday.

When possible, Malarkey recommends divorcing the insulation screws and plates from the roofing system.

Gaps along the joints of the insulation are to be less than ¼" (6 mm). All gaps in excess of ¼" (6 mm) are to be filled with the same insulation being installed. Offset all side and end joints of the insulation layers a minimum of 12" (305 mm).

Insulation should be set in position and walked on to ensure contact between the bottom of the insulation and the asphalt or adhesive used to attach the insulation to the deck surface.

Kicking the insulation into position is not acceptable and can result in damage that will affect the layout and surface of the insulated roof deck.

Malarkey recommends the size of insulation boards attached with asphalt be a maximum of 4' x 4'. Cover boards are the exception and may be installed in 4' x 8' sections.

All polyiso and EPS/XPS insulation is to receive a cover board (perlite, wood fiber board, asphaltic, or gypsum board). Type, thickness, and attachment method will be determined by the architect, specifier, or roofing professional per the insulation manufacturer's installation requirements.

Malarkey recommends polyiso be installed in a multi-layer application when total required thickness is greater than 2.6" (66 mm).

Mechanical attachment of insulation will be secured to meet specified design pressures.

In torch down assemblies, *metal* insulation plates are to be used when fastening the cover board. No plastic plates.

Malarkey will not accept any overlay of spray polyurethane foam (SPF) roofs. A complete tear-off and removal of the SPF roof to the deck must occur before attaching insulation for a Malarkey roof system.

2A.6 MEMBRANE INSTALLATION

2A.6.1 GENERAL RULES

Before installing any heavy duty base or cap sheet, the membranes must be cut to desired lengths and allowed to relax prior to installation.

Additional time and methods may be needed to fully allow the membranes to relax when installing in colder temperatures. Contact Malarkey Technical Services for recommendations.

Malarkey's Pano™ Ply 4 (SKU: 500) and Pano™ Ply 6 (SKU: 506) ply sheets do not require relaxing prior to installation.

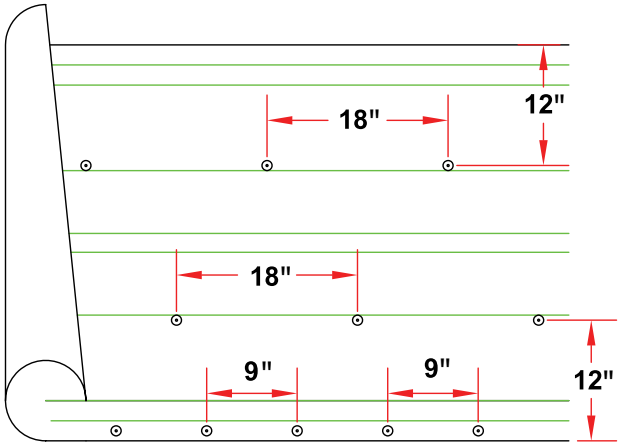
Care must be used when staging, positioning, and installing any membrane.

All base sheets should be positioned and kept taut while mechanically attaching.

2A.6.2 BASE SHEET FASTENING: HAND NAILING WITH 1" (25 MM) DIAMETER METAL CAP NAILS

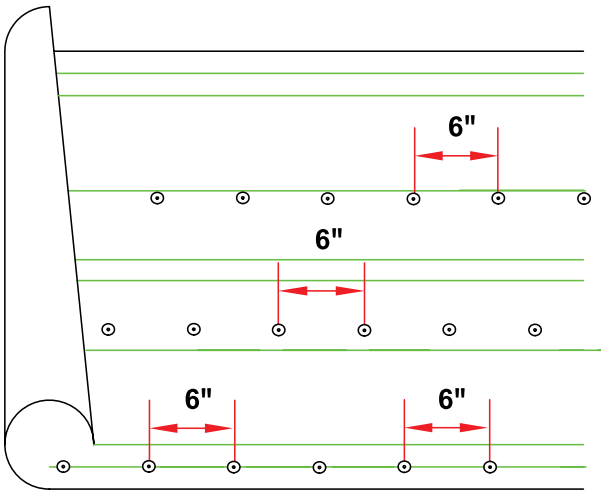
Install one (1) ply of specified base sheet so the flow of water is over or parallel to, but never against the laps. Lap 2" (51 mm) on sides, 6" (152 mm) on the ends, and turn up to the top of all cant strips and down roof edges.

MEETS DESIGN WIND PRESSURE -30 PSF



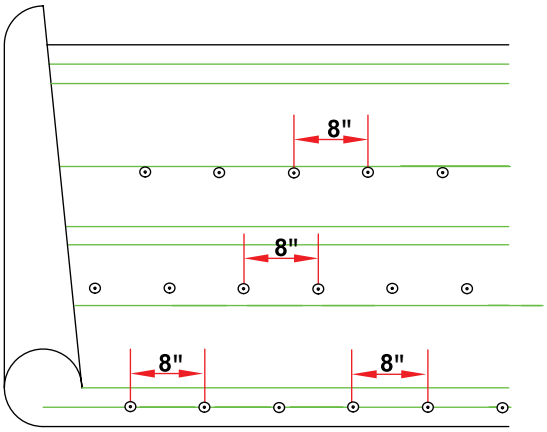
9" o.c. at 2" wide laps and 18" o.c., staggered in two rows 12" from each edge.

MEETS DESIGN WIND PRESSURE -75 PSF



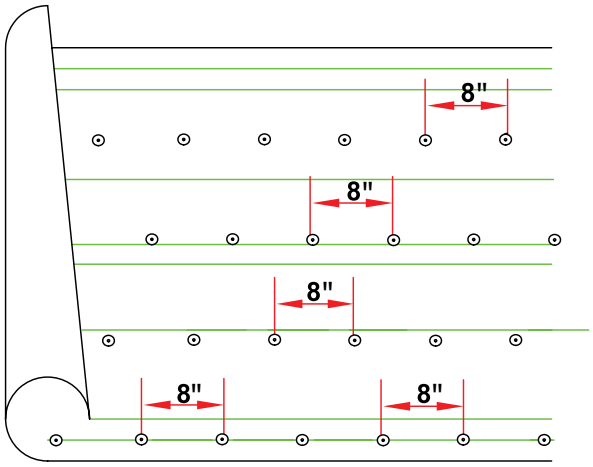
6" o.c. at 2" wide laps and 6" o.c. at two equally spaced, staggered center rows over a 7⁄16" OSB deck at 24" spans.

MEETS DESIGN WIND PRESSURE -75 PSF



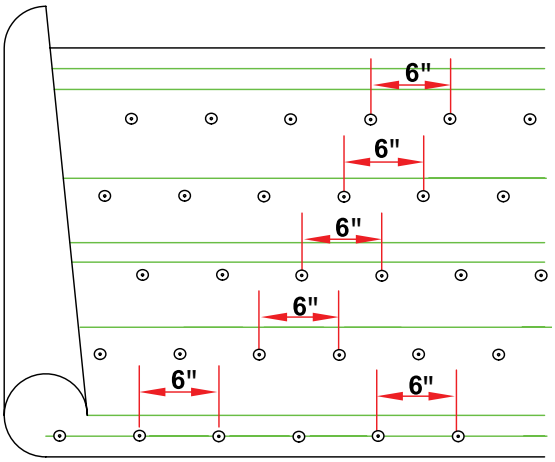
8" o.c. at 2" wide laps and 8" o.c. at two equally spaced, staggered center rows over a 15⁄32" plywood deck at 24" spans.

MEETS DESIGN WIND PRESSURE -90 PSF



8" o.c. at 2" wide laps and 8" o.c. at three equally spaced, staggered center rows over a 15⁄32" plywood deck at 24" spans.

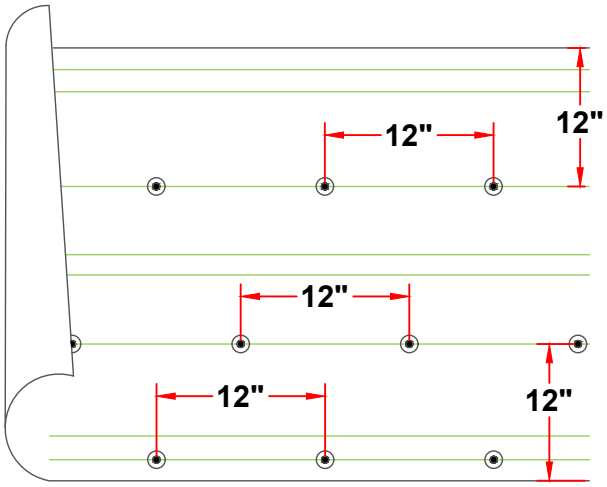
MEETS DESIGN WIND PRESSURE -105 PSF



6" o.c. at 2" wide laps and 6" o.c. at four equally spaced, staggered center rows over a 7⁄16" OSB deck at 24" spans.

2A.6.3 BASE SHEET FASTENING PATTERN USING PLATES AND SCREWS IN A STEEL DECK

Install one (1) ply of specified base sheet so the flow of water is over parallel to, but never against the laps. Lap 4" (102 mm) on sides, 6" (152 mm) on the ends, and turn up to the top of the cant.



12" o.c. at 4" wide laps and 12" o.c. staggered at two center rows 12" from each edge. Passing Pressure 195 psf; Allowable Design Pressure -97.5 psf.

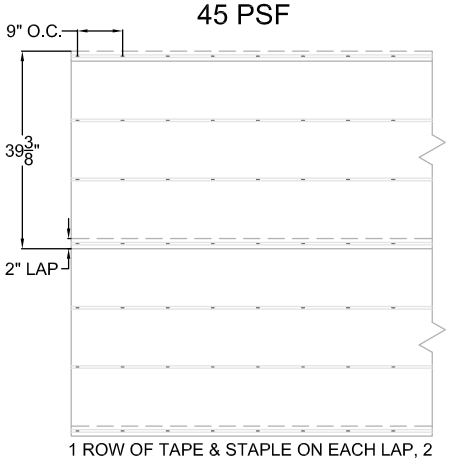
2A.6.4 BASE SHEET ATTACHMENT USING TAPE AND DIVERGENT STAPLES (NOT AVAILABLE WITH WIND RIDERS)

Install one (1) ply of specified base sheet so the flow of water is over or parallel to, but never against the laps.

Lap 2" (51 mm) on sides, 6" (152 mm) on the ends, and turn up to the top of the cant.

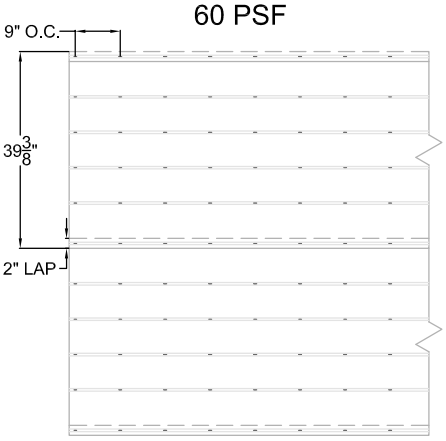
See the following details for DESIGN PRESSURE PATTERNS FOR BASE SHEET ATTACHMENT USING TAPE AND STAPLES TO A WOOD DECK.

45 PSF



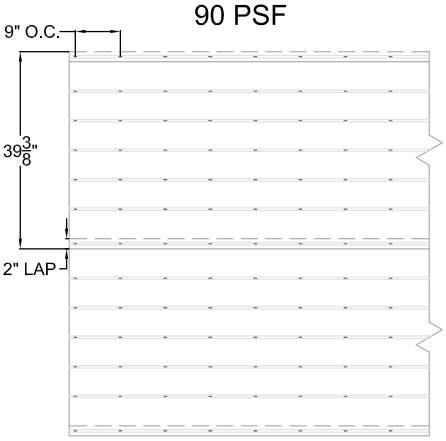
1 ROW OF TAPE & STAPLE ON EACH LAP, 2 ROWS IN CENTER OF SHEET. EVENLY SPACED.

60 PSF



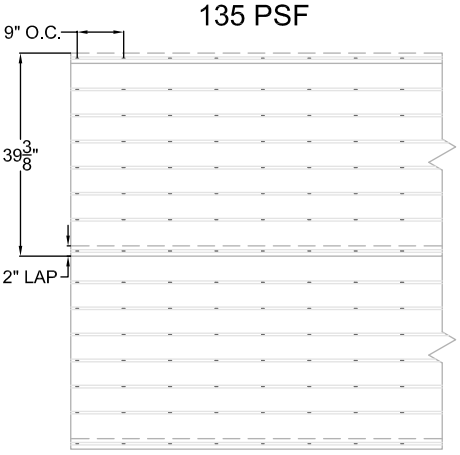
1 ROW OF TAPE & STAPLE ON EACH LAP, 4 ROWS IN CENTER OF SHEET, EVENLY SPACED.

90 PSF



1 ROW OF TAPE & STAPLE ON EACH LAP, 5 ROWS IN CENTER OF SHEET, EVENLY SPACED.

135 PSF



1 ROW OF TAPE & STAPLE ON EACH LAP, 6 ROWS IN CENTER OF SHEET, EVENLY SPACED.

2A.6.5 BASE SHEET ATTACHMENT USING HOT ASPHALT AND COLD ADHESIVE

Always stand above or on the up-slope deck side of the installation when installing membranes to prevent asphalt or adhesive displacement.

Avoid foot and machine traffic over any newly-laid membranes to reduce asphalt or adhesive displacement, a condition that may affect the overall adhesion and performance of the membranes and could result in voids within the roofing system.

Install a uniform mopping of asphalt at a nominal rate of 25 lbs. (11.3 kg) per square or cold adhesive at the nominal rate of 1.5 to 2 gallons (5.7 to 7.6 liters) per square directly to the insulation cover board, and install one (1) ply of specified base sheet so the flow of water is over or parallel to, but never against the laps.

Install the membrane without wrinkles, buckles, voids, and fishmouths in direct membrane to membrane contact or direct lap to lap contact.

Cut and patch any wrinkles, buckles, voids, fishmouths, membrane to membrane, or lap to lap with a like amount and type of membrane a minimum of 6" (152 mm) beyond all sides of the affected area set in hot asphalt or cold adhesive.

Lap 2" (51 mm) on sides, 6" (152 mm) on the ends, and turn up to the top of the cant, achieving an asphalt or cold adhesive bleed-out of the seams at a minimum ¼" (6 mm) to a maximum of 1" (25 mm).

When hot mopping, only mop 8' (2.4 m) ahead of the set roll to prevent the asphalt from cooling.

When using cold adhesive, set all base, inter-plies, or cap into the wet adhesive.

Broom all plies to ensure a good bond between the asphalt or cold adhesive and bottom of the membrane.

2A.6.6 SELF-ADHERING BASE SHEET

Paragon® ULTRA SA Base is a *self-adhering*, premium SBS polymer modified, 85 lbs./square, fiberglass base/ply sheet (with fiberglass scrim) developed for use in multi-ply SBS roofing systems. It is surfaced with mineral fines while the underside has an aggressive bonding compound covered with a split-surface release film for easy use and application. ULTRA SA Base carries the Paragon® name since it is often used with Paragon® cap sheets.

2A.6.7 INTERPLY HOT/COLD ADHESIVE ATTACHMENT

When using cold adhesive, only base sheets are to be used: DO NOT USE CONVENTIONAL PLY SHEETS.

Always stand above or on the up-slope side of the installation when installing membranes to prevent asphalt or adhesive displacement.

Avoid foot and machine traffic over any newly-laid membranes to reduce asphalt or adhesive displacement, a condition that may affect the overall adhesion and performance of the membranes and could result in voids within the roofing system.

Install all inter-plies so the flow of water is over or parallel to, but never against the laps in a uniform mopping of hot asphalt at a rate of 25 lbs. (11.3 kg) per square or 1.5 to 2 gallons (5.7 to 7.6 liters) per square of cold method adhesive.

Install without wrinkles, buckles, voids, fishmouths, direct membrane to membrane contact, or direct lap to lap contact. Stagger side and end laps, and offset from previous plies. End laps should be a minimum of 3' apart in subsequent courses.

Cut and patch any wrinkles, buckles, voids, fishmouths, membrane to membrane, or lap to lap with a like amount and type of membrane a minimum of 6" (152 mm) beyond all sides of the affected area set in hot asphalt or cold adhesive.

Install adhesive per manufacturer's specifications. Asphalt or cold adhesive bleed-out of seams shall be a minimum of ¼" (6 mm) to a maximum of 1" (25 mm).

When hand-mopping, only mop ahead of the set roll 8' (2.4 m) to prevent the asphalt from cooling. When using cold adhesive, set all base, plies, and cap sheets into the wet adhesive.

Broom all plies to ensure a good bond between the asphalt or cold adhesive and bottom of the membrane.

2A.6.8 SBS BASE / INTERPLY HEAT WELDED (TORCH) INSTALLATION

Heat welded SBS-modified bitumen base plies may be installed over approved insulation substrates, mechanically-fastened base sheets, and other SBS-modified bitumen plies that are heat welded, self-adhesive applied, hot asphalt applied, or cold adhesive applied. Heat welded SBS-modified bitumen base plies may also be installed over hot asphalt applied built-up membranes.

Torch-weld interply sheets so the flow of water is over or parallel to, but never against the laps. Unroll first roll completely and set in position. Re-roll the membrane a minimum of 6' or no more than 16' (½ of total length), making sure the sheet remains correctly aligned.

At end laps where T-joints exist, cut a 45° dog-ear off the corner at the selvage edge.

A propane torch flame is applied to the exposed surface of the membrane's underside in an even and

steady motion until the membrane reaches a molten state. Do not stand on the membrane while torching. Stand in front of the roll and pull it toward you while torching.

Apply the flame in a steady, L-shaped motion as the membrane is slowly unrolled across the deck. Start at the head lap side of the roll and work toward the side lap side, then away from the applicator on the side lap side from 8" to 18" (203–457 mm). With the "L" completed, reverse the motion, and work back up to the head lap.

A slight compound flow-out of bitumen should be visible from all sides and end laps of the membrane.

Install the membrane without wrinkles, buckles, voids, and fishmouths.

2A.6.9 SELF-ADHERING INTERPLY

OmniSeal™ Ply is a self-adhering, SBS polymer modified, 40 lbs./square, fiberglass sheet used as a base or ply sheet in the *OmniSeal™ Self-Adhering Roofing System*. It is finished on top with a factory-coated primer to enhance adhesion and surfaced on the underside with an aggressive bonding compound covered with a split-surface release film for easy use and application.

Complete installation instructions for the OmniSeal™ Roofing System can be found later in this chapter or online at WWW.MALARKEYROOFING.COM.

2A.6.10 CAP SHEET HOT/COLD ADHESIVE ATTACHMENT

Install the specified cap sheet so water flow is over or parallel to, but never against the laps.

Cut cap in lengths ⅓ to ½ the total length of the roll for hot asphalt or to the longest workable length for cold adhesive; allow membrane to relax.

Position the cap sheet for installation and embed in a uniform mopping of hot asphalt at a rate of 25 lbs. (11.3 kg) per square. For cold adhesive, position the cap sheet and apply cold adhesive to the base sheet/interply sheet only, then embed the cap sheet into the wet adhesive.

Install the membrane without wrinkles, buckles, voids, and fishmouths.

Ensure full adhesion.

2A.6.11 SBS CAP SHEET TORCH INSTALLATION

Torch-weld the specified cap sheet over the base sheet/interply sheets so the flow of water is over or parallel to, but never against the laps.

Unroll first roll completely and set in position. Re-roll the membrane a minimum of 6' (1.8 m) and no more than 16' (½ the total roll length; 4.9 m), making sure it remains correctly aligned.

At end laps where T-joints exist, cut a 45° dog-ear off the corner at the selvage edge.

Prevent cap ply laps from aligning with base ply laps. Offset cap sheet side laps and end laps away from base ply laps so cap sheet laps are not within 12" (305 mm) of base ply laps.

A propane torch flame is then applied to the exposed outer surface of the membrane's underside in an even and steady motion until the membrane reaches a molten state. Do not stand on the membrane while torching. Stand in front of the roll and pull it toward you while torching.

Apply the flame in a steady, L-shaped motion as the membrane is slowly unrolled across the deck. Start at the head lap side of the roll and work toward the side lap side, then away from the applicator on the side lap side from 8" to 18" (203–457 mm). With the "L" completed, reverse the motion, and work back up to the head lap.

A slight compound flow-out of bitumen should be visible from all sides and end laps of the membrane.

Install the membrane without wrinkles, buckles, voids, and fishmouths.

2A.6.12 SELF-ADHERING CAP SHEETS

Malarkey has two cap sheets available for the *OmniSeal™ Roofing System*. Shared attributes:

- Self-adhering
- SBS polymer modified
- High tear and tensile strength
- Surfaced with color-coated, ceramic granules for ultraviolet protection and weatherability
- Can be used over various combustible and non-combustible substrates
- Topside edge has a 4" (102 mm) selvage strip of adhesive covered by release film

OmniSeal™ Cap is a fiberglass cap sheet, 78 lbs./square.

OmniSeal™ Cap FR is also a fiberglass cap sheet, but heavier, 88 lbs./square.

Complete installation instructions for the OmniSeal™ Roofing System can be found in the next chapter or online at WWW.MALARKEYROOFING.COM.

2A.7 LOW SLOPE MEMBRANE INSTALLATION WITH SLOPES 1" (25 MM) OR GREATER

Commercial roof systems over decks with slope of 1" (25 mm) or greater require *strapped installation*.

Strapped installations run *parallel* to roof slope.

Non-insulated, nailable roof decks require no additional nailers to attach components of the roof systems (edge metal, straight metal flanges, etc.). These components can be flashed as shown in the Malarkey commercial details sections of this specification manual.

Insulated roof decks require mechanically-attached wood nailers, the same thickness as the roof insulation and cover board, be installed to the roof deck, perimeter of the roof deck, and around penetrations (i.e., sheet metal, non-lead flashings), rooftop equipment, and projections (unless the roofer obtained a variance approved by Malarkey prior to job start). Wood nailers or insulation stops are to be a minimum width of 3½" (89 mm).

Wood nailers and/or insulation stops shall be placed in the field of the roof, perpendicular to the roof slope at the spacing intervals indicated in the ***General Requirements*** section of this manual, Figure 1.

Install cover boards up to ¾" (19 mm) in thickness directly over the insulation. Wood nailers/insulation stops should match the thickness of the insulation and cover boards.

Install the interply over the cover board and secure the leading edge with 1" (25 mm) metal cap fasteners no more than 1½" (38 mm) from the outside edge of the sheet at all wood nailers and/or insulation stops. The fastener must penetrate the wood nailer ¾" (19 mm) minimum.

Install all overlapping interply as described above.

Note: Cover interply fasteners with the amount of interply specified (i.e., two-ply interply, if installed correctly, will have two (2) plies over each nailhead). Cap sheet installation does not require a staggered end lap pattern and can be run in a common end lap configuration as indicated in the ***General Requirements*** section of this manual, Figure 2.

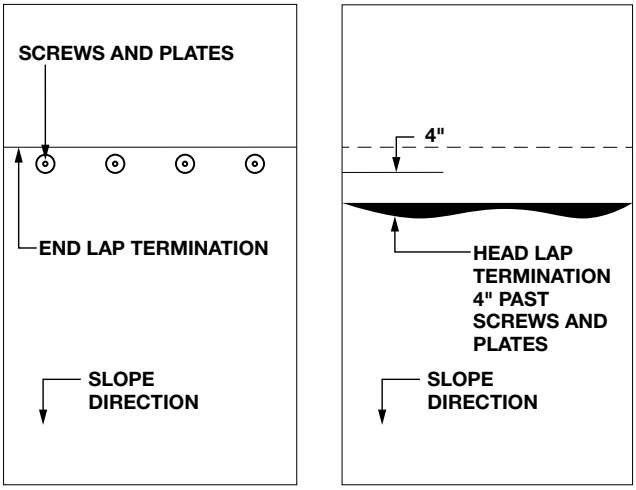
When securing a strapped, mineral-surfaced cap sheet membrane without nailers/insulation stops, use insulation screws and plates. Fasten the *end lap* with four (4) screws and plates in a straight line and evenly spaced. The overlapping, mineral-surfaced cap sheet *head lap* shall cover all screws and plates and terminate a minimum of 4" (102 mm) past the fasteners. ***(See Figure 1)***

2A.8 PHASING

Phasing is when sections of roof are partially completed and left exposed for a period of time before continuing or surfacing.

Whenever practical, phasing of your roof system should be avoided.

FIGURE 1



Phasing can occur during the installation of the base, ply, cap, or surfacing. Problems such as blistering, delaminating, physical abuse, other trade damage, and water intrusion can result from phased roofing.

Incomplete sections of exposed base or ply sheets can also accumulate dirt or contamination on its surface which can affect the bond between the adhesive and the rest of the built-up roofing membranes.

Any areas that are damaged due to phased roofing must be repaired in a manner acceptable to Malarkey before continuing the roof installation.

Malarkey recommends roofing contractors complete the surfacing of any roof system as soon as possible after plies have been installed. This will limit the exposure of plies to the weather.

2A.9 COLD WEATHER INSTALLATIONS

The application of asphalt-applied, low slope roofing systems in cold weather presents unique challenges to the roofing contractor, and there are many precautions to consider and provide for in a successful installation. Ambient temperature is one factor, but wind, wind chill, sun and cloud cover, and humidity can also affect the quality of the work.

It is critical for installers to acknowledge when weather conditions are prohibitive and suspend roofing work until more favorable conditions exist.

Malarkey Technical Services will closely review any warrantied project applied-for during suspected cold weather times of the year. Malarkey reserves the right to decline the issuance of roofing warranties for these applications if the additional application instructions listed below are not followed, or with good reason, the installer has not taken any other steps to prevent an inferior installation.

Storage
Built-up and modified bituminous roofing materials become much less flexible in cold temperatures. Throwing or dropping rolls of membrane on the deck can cause cracking of the modified bitumen compound.

Position roll roofing on end and along with adhesives, sealant, primers, and coatings, store at 55° to 60°F (12.8° to 15.6°C) for 24 hours prior to installation.

On-Site Preparations
The roof deck, including rigid insulation, to which roofing materials are applied, shall be dry, firm, smooth, and completely free of debris, frost, ice, and surface moisture.

Review the layout of the roof, and position materials where they will be needed. All membranes must be unrolled and relaxed prior to application. Cut into shorter lengths (⅓ to ½ the total length of the roll) for easier handling and reroll when ready.

Employ insulated rooftop bitumen transport and dispensing equipment; hot luggers and pipes leading to the roof from tank trucks must be properly insulated to maintain the correct temperature.

Keep materials in a hot box or warm storage area until ready and use promptly once removed.

Installation
The temperature at the time of installation should be a minimum of 45°F (7.2°C) and rising although ply sheets may be applied in colder temperatures. Do not begin too early in the day as the substrate also needs time to warm.

Leave no portion of roof unfinished; install only as much roofing as can be completed that day. Expect and plan for longer drying times in cooler weather. At the end of a day's work, install a *water cutoff* to prevent moisture from getting under the completed roof system.

Install membrane sheets so water runs over (shingle fashion) or parallel to (strapped), but never against the laps.

Hot Asphalt
Frequent temperature readings shall be taken to ensure the mopping asphalt is in the *Equiviscous Temperature* (EVT) range (± 25°F [-3.9°C]) recommended by the manufacturer[1]. Only install roofing membranes when the point of asphalt application temperature can be maintained at the correct EVT in the mop cart, bucket, or mechanical spreader.

Never overheat asphalt to compensate for cold weather conditions.

Hot luggers, mini-moppers, mop carts, and mop buckets shall be kept at least half full or quickly emptied prior to refilling. Spread hot asphalt promptly to maintain proper application temperature.

Keep adhesives, sealant, primers, and coatings warm as well, as close to 60°F (15.6°C) as possible. Discard any water-based materials that have been frozen.

Monitor water-based adhesives carefully when the ambient temperature is relatively close to the dew point, keeping in mind these temperature gaps are typically narrower in the early morning and late afternoon. Optimum conditions for adhesives and primers are at midday when the greatest difference between ambient and dew point temperatures exist.

Membrane layers shall be installed with the "roll-in method" of application and kept close to the mop, no more than 5' to 6' (1.5 to 1.8 m) in front of the roll. Quickly embed rolls into the asphalt, without delay between asphalt and membrane.

As membrane layers are applied, they should be *broomed* to eliminate voids and ensure full contact between the asphalt and bottom of the membranes. Heavy, weighted rollers work well for this.

When adhering insulation, use the minimum board size available and never larger than 4' x 4' (1.22 m x 1.22 m).

Cold Adhesives
Do not apply cold adhesive with a squeegee in temperatures below 45°F (7.2°C).

Torch Application
During membrane application, both the membrane and substrate should be heated in accordance with industry torch application safety guidelines. By warming the substrate before the molten asphalt is rolled into place, the adhesion of membrane to roof deck is enhanced. This is particularly important in the side and end lap areas, which should be given special attention.

2A.10 FINAL NOTE

These instructions are meant to act as a general guide. If you have questions related to them or any Malarkey roofing product, please contact our Technical Services Department weekdays at (800) 545-1191 or (503) 283-1191, 7:00 am to 5:00 pm, Pacific Time. You can also email us at malarkey.technicalinquiries@holcim.com. Thank you.

1 Temperatures typically typically range from 400°F (204°C) to 425°F (218°C). ASTM D312 specifies a max kettle temperature of 550°F (288°C), but kettle temperatures should be kept as far below this temperature as possible while still maintaining a temperature within the EVT range.