

CANADIAN TECHNICAL BULLETIN 014

TARGET MARKET ROOFING

January 31, 2022 / FOR IMMEDIATE RELEASE

Subject : Décor Installation Guidelines

The successful installation of a Décor Roof requires a good design and proper installation techniques which may be very different from a typical low slope roof installation. This document will cover many of the installation issues which need to be addressed before beginning a Décor roof.

Training

Applicators who have not previously installed a Décor roof are required to attend a one-day Décor training seminar. In addition, we strongly encourage contractors to have a Sika Sarnafil® technician on site at the beginning of the project, and on the first day of rib installation.

The one-day training will include:

- Welding on slopes, including demonstrations of welding up slope and down slope, to determine what is most suitable for a given project.
- Flashing pipes and curbs on steep slopes. -Rib positioning and alignment.
- Machine welding of ribs, including starts and stops, using flat metal starter.
- Hand welding of ribs, installing connections and end caps.
- Repair methods.

Substrates

The condition of the roof deck is of utmost importance. A concrete deck which is spalled or uneven may cause the finished assembly to look uneven. Surface preparation to fill low spots or grind down high spots may be required. The same is true for steel or wood that may be loose or uneven. Thin gauge metal decking (less than 22 gauge) can cause the finished product to look uneven and create telegraphing of the underlying substrate due to deflection. In all cases a pre-inspection of the roof deck must be conducted prior to installation to determine what remedial action, if any, should be taken.

Insulation Attachment

It is critical that all insulation layers and cover boards are installed properly. Board joints must be butted tightly and all cut edges must be straight and even to prevent gaps.



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Gaps or high spots will telegraph through the membrane affecting the final appearance. When using mechanical fastening it is important not to overdrive the fasteners. It is recommended that low profile insulation plates are used on the top layer whenever possible. Low profile plates have a slight protrusion on the bottom side which may be difficult to install flush on hard surfaces like wood. The plate can typically be used on Dens Deck® when the Dens Deck® is laid on top of polyisocyanurate or other relatively soft substrates. The protrusion will usually penetrate the Dens Deck® sufficiently with normal pressure from the screw gun. When the Dens Deck® is installed directly over wood or steel, it may be necessary to countersink the screw hole to allow for the metal protrusion to penetrate the Dens Deck®. This can be done simply by taking the corner of the low-profile plate and turning it with hand pressure to score the top of the fibreglass facer sufficiently for the plate to penetrate. Standard Sarnaplates can be used but may telegraph through the membrane more so than the low-profile plate. Use 4'x8' insulation and or cover boards where possible to reduce the number of board joints.

When using insulation adhesive to secure the top layer it is critical that all rising adhesive be kept away from board joints and removed from the finished surface. To avoid getting too much adhesive in the board joints, a good recommendation is to place the adhesive on the underside of the cover board before laying it in place rather than applying the adhesive directly to the substrate. On sloped or uneven surfaces it may be necessary to provide temporary securement to the boards while the insulation adhesive is curing. This can usually be done by adding a few screws and plates (which should be removed after the adhesive has cured) or by providing ballast such as pails of adhesive (CAUTION: Ensure pails cannot tip over and roll down the roof). Scoring the insulation or cover board facer to make the board conform better is unacceptable as this practice could lead to facer delamination and decreased wind uplift performance.

Membrane /Adhesive Application

The feltback membrane only has one selvage edge. Sheet layout will determine whether welding will be done upslope or down. See “welding” below for additional information.

To achieve a consistent looking finished surface, the adhesive must be applied in a smooth even manner avoiding puddles and dry spots. Puddles of adhesive may result in blistering while dry laid areas may wrinkle or sag, and be subjected to damage by wind uplift.

All temperature and weather restrictions for storage and application of the different Sarnafil® adhesives are to be strictly observed and followed. Although it is important to minimize blistering and condensation in any adhered application, this is particularly critical in Décor installations. Late afternoon adhesive application could result in condensation forming and resulting in poor adhesion. When the temperature is within 5 degrees of the dew point, condensation can occur and adhesive and membrane application should be suspended. In extreme heat, the bonding adhesives will dry quickly. It is critical that no more adhesive is applied ahead of the membrane than can be covered before drying. Dry laid membrane may not be visible right away but the use of a plunger after a reasonable drying period can help determine whether the membrane is properly adhered.

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When laying out membrane, the butterfly (or barn door) method is not recommended. This method is more likely to result in over drying of the adhesive and typically results in a crease down the middle of the sheet where it was folded. By using the “back rolled method” where the membrane is unrolled and pulled back lengthwise, it is easier to control adhesive drying time and avoid creases.

When aligning seam overlaps, it is critical to use the red line for sheet alignment rather than butting the edges of the felt from the adjacent rolls. As the width of the selvage edge may vary from roll to roll, aligning on the red line may result in localized felt overlapping, creating a slight high spot in the seam. This high spot should not be a concern as a rib will be positioned alongside making the felt overlap much less noticeable. If the seam alignment is done by butting the edges of the felt, inconsistent rib spacing may occur. The width of the membrane selvage edge is typically wider than the weld area. It is important to apply adhesive to the back side of the selvage edge area to avoid an unadhered strip running the length of the sheet. However, caution must be exercised to ensure there is no adhesive in the 38 mm (1.5 inch) weld area.



After the membrane is laid into the adhesive it should be immediately broomed, followed immediately by rolling with a 45 kg (100 pounds) or heavier, linoleum roller. Brooming alone is not sufficient to ensure the membrane is securely and evenly adhered. On steep slopes the roller will need to be tied off and lowered down from above.

Ensuring that the feltback membrane is sufficiently rolled into the adhesive is one of the most important aspects to achieving a smooth-looking finished product. It is important to take care when turning the roller to prevent wrinkling the membrane. Rollers should always be tied off for safety reasons.

On very steep slopes or vertical applications it can be difficult to use the tools above. Rolling should not be taken lightly as it is a critical component to a proper looking Décor roof. Brooming alone is not sufficient. Large, steel hand rollers as shown below can make rolling much easier and more effective when working on hard to reach areas. Rolling on vertical surfaces is dependent on sufficient hand pressure to force the felt into the adhesive.



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Welding Seams

To prevent blistering near the seam area, welding must be done either immediately after the sheet is adhered or after waiting a minimum of 2 hours.

Welding seams on slopes can be done either upslope or down slope. Membrane layout (left to right or right to left) must be established based on welding direction as the selvage edge is only available on one side of the sheet. When membrane is unrolled from high to low the salvage edge will be aligned for downhill welding. The sheets will have to be turned for uphill welding. The recommendation is to weld uphill if possible as downhill welding is likely to cause strain on the automatic welder drive gear and premature wear. In either case a rope should be tied to the automatic welder for safety reasons and to help reduce the weight on the drive gears.

When welding on steep slopes, the drive gear can become damaged causing the welder to slip. It is recommended to keep a spare drive gear on hand for replacement as necessary. A damaged drive gear can result in inconsistent welds.

When welding upslope it may be necessary to increase the speed beyond what would normally be used on a flat surface to prevent burning and when welding downhill it may be necessary to decrease the speed to insure a proper weld. The best approach is to first run the welder cold to see if it is capable of travelling uphill or downhill on a given slope without slipping. The automatic welders may need to be pushed to ensure smooth uninterrupted welding uphill. Cleaning the wheels with a solvent-based cleaner will improve traction and also help to keep the membrane clean. Do not clean the welder's wheels on the membrane surface. Do not use solvent-based cleaners on the exposed membrane.

When starting a weld, it is recommended that a flat piece of metal approximately 15 cm x 30 cm (6" x 12") be placed in the weld area to ensure the welding parameters are set before the nozzle contacts the PVC. This start area will need to be hand welded later.



Using a flat metal plate for starting welding at seams and ribs. This will allow for some adjustment of alignment and for the automatic to achieve proper speed before making contact with the PVC overlap.

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Like any other heat welded system it is important to take test cuts throughout the day or as the temperature fluctuates. With aesthetics being so critical on Décor roofs, it is important to take test cuts in an area that will not be noticeable. A better solution to cutting the finished roof is to provide a small mock-up of the roof assembly away from the work area. This mock-up should represent the roof assembly i.e. Iso, Dens Deck®, membrane, same slope, etc. Test welds and cuts can be performed on this test mock-up area to avoid having to patch the finished roof.

Décor Rib (rib) Installation

Closer rib spacing does a better job at hiding substrate irregularities. Although the designer typically decides on the rib spacing, it is critical that they be installed in such a manner as to allow for even spacing with ribs positioned alongside every seam. Rib placement alongside the seam helps to hide the edge of the seam. The lead edge of the seam must not be covered by a rib.

It is recommended that ribs be left short of the eaves and the peak. This is due to the difficulty in running the welder over the edge and secondly, if there is a coverstrip and edge metal at the eaves, this higher plane may cause the rib to look uneven.

For rib welding it is also recommended to use a flat metal starter plate to ensure consistent welding. When welding downhill the ribs may stretch. Welding uphill may cause the rib to shrink as the weight of the welder may cause the rib to contract. This contraction or growth should not affect the appearance or performance of the membrane or rib, but may require adding lengths of rib or cutting back on rib length.



Cutting the ribs can be done with a fine-toothed saw (CAUTION: Do not cut the membrane) or with a rigid pipe cutting tool as shown here.

After spacing has been determined, lines should be chalked to keep rib welding straight. Some chalks will permanently stain the membrane. Be sure to confirm that chalk can be easily removed before proceeding.



The rib guide attachment is just that, a guide. Chalk lines are still required as the guide is only intended as an aid to keeping the ribs equally spaced.

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At starts and stops as well as in areas that are not suitable for machine welding, hand welding is required. A “two headed” silicone roller which can be made with parts from two single rollers, facilitates the process.

When multiple lengths of ribs are needed, these connections should be hand welded together before being laid out on the roof and machine welded in place.



Another method for keeping ribs straight is to use a simple straight edge made of sheet metal as shown here.

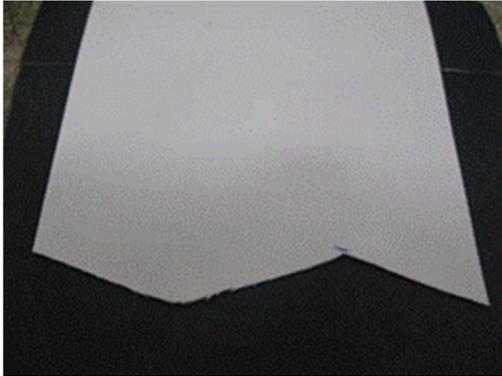
Flashing

When flashing penetrations on sloped roofs it is important to cut the flashing membrane to account for the slope and avoid uneven flashings. An example of flashing a pipe penetration on slope is below.



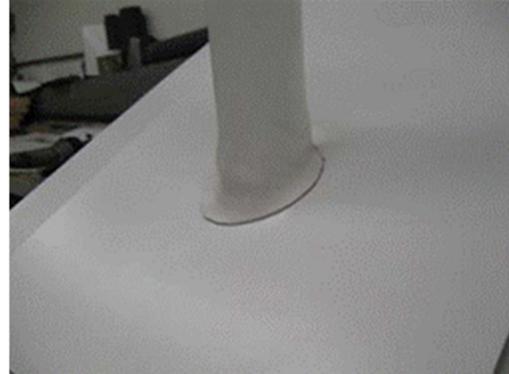
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Measure slope at pipe base.



Flashing piece after cutting.

Cut membrane at measured angle.



After stretching the flange, flashing is installed over the base flashing. Flange is equal width all around.

Edge Metal

Sika Sarnafil® should be contacted to review wind design before edge metal selection is made. The Sarnaclad® edge metal design is a common choice for Décor due to the available matching colours of the Sarnaclad® metal and membrane. When using Sarnaclad® metal, it is important to follow the details below as drawn.

Edge metal must be fastened sufficiently to prevent bowing and buckling. Slight irregularities in the edge metal will transfer through the membrane cover strip and detract from the appearance of a metal roof. A metal cleat must be installed continuously to achieve a smooth flat appearance. There are two detail options with Sarnaclad® metal, one with a metal fascia cover plate on top, the other eliminating the fascia cover plate on top by using a continuous cleat below, bent at 90 degrees.

Patching

When repairs are required due to punctures, cold welds, misaligned ribs, etc. the repair must be made of membrane that is cut straight and extends from one rib to another. This repair method will foster the continuity of the system by keeping lines straight whether vertical or horizontal. Small, isolated patches will be very noticeable and not look like something typically seen on a metal roof. For repairs to a puncture where the feltback membrane is left in place the repair can be done with a bareback membrane directly over the felt back. If the repair involves cutting out a rib or removing the feltback membrane, the void created by the removal of feltback must be filled completely with new feltback to avoid a crater. The filled space is then overlaid with bareback membrane.

Cleaning

Solvent based cleaners will remove the lacquer coating from the PVC membrane. When the lacquer is removed, a dull finish is left behind and the membrane is more susceptible to dirt pick up making these cleaned areas very obvious.



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Solvent based cleaners should only be used on heavily soiled membrane in seam areas or in locations that are not noticeable.

For general cleaning of lightly soiled membrane or scuff marks in the visible field of the roof, non-solvent-based cleaners such as Simple Green or Orange ZEP work well without removing the lacquer coating. After cleaning with these products, a dry film may be left behind which should be removed with water.

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Edge metal must be fastened sufficiently to prevent bowing and buckling. Slight irregularities in the edge metal will transfer through the membrane cover strip and detract from the appearance of a metal roof. A metal cleat must be installed continuously to achieve a smooth flat appearance. Refer to typical detail options with Sarnaclad® metal.

Night Tie in

The unprotected edges of feltback membrane will wick water. It is important that the night tie in protect the edges of the feltback to prevent wicking and adhesion/welding problems.

Night tie-ins must be done in such a manner that no cutting of the sheet the next day is required. If the membrane is cut due to contaminants from tie in material, rib alignment will be off due to a shorter distance to the next seam.

A common method of tying in is using Sika Sarnafil's Aluminum tape and polyethylene. Tape the poly on the membrane side and use one of the urethane foam adhesives to embed the poly on the deck side. The aluminum tape will stick well to the membrane and leave little residue behind. Aluminum tape is only 2 inches wide and may require multiple strips to achieve more width for sufficient adhesion. Duct tape or other tapes may leave a stain on the membrane creating long term discolouration or contaminating the weld.