



Application Guidelines for Torch Welding of Modified Bitumen Roll Roofing

The use of open flame and heated asphalt presents extreme hazard to personnel and property. Products applied by torching or mopping with hot asphalt should only be carried out by skilled mechanics trained in their installation and proper safety procedures. Failure to follow the procedures as outlined below or take the necessary precautions may result in serious injury and loss of property.

WHAT TO KNOW BEFORE YOU START

Know the nature of the product you are going to torch such as thickness, reinforcement, under-face (sanded or thermofusible plastic film).

Know the substrate you are torching to (e.g. wood, concrete or another membrane).

Take weather conditions into account. Torch welding varies with the wind, the temperature and the humidity in the air. Gas consumption is proportionately related to these elements.

The torching application rate will vary with the weather. It is slower under cold and humid conditions than when it is warm and dry.

This speed could change from day to day as well as during the day. To set your speed daily, practice on the first roll you are putting down. Heat roll for a few centimetres, stop, pull the roll back, check the uniformity of the weld, and set your pace according to your result. Frequently check weld integrity during the course of the day.

THE TORCH WELDING TECHNIQUE

Proper application involves the use of a roll puller which slowly unrolls the roll as the applicator heats the underside.

This method enables the applicator to observe and control the heat he applies to the roll and substrate surface.

The flame of the torch should be positioned between 150 mm (6") and 300 mm (12") from the surfaces depending on the wind conditions.

The movement of the torch should be a continuous to and fro motion allowing the flame to cover the entire width of the membrane without burning the side of the adjacent sheet already installed.

Never point the flame beneath the sheet (this could entrap air).

For best results, make sure that there is a continuous bead of molten modified bitumen at the junction of the roll and the substrate when in doubt, stop, roll-back, stringy filaments of modified bitumen should be present on the full width of the roll.

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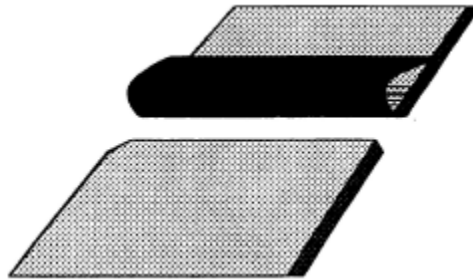
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- a) Cut off the corner piece of the selvage edge at the end lap that will be covered by the next roll
- b) Make sure you cut off the corner when membrane is unrolled dry before torching in place.
- c) Apply this rule for base and cap sheet membranes as well as for flashing details.



Granule end laps should be prepared well before the following roll approaches for bonding to the end lap. If granule embedment is delayed until the next roll is within 600 mm (24") of the end lap, the rolled material will overheat from residual heat generated from the embedding process.

GRANULE EMBEDMENT

Granule embedment or the preparation of the selvage where the cap sheet will overlap on the mineral surface is **MANDATORY**. This operation is necessary for good adhesion at these critical areas.

By doing so, there will be adhesion to bitumen. If this is not done, the adhesion will be inadequate and could cause delamination.

To embed the granules, soften the bitumen by heating the mineral surface with the torch. When the granules start to sink into the bitumen, stop torching and with a hot trowel, embed the granules in the bitumen. A "hot" trowel will slide easily and prevent granules from sticking to the trowel. It's important to trowel in the granules by sliding the trowel on the surface and not to scrape off granules and bitumen.

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Side laps of granular cap sheets can be fully bonded without visible asphalt bleed-out at the edge. However, a visible bead of bitumen is an immediate sign that the lap is securely sealed. Any bleed out in excess of this amount can be covered with matching granules set in reheated bitumen.

SAFETY PRECAUTIONS

- Carefully follow safety directions listed here in after when using torches and torch equipment in accordance with manufacturers' specifications, notices and documentation.
- Wear protective gloves, long sleeve shirts, trousers and security footwear. Do not wear synthetic fabrics. Remove all clothing that comes in contact with solvents.
- Torches used to weld waterproofing membranes can produce temperatures beyond 1000°C (1083°F).
- Avoid all contact with temperature sensitive materials as lead plastic materials.
- All employees, other than the torch operator, must be at least 3 m from flame.
- Never use torch(es):
 - when substrate(s) have been recently covered with solvent based products;
 - near any combustible materials;
 - close to containers containing flammable liquids or materials
 - directly on combustible substrate or insulations.
- Avoid presence on inflammable materials near open flame. Apply products only on clean, dry surfaces, free of debris, grease, dust and solvents.
- Do not direct the torch through open roof penetrations.
- Keep in mind that the flame can travel over long distances, through and beyond small openings. Take proper preventive safety measures.
- Attach the torch to the fuel tank using a pressure regulator calibrated to the manufacturer's design pressure. The regulator should be equipped with a rupture check valve.
- Put out torch when not in use.
- When torch is not in use, always place it on its support, with head aiming upwards.
- At all times and especially when leaving job-site, make sure that there is no smoldering or concealed fire. Job planning must allow for employee presence on the roof at least one hour after torch application.
- When the torch is no longer in use, the fuel tank valve must be shut first, then activate the torch so as to completely evacuate the rubber hose of its propane.

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