

METHOD STATEMENT:

MasterSeal 729STR Double Layer for Green Roof and Landscaping Application

1 SCOPE

This document covers the installation of **MasterSeal 729ST** SBS modified torch applied bituminous membrane with a second layer of **MasterSeal 729STR**, SBS modified torch applied bituminous waterproofing membrane with anti-root property for green roof and landscaping application. All materials and method involved in the execution of the waterproofing work is described.

2 RESOURCES

2.1 Materials

Item	Description of Material
MasterSeal 729ST	SBS modified torch applied bituminous membrane
MasterSeal 729STR	SBS modified torch applied bituminous membrane with anti-root property
MasterSeal P 700	Solvent based bitumen primer
Protection Board	Protection for vertical application of membrane
MasterSeal 914	Epoxy grout for encapsulation of pipe termination
MasterSeal 955 FLASHSEAL	Self-adhesive, waterproofing repair tape

2.2 Tools and Equipment

Item	Equipment Description
1	Slow speed drill machine with less than 500 rpm and a suitable spiral mixer for stirring the primer (MasterSeal P 700) and mixing epoxy grout (MasterSeal 914)
2	Flame torch and LPG cylinder
3	Wooden press and lap rollers
4	Brush / roller
5	Steel scraper
6	Measuring tape
7	Cutting knife and scissors
8	Cotton rugs

3 PROJECT EXECUTION / SEQUENCE OF WORKS

3.1 Substrate Preparation

- All surface to be treated shall be sound, should have clean surface free from laitance, oil, grease, mold release agent, residual curing compound, dust or other contaminants that could impair adhesion.
- Substrates must be regular and smooth, free of loose aggregate and sharp protrusions.
- All sharp edges to be chamfered (min 20mm) and internal corners to be filled with sand cement fillet, 50mm by 50mm.

3.2 Primer Application – MasterSeal P 700

- All concrete surfaces shall be primed by solvent based bitumen primer, **MasterSeal P 700**.
- Mix the contents of the pail/drum prior to the application to remove any sediment.
- Apply the primer @ 1 to 3 m²/liters depending on the porosity of the concrete by a brush, roller or an airless spray.
- Allow the primer to dry prior to the application of the waterproof membrane.
- If membrane application gets delayed for more than 24 hours after the primer has been applied on the concrete surface, then apply a fresh coat of the primer again.

3.3 Membrane Application – MasterSeal 729ST / MasterSeal 729STR

3.3.1 First Layer Application – MasterSeal 729ST

- Unroll the roll of **MasterSeal 729ST** membrane and align the side laps.
- Re-roll the roll halfway and stand on the unrolled portion to prevent shifting. Side overlaps should be a minimum of 100 mm and the end overlaps 150mm.
- **MasterSeal 729ST** membranes are installed by using a cylinder fed propane gas torch. Use of hand-held roofing torches is also recommended as it gives a control on torching. If multiple burner torching machines are utilized, care must be taken to ensure the application of uniform heat and avoid overheating of the membrane.
- Begin torching the embossed printed polyethylene side of the rolled portion of the membrane. Proper torching procedure involves passing the torch flame in an "L" pattern applying about 75 percent of the heat across the coiled portion of the roll and 25 percent across the substrate, including the lap area of the previously installed membrane.
- As the membrane is heated the embossing starts to melt away exposing a shiny bitumen surface. Roll forward the membrane and press firmly with the boot or roller against the substrate to bond well. The propane flame should be moved from side to side and up the lap edge while the membrane is slowly unrolled and adhered to the underlying surface.
- Subsequent shift of the roll shall be avoided after heating has begun. When complete, the remaining un-torched membrane shall be re-rolled and installed in the same manner. When one end is complete, re-roll the opposite end not yet torched, and install in the same manner.
- As subsequent rolls are installed, heat is applied to both the roll and the exposed laps of the membrane being overlapped onto. Be sure to heat the entire roll evenly, not just the lap areas, with extra concentration at the laps. Care shall be taken not to over torch the membrane as this will expose and damage the reinforcement.

3.3.2 Skirting / Vertical Membrane Application

- All the internal corners should be provided with cement sand angle fillet.
- Provide a 300-mm wide reinforcing strip of **MasterSeal 729ST** on all the corners of vertical area.
- Install the vertical membrane preferably extending 250mm higher than the ground / finish level.
- The membrane shall be terminated on a groove, sealed with bitumen filling.
- The termination shall be covered and protected with an aluminum flashing, minimum 1mm thick, 50mm wide, having 10mm upper-tip bent at 45 degrees to receive the sealant.
- The sealant to be used for aluminum flashing is preferably a polysulphide sealant.

3.3.3 Second Layer Application – MasterSeal 729STR

- Install the membrane similarly with the first layer. Reinforcing strips on corners are not required.
- Lay the second layer over the overlaps of the first layer, ideally at half-width, staggering them from each other to avoid multiple membrane layering on the same overlap.
- All completed areas of **MasterSeal 729STR** shall be protected from any damage or puncture due to ongoing site activities.

3.3.4 Sealing the Overlap

- Heat both the overlaps and use round-tipped trowel to seal the overlap.
- Adequate heat is confirmed when a uniform flow of melted bitumen compound flows evenly in a bead that oozes from the applied membrane's edges. Excess compound should be smoothed and pressed into the seam using a heated trowel.
- Any un-bonded areas must be lifted and re-torched. Do not attempt to reseal by torching the top surface of the membrane.

3.3.5 Membrane Application on Pipes

- A cement sand angle fillet shall be provided all around the pipe joint, primed with **MasterSeal P 700** up to 200mm of the pipe length.
- A 250mm wide sleeve of **MasterSeal 729STR**, with 50mm dovetail cut at the base, shall be wrapped and torched around the pipe.
- Melt the dovetail-cut base of the sleeve and level it off using a steel trowel.
- Place/insert a doughnut-shaped reinforcing piece of membrane, tightly around the pipe and extending 200mm from it.
- Torch the reinforcing piece and smoothen the edges by melting it and leveling it off using a steel trowel.
- The end of pipe dressing shall be clamped in place using jubilee clips.
- Encapsulate the pipe with **MasterSeal 914**, epoxy grout, extending 25mm on all directions.

3.4 Membrane Repair

- Due to high chances of damaging the membrane caused by site activities, damages can be patched repaired with a piece of the same membrane which extends at least 100mm from all the sides of the puncture. The area to be repaired shall be primed with the **MasterSeal P 700** and allowed to dry before carrying out the patching work.

3.5 Protection Layer Application

- Horizontal membrane shall be protected with a 50mm sand-cement protective screed with aggregate size not more than 10mm.
- Vertical membrane should be protected with a layer of protection board.

4 STORING AND PROTECTION OF MATERIAL

- All materials whether loose or on pallets have to be stored vertically in a covered area and protected from UV and sunlight.
- Rolls shall never be stacked but rather kept in an upright position. Damage to the membrane may be caused due to improper storage and at high temperatures.
- Application of membranes should be avoided in case of extreme weather conditions like sand storm or rain. The ambient temperature during application should be between 5°C and 45°C.

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