

Application Guide
for
MasterSeal[®] Roof 3000
(MasterSeal M 210SL/TIX Membrane)

1. Preparation

- 1.1 Ensure the concrete is profile free, no ridges or troughs, etc. The substrates shall be free of laitance, loose or friable materials, debris and all contaminants by mechanical means preferably by captive shot blasting with hand held diamond grinders for edge work to achieve CSP 3 finish. Bag up blowholes, especially on vertical surfaces, and carry out any necessary repairs in good time prior to priming. "Bagging up" should be carried out using a suitable epoxy putty.
- 1.2. To vertical surfaces, all form release agent must be removed prior to applying any primer.
- 1.3. Ensure adequate masking off of adjacent areas has been completed and all detailing is in accordance with the project drawing.

2. Prime using

2.1 MasterEmaco 2525

- 2.1.1. Before mixing, pre-condition both A and B components to a temperature of approximately 15 to 29°C. Pour the entire contents of Part B into the container of Part A. **DO NOT MIX BY HAND.** Mix with a mechanical drill and paddle at a very low speed (ca. 300rpm) for at least 3 minutes. Scrape the sides and the bottom of the container several times to ensure complete mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles. **DO NOT WORK OUT OF THE ORIGINAL CONTAINER.** After proper mixing to a homogeneous consistency pour the mixed Parts A and B into a fresh container and mix for another minute.
- 2.1.2. Apply a thin coat of **MasterEmaco 2525** to the prepared substrate by spreading with a squeegee at the minimum rate of 0.3 – 0.5 kg/m² and finished with a roller. Porous substrates may require a second coat to ensure the surface is fully sealed. Broadcast MasterTop Filler F5 at a rate of 0.8 – 1.0 kg/m² into the still-wet primer to produce a light, even cover. Allow to cure for at least 6hours before removing all excess sand with a stiff broom and vacuum.

Note:

1. *MasterEmaco 2525 shall be applied when the ambient temperature is constant or falling, as this will decrease the risk of bubble formation due to expansion of air that is enclosed in the concrete*
2. *MasterEmaco 2525 shall be applied when the substrate temperature is 8-40°C*
3. *The Tensile Strength of the concrete shall not be less than 1.5MPa and the residual moisture shall not be more than 6%*
4. *Membrane application onto primer*

Application	at 10°C at 20°C at 30°C at 30°C & > 80% RH	min. 12 hours min 9 hours min 4* hours min 4* hours
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* When primer is tack free subsequent coat can be applied.

2.2 Membrane – MasterSeal M 210SL/TIX

- 2.2.1 Ensure surface for application is dry, free from dust, debris and all other contaminants which may inhibit adhesion between the membrane and primer.
- 2.2.2 Before mixing, pre-condition to a temperature of approximately 15 to 29°C. Remove the bladder from the can and empty the contents into the empty can. Mix with a mechanical drill and paddle at a very low speed (ca. 300rpm) for at least 2 minutes until the colour is homogeneous. Scrape the sides and the bottom of the container several times to ensure complete mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles.

- 2.2.5 Apply the MasterSeal M 210SL/TIX membrane using a notched squeegee over the “tack free” primer at a coverage rate of 1.2-1.5kg/m² to achieve a 0.8-1.2mm thick uniform grey membrane. Allow the membrane to cure for at least 6 hour or until tack free prior to subsequent topping.

Note:

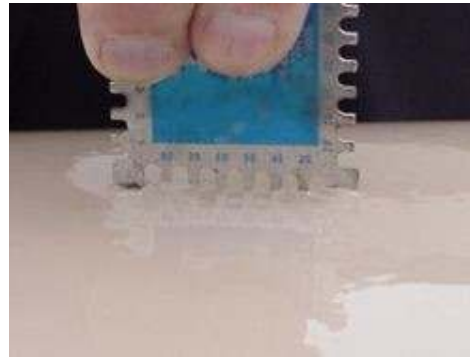
1. MasterSeal M 210SL/TIX must be applied within the recommended temperature and relative humidity limits.
2. The temperature of the substrate must be at least 3°C above the dew point during the application...

3. Onsite QA

- 3.1. On-site QA is important to ensure that both the substrate and application are within the correct limits. There are three key QA tests: adhesion to the substrate, thickness of application and holiday testing.
- 3.1.1 Adhesion to the substrate
- 3.1.2 Prior to application the substrate should be checked for soundness with a number of direct tensile strengths to ensure the substrate is suitable. Minimum direct tensile strength of the concrete substrate should be 1.5MPa.
- 3.1.3 Substrates other than concrete (tiles, block work, brick etc) should be tested for soundness and integrity.
- 3.1.4 During the application and whilst the MasterSeal is still wet place a dolly at 3 metre intervals or as agreed by the supervising engineer into the membrane and allow to cure overnight.
- 3.1.5 Once cured using a sharp knife cut through the membrane to the primer and then do a direct tensile test using a suitable tester.
- 3.1.6 Record the results and repeat if the direct tensile strength is less than 1.5MPa (As we have done a test on the substrate we will know that the concrete substrate is more than 1.5MPa)



- 3.2. Thickness testing
- 3.2.1. The thickness of the material can be easily checked during application through the use of a wet film thickness gauge.
- 3.2.2. The gauge is placed into the wet material and the thickness can be determined by the last point that has wet material on it.



3.3 Holiday testing

- 3.3.1 Ensuring that the membrane is pin hole free is important for the longevity of the installation and the watertightness of the structure
- 3.3.2. Electronic holiday testers are available that test for changes in resistance between an earth point and the machine.
- 3.3.3. These so called spark testers use a wand with fine metal filaments that is drawn across the surface and a spark and an audible alarm sounds when a pin hole is found.
- 3.3.4. Once a pin hole is found it can be repaired and the process repeated to ensure a complete lining is in place.
- 3.3.5. An alternative is a flood test which depending on the circumstances may be the most cost effective option.



3.4 Definition: Dew Point is the temperature at which condensations forms.

- 3.4.1. To determine the Dew Point from the chart below, find the temperature of the air on the left side of the table. Next, locate the relative humidity of the air across the top of the table. The intersection of these two numbers in the matrix identifies the temperature at which Dew Point is reached. When air comes in contact with a surface that is at or below its Dew Point temperature, condensation will form on that surface.
- 3.4.2. Example: If the temperature in a facility is 24° C and the relative humidity is 35%, the intersection of the two shows that the Dew Point is reached at a temperature of 7°C, or below. This means that moisture vapour in the 24° C / 35% RH air will condense on any surface that is at or below the Dew Point temperature of 7°C.

3.4.3

Air Temperature [C]	Relative Humidity								
	100	90	80	70	60	50	40	30	20
-10	-10,0	-11,3	-12,8	-14,4	-16,3	-18,4	-21,0	-24,3	-28,7
-8	-8,0	-9,3	-10,8	-12,5	-14,4	-16,6	-19,2	-22,5	-27,0
-6	-6,0	-7,4	-8,9	-10,6	-12,5	-14,7	-17,4	-20,7	-25,3
-4	-4,0	-5,4	-6,9	-8,7	-10,6	-12,9	-15,6	-19,0	-23,6
-2	-2,0	-3,4	-5,0	-6,7	-8,7	-11,0	-13,8	-17,2	-21,9
0	0,0	-1,4	-3,0	-4,8	-6,8	-9,2	-12,0	-15,5	-20,3
2	2,0	0,5	-1,1	-2,9	-4,9	-7,3	-10,2	-13,7	-18,6
4	4,0	2,5	0,9	-1,0	-3,1	-5,5	-8,4	-12,0	-16,9
6	6,0	4,5	2,8	0,9	-1,2	-3,6	-6,6	-10,3	-15,3
8	8,0	6,5	4,8	2,9	0,7	-1,8	-4,8	-8,5	-13,6
10	10,0	8,4	6,7	4,8	2,6	0,1	-3,0	-6,8	-11,9
12	12,0	10,4	8,7	6,7	4,5	1,9	-1,2	-5,0	-10,3
14	14,0	12,4	10,6	8,6	6,4	3,7	0,6	-3,3	-8,6
16	16,0	14,4	12,5	10,5	8,2	5,6	2,4	-1,6	-7,0
18	18,0	16,3	14,5	12,4	10,1	7,4	4,2	0,2	-5,3
20	20,0	18,3	16,4	14,4	12,0	9,3	6,0	1,9	-3,6
22	22,0	20,3	18,4	16,3	13,9	11,1	7,8	3,6	-2,0
24	24,0	22,3	20,3	18,2	15,7	12,9	9,6	5,3	-0,4
26	26,0	24,2	22,3	20,1	17,6	14,8	11,3	7,1	1,3
28	28,0	26,2	24,2	22,0	19,5	16,6	13,1	8,8	2,9
30	30,0	28,2	26,2	23,9	21,4	18,4	14,9	10,5	4,6
32	32,0	30,1	28,1	25,8	23,2	20,3	16,7	12,2	6,2
34	34,0	32,1	30,0	27,7	25,1	22,1	18,5	13,9	7,8
36	36,0	34,1	32,0	29,6	27,0	23,9	20,2	15,7	9,5
38	38,0	36,1	33,9	31,6	28,9	25,7	22,0	17,4	11,1
40	40,0	38,0	35,9	33,5	30,7	27,6	23,8	19,1	12,7
42	42,0	40,0	37,8	35,4	32,6	29,4	25,6	20,8	14,4
44	44,0	42,0	39,8	37,3	34,5	31,2	27,3	22,5	16,0

4. Surface Coating

4.1 MasterSeal TC 465

- 4.1.1. Ensure surface for application is dry, free from dust, debris and all other contaminants.
- 4.1.2. Prior to application, **MasterSeal TC 465** shall be preconditioned to a temperature of between 15 and 29°C.
- 4.1.3. Mix with a mechanical drill and paddle at a low speed (approx. 300 rpm) until product is homogeneous.
- 4.1.4. Apply **MasterSeal TC 465** polyurethane sealer over the MasterSeal M 640/M 200 membrane with a squeegee and followed by back rolling with 12-14mm nap roller at least 6 hours later to specified colour at a rate of 0.5 – 0.8 kg/m² in one coat to achieve a dry film thickness of 0.2 – 0.32mm. Protect from foot traffic for at least 24 hours.

Note:

1. The temperature of the substrate must be at least 3 0C above the dew point before application and must remain so until the topcoat has cured.
2. Topcoat MasterSeal TC 465 application times onto MasterSeal M 210 intervals as below or until tack free

Top Coat Application	at 10°C at 20°C at 30°C at 30°C & > 80% RH	min 24* hours min 12* hours min 6* hours min 6* hours
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5. Protection of Work

- 5.1 The roof deck must not be used as a working platform by other trades unless fully protected to the satisfaction of the Contract Administrator and deck installer.
- 5.2 No harmful substances should come into contact with the new system.
- 5.3 No building materials, scaffolding, plant machinery etc should be stored on the deck.
- 5.4 Finished works must be protected from damage by subsequent building operations.

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