

Installation manual

MAPEPLAN T FPO



The technical details and recommendations contained in this manual are based on our knowledge and experience. However all the information must in every case, be used as guidance only. Any individual or company who intends to install the MAPEPLAN products must ensure that they are suitable for the correct waterproofing application. In every case the individual or company is fully responsible for the installation of the products and for any consequential loss deriving from the installation of the system.

For any further information please contact the MAPEI GROUP technical department.



INDEX

| | | |
|------|-----------|--|
| Pag. | 04 | Introduction |
| Pag. | 07 | Compatibility |
| Pag. | 09 | Membrane cleaning procedure |
| Pag. | 11 | Equipment |
| Pag. | 12 | Welding overlap |
| Pag. | 13 | Manual welding |
| Pag. | 17 | Automatic welding |
| Pag. | 19 | Automatic welding with Mapeplan scraper nozzle |
| Pag. | 20 | Welding T-joints |
| Pag. | 21 | Mechanically fixing to a horizontal surface |
| Pag. | 24 | Mechanically fixing to a vertical surface |
| Pag. | 25 | Perimeter fixing |
| Pag. | 28 | Adhered to a horizontal surface |
| Pag. | 31 | Adhered to a vertical surface |
| Pag. | 34 | Accessories |
| Pag. | 35 | Internal corner detail |
| Pag. | 39 | Internal corner with a vertical crease |
| Pag. | 43 | External corner detail |
| Pag. | 46 | Vent/pipe detail |
| Pag. | 48 | Outlet detail |
| Pag. | 50 | Perimeter edge flashing |
| Pag. | 53 | Parapet wall detail |
| Pag. | 55 | Internal perimeter edge flashing |
| Pag. | 58 | External corner to perimeter edge flashing |
| Pag. | 61 | Wall termination profile |
| Pag. | 63 | Seam testing procedure |
| Pag. | 66 | Damage repairs |
| Pag. | 69 | Welding to an existing membrane |

This manual provides the trained on-site operative with a general guideline to supplement the training given by the Mapei Group in the installation techniques for MAPEPLAN T (FPO) roofing systems.

Membrane system and application fields

MAPEPLAN T M

MAPEPLAN T M is a polyester-reinforced membrane produced in a single multi-extrusion coating process. The membrane is suitable for mechanically-fixed, exposed roof applications. It is also used for detail flashings.

MAPEPLAN T Mf

MAPEPLAN T Mf is a polyester reinforced membrane produced in a single multi-extrusion coating process. The membrane has a 300 g/m² non-woven fleece backing cast in to the underside.

MAPEPLAN T Mf is suitable for mechanically-fixed, exposed roof applications over incompatible or rough surfaces.

MAPEPLAN T B

MAPEPLAN T B is a glass-mat-reinforced membrane produced in a single multi-extrusion coating process. The membrane is suitable for loose-laid, ballasted, roof gardens, utility and parking decks.

It is also used for bonding to exposed roof areas and detail flashings.

MAPEPLAN T Af

MAPEPLAN T Af is a glass-mat-reinforced membrane produced in a single multi-extrusion coating process. The membrane has a 300 g/m² polyester fleece cast in to the underside. MAPEPLAN T Af is suitable for bonded exposed roof applications.

MAPEPLAN T D

MAPEPLAN T D is an unreinforced membrane suitable on areas where detail work cannot be achieved with MAPEPLAN T accessories, e.g. corners, pipes, vents. This membrane is not intended, or suitable, for large horizontal or vertical roof applications.



| | | |
|--|------------------|--------------------|
| CE ANNO DI PRODUZIONE/PRODUCTION YEAR 1370 MANTO SINTETICO PER IMPERMEABILIZZARE SYNTHETIC WATERPROOFING MEMBRANE KUNSTSTOPFDACH UND DICHUNGSBAHN MEMBRANE D'ETANCHEITE SYNTHETIQUE | | |
| | | |
| Spessore / Thickness | Largezza / Width | Longhezza / Length |
| Lotto N° | | Operatore N° |
| <small>Non copiare senza permesso/Chargen verboten frei</small> | | |
| | | |
| <small>MAPEPLAN range is produced by:</small> | | |
| <small> FINESSON Via Ligea 100 - 20139 Milano tel. +39 02 58 20 20 20 - fax +39 02 58 20 20 20 - www.polyglass.it </small> | | |

| | |
|--|--|
| ACCESSORI IN FPO ACCESSORIES IN FPO ZUBEHOER FPO ACCESSOIRES EN FPO | |
| ARTICOLO NR. / ARTICLE NR. / T 05 04 | |
| Profilo Terminale Sv. 70 mm - l. 2 mt. Termination strip profile Sv. 70 mm - l. 2 mt. Abschlussprofil Sv. 70 mm - l. 2 mt. | |
| Lotto nr. / Batch (Bt) nr. / Chargen nr. | |
| | |
| <small>MAPEPLAN range is produced by:</small> | |
| <small> FINESSON Via Ligea 100 - 20139 Milano tel. +39 02 58 20 20 20 - fax +39 02 58 20 20 20 - www.polyglass.it </small> | |

1. Storage

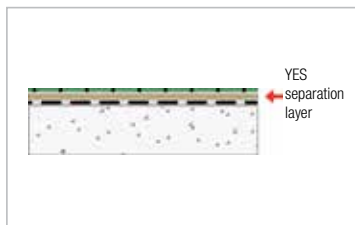
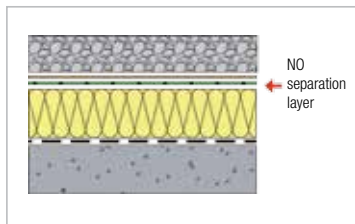
Rolls of MAPEPLAN T are delivered to site on pallets wrapped in white polythene. It is important to store the product in a dry place, elevated from the ground/roof and protected with waterproof tarpaulins against exposure to rain, frost and snow. Protection against the elements is even more crucial once the outer polythene has been removed.

2. Labelling

MAPEPLAN T rolls are individually labelled with date of manufacture, length, thickness and width.

3. Accessories

All accessories used in the installation of the MAPEPLAN T system have green identification labels and packaging.



MAPEPLAN T membranes are compatible with an extensive range of materials and substrates. Please refer to the MAPEPLAN T technical documentation.

Insulation boards

MAPEPLAN T can be laid directly to polyurethane, polyisocyanurate, mineral wool and extruded/expanded polystyrene insulation boards.

Bitumen

Generally, new bitumen products must be separated from MAPEPLAN T by using a geotextile/separation layer during installation. It is possible to apply MAPEPLAN T directly on old/oxidised bituminous membranes, but even in this case, the oils left within the bitumen can leach and stain the MAPEPLAN T.

(For aesthetic reasons, this is not recommended for exposed installations).

Pvc membrane systems

When overlaying an existing PVC membrane system with MAPEPLAN T, a separation layer must be used between the membranes during installation.

If in doubt please contact Mapei Group technical department for advice on compatibility with MAPEPLAN T and other materials.



MAPEPLAN T must be clean and dry before welding.

To maximise the weld-ability of the membrane, we recommend applying MAPEPLAN T SEAM PREP to the lap using a clean white cloth.

Cleaning and preparation procedures of MAPEPLAN T overlaps

MAPEPLAN T SEAM PREP

We recommend all overlaps and welding seams to new and existing membranes be cleaned prior to welding with MAPEPLAN T SEAM PREP. Once the solvents have dispersed, and the membrane is dry, commence welding.

The MAPEPLAN T Seam Prep treatment is not necessary when using an automatic welding machine fitted with a MAPEPLAN T scraper nozzle.

MAPEPLAN T (dirty)

*(dirty building site,
air-born dust)*

- clean with a broom
- clean with water
- clean with MAPEPLAN T Cleaner (use only on dirty surfaces)
- wait for solvents to disperse and the membrane to dry
- treat both weld seams with MAPEPLAN T SEAM PREP

MEMBRANE CLEANING PROCEDURE

- wait for the solvents to disperse and the membrane to completely dry before welding

MAPEPLAN T

(very dirty)

*(refurbishment/
extension project)*

- clean with a broom
- clean with water and scrubbing brush (power wash if necessary)
- clean with MAPEPLAN T Cleaner using a metal abrasive brush to dirty surfaces
- wait for the solvents to disperse and the membrane to completely dry
- treat both weld seams with MAPEPLAN T SEAM PREP
- wait for the solvents to disperse and the membrane to completely dry before welding

Do not rub the dust and dirt into the membrane.

Apply cleaner liberally to the surface or overlap and draw the dirt and cleaner off on to a clean white cloth.



To install MAPEPLAN T membrane systems the following equipment should be used:

- Hot-air digital welding gun
- 40 mm nozzle for main seam welding
- 20 mm nozzle for detailing
- 20 mm cranked nozzle for difficult detail work
- 4 mm and 5 mm speed welding nozzle for welding MAPEPLAN T Cord
- 28 mm blue Teflon roller for main seam welding
- 6 mm brass roller for difficult details
- Dremel for cutting T-Joints
- Scissors
- Metal snips for cutting MAPEPLAN T coated metal
- Seam probe tester
- Automatic welding machine



Prior to welding, ensure the membrane edges to be welded are clean and dry. (Please refer to page 9 - 'MAPEPLAN T SEAM PREP').



Overlap width

Minimum 5 cm for adhered, or ballasted, roofing systems.

Minimum 8 cm when using EPS insulation on a warm-ballasted, roofing system. (This avoids the welding machine nozzle melting the insulation.)



Minimum 11 cm for mechanically-fixed roofing systems.



Nozzle care

The nozzle used must be cleaned using a wire brush and the air gap should be equal across the full width of the nozzle.



Welding temperature

MAPEPLAN T has a wide welding window. This allows the operative to work slowly on difficult details. The temperature can be adjusted easily on the back of the PID gun to suit all conditions and applications.



The basic setting temperatures for hand welding MAPEPLAN T are as follows:

300/350 °C

It is necessary to carry out a welding test in order to determine the correct temperature setting in line with weather and building site conditions.

Operating voltage can alter depending on the country. This can range from 110 to 220/240 volts.

NOTE: Do not use a shared power supply or long cables or 110 volt cables with a diameter less than 6 mm.

Use a 40 mm nozzle for main, straight-line welding and a 20 mm nozzle for detail work.



Spot welding

To hold the membrane in place, spot-weld the overlap every 40 cm.

Spot-weld the membrane in the internal part of overlap.



Pre-welding

Weld the rear overlap area along the full length, allowing a width of 4 cm for the main weld.

Using 40 mm nozzle - 4 cm

Using 20 mm nozzle - 3 cm

NOTE: Check the pre-weld for delamination before continuing the main weld.



With the nozzle angle at 45° to the welding line.

With the roller at 1 cm from the nozzle, apply pressure to the top sheet in a continuous back-and-forth flowing movement.



When using automatic welding equipment, such as a Leister Varimat (or similar approved) in conjunction with a MAPEPLAN T standard/scrapper nozzle, ensure the welding machine has been adjusted correctly for welding MAPEPLAN T (alignment and temperature) and the standard/scrapper nozzle is clean with even air flow.

MAPEPLAN T has a wide welding window, the basic setting temperature and speed for automatic welding MAPEPLAN T is as follows:

| | |
|-------------|------------------|
| TEMPERATURE | 380-470 °C |
| SPEED | 2,0-3,5 m/minute |

Welding temperature/ speed

Working temperatures can be affected by environmental and climatic conditions on

site such as the roof surface temperature, humidity and wind.

Each day, before starting work on the waterproofing project, carry out a sample weld on a 2 metre strip of 2 x 30 cm membrane and then test the weld using the destructive test method as described on page 65.

MAPEPLAN T FPO AUTOMATIC WELDING WITH MAPEPLAN SCRAPER NOZZLE



The scraper nozzle is recommended when using MAPEPLAN T membranes as it removes any dirt deposits from the surface, giving a perfect weld.



Always adjust the nozzle correctly before welding. If in doubt please contact MAPEI GROUP technical department.

Scraper nozzle in position for welding.



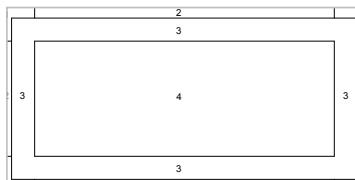
Transverse or 'T-JOINTS' are created when the membrane sheets overlap each other more than once. Deposits of dirt develop quickly along the welding edge of the TPO membrane. If these dirt deposits are allowed to remain, and then the T-Joint welded over with a new membrane, water will penetrate the weld (by capillary action) along the line of dirt and enter the building.

To avoid this problem it is necessary to remove the step and the dirt deposits using a Dremel tool with a grinding stone attachment as shown.

| | | |
|---|---|---|
| 1 | 2 | 1 |
| 2 | 3 | 2 |
| 1 | 2 | 1 |

ROOF PLAN (simplified diagram)

- 1- Corner
- 2- Perimeter
- 3- Main field



ROOF PLAN (diagram according to EUROCODE)

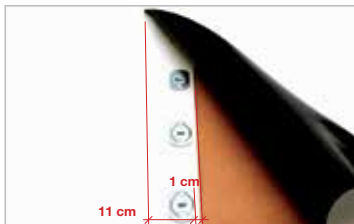
- 1- Corner
- 2- External perimeter
- 3- Internal perimeter
- 4- Main field

Buildings and roof areas are affected by wind loadings due to their height, location and topography. For this reason all mechanically fixed roof areas are design specific, having three/four areas (according to the wind load calculations/regulations of the country): perimeter, corner and field zones.

The number of fixings must be determined for each of these zones before the installation of the MAPEPLAN T M/Mf system.

MAPEPLAN T M/Mf membrane systems are mechanically fixed using approved metal plates, or plastic telescopic tubes, and fixing screws to a variety of substrates that include concrete, timber and metal trapezoidal sheets.

MECHANICAL FIXING TO A HORIZONTAL SURFACE



The plates and fixings are placed in a straight line 1 cm from the edge of the membrane as shown. The minimum overlap of the adjoining membrane is 11 cm.

When fixing in to a metal trapezoidal deck, the membrane must be installed at 90° to the decking profile. This spreads the load evenly across the width of each decking sheet.

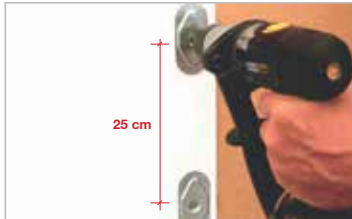
A mechanically-fixed membrane must be fixed around all penetrations that go through the roof system, such as outlets, pipes and columns.

Insulation boards incorporated within the MAPEPLAN T M/Mf system are mechanically fixed, or bonded, independently of the roofing membrane.

MAPEPLAN T FPO MECHANICAL FIXING TO A HORIZONTAL SURFACE

NOTE: For fixing and design calculations, please consult the Mapei Group technical department.

MECHANICAL FIXING TO A VERTICAL SURFACE

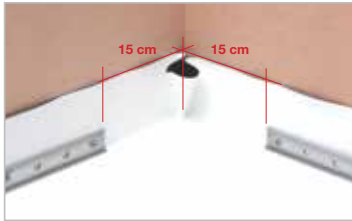


For features, such as vertical upstands with a height of over 50 cm on perimeter and internal walls, mansard roofs, roof-lights and smoke ventilator kerbs, additional fixings must be used to secure the membrane. The frequency of fixings per linear metre will be determined by the height, location and topography of the building.

On mansard roofs the fixings should not be greater than 25 cm apart.

The overlap width of the adjoining membrane covering the fixing plate line should be a minimum 11 cm.

Manual welding procedure.
Spot-weld, pre-weld, check pre-weld, main weld.
(See pages 15-16 for full instructions).



MAPEPLAN T M polyester-reinforced membrane systems must be mechanically fastened at all upstands with pre-punched bars, or fixing plates, and screws. The membrane should be secured at the base of the upstand to the horizontal or vertical face.

MAPEPLAN T Af glass-mat-reinforced membranes, for use on bonded applications, must be secured at all perimeters and protrusions through the roof with peel stop bars/plates and fixings.

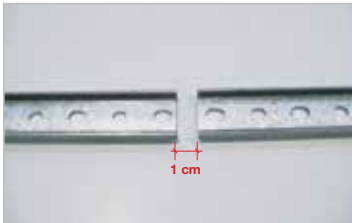
The membrane can be secured at the base of the upstand to the horizontal or vertical face.

MAPEPLAN T B glassmat-reinforced membranes, for use on ballasted applications, must be secured at all

perimeters and protrusions through the roof with MAPEPLAN pre-punched bars or fixing plates and screws.

The membrane can be secured at the base of the upstand to the horizontal or vertical face.

NOTE: If in doubt please contact Mapei Group technical department for advice on perimeter fixing.



The use of MAPEPLAN T TPO CORD is recommended in conjunction with MAPEPLAN METALBAR pre-punched bars.

The MAPEPLAN pre-punched bars, screws and plates are recommended for perimeters and for all large penetrations through the roof such as roof lights, smoke vents, etc.

Ensure a 1 cm gap is left between the MAPEPLAN bars to allow for expansion.

To protect the waterproofing membrane from damage during stress loading the bar ends should be covered with a strap of membrane as shown.

NOTE: Mechanically fix with plates and screws around smaller penetrations such as pipes, columns and outlets.

ADHERED TO A HORIZONTAL SURFACE



MAPEPLAN T Af membrane is fully adhered, or strip bonded, using MAPEPLAN ADS 100, a mono-component PU based adhesive, to a variety of substrates that include concrete, timber, old bitumen, polyurethane and EPS insulation boards. The glue is applied to the substrate with a rubber squeegee/spatula or fleece roller. (Please refer to the installation and spread rate instructions on the tin and the data sheet.)

NOTE: Wind load calculations must be applied when using a strip-bonded system.

MAPEPLAN T FPO ADHERED TO A HORIZONTAL SURFACE



Compatibility

MAPEPLAN ADS 100 cannot be used on newly laid bitumen, fibrous or wet surfaces.

MAPEPLAN ADS 100 is spread with a rubber squeegee, spatula or fleece roller at a spread rate of approximately 350-400 g/m² to the substrate. (Please refer to the installation and spread rate instructions provided on the tin and data sheet.)

For smaller roof areas, MAPEPLAN TB can be bonded using MAPEPLAN ADS 300 solvent-based contact adhesive, to a variety of solvent-resistant substrates.

The glue is applied to the membrane and substrate with a timber-core, fleece roller. The solvents must be allowed to evaporate before bringing both surfaces together.

ADHERED TO A HORIZONTAL SURFACE

Do not allow glue to contaminate the welding seam or areas that need to be welded. Should this occur, the glue must be removed immediately with MAPEPLAN T CLEANER, otherwise the membrane will not weld.

MAPEPLAN T FPO ADHERED TO A VERTICAL SURFACE



On upstands to perimeter and internal walls, roof lights and smoke-vent kerbs etc above 50 cm, MAPEPLAN T must be bonded to the vertical face of the upstand with MAPEPLAN ADS 300 solvent-based contact adhesive.



The glue is applied to the upstand surface and to the MAPEPLAN T membrane using a roller.



ADHERED TO A VERTICAL SURFACE



Once the solvents have dispersed, bring the two surfaces together, taking care to smooth the membrane to avoid any creases or air blisters.

Do not apply glue to the bottom leg of the membrane flashing or areas that need to be welded. Should this occur the glue must be removed immediately with MAPEPLAN T CLEANER, otherwise the membrane will not weld. (Please refer to the installation and spread rate instructions provided on the tin and data sheet.)

(Refer to the installation instructions on the packaging and on the data sheets of MAPEPLAN ADS 300).

Compatibility

MAPEPLAN ADS 300 cannot be used on bitumen or extruded/expanded polystyrene insulation boards, fibrous or wet surfaces.

NOTE: Please contact the MAPEI GROUP technical department for advice on spread rates and compatibility with different materials.



The MAPEPLAN T system has an extensive range of hot-air-weldable accessories that include outlets, wall scupper outlets, vents, internal/external corners and MAPEPLAN T laminated profiles and sheets that compliment the MAPEPLAN T roofing system.

Warranty

NOTE: To comply with the MAPEPLAN T system warranty, only Mapei Group accessories must be used in conjunction with the MAPEPLAN T membrane.

MAPEPLAN T FPO INTERNAL CORNER DETAIL



Mechanically fix, or fully adhere, MAPEPLAN T field sheet membrane with pre-drilled bars, peel stop bars, plastic telescopic or metal fixing plates with screws to the vertical or horizontal surface of the upstand. Locate the bars or plates 15 cm away from the corner to enable welding without obstruction.

Fold the excess membrane in the corner to form a 45° crease and weld the pocket together.

Weld the pocket to the membrane upstand as shown.

INTERNAL CORNER DETAIL



Bond or mechanically fix the membrane flashing into position on the vertical face of the upstand. To assist with this operation, it is advisable to pre-crease the membrane shape you require, using the hot air gun and roller, before fixing.

Spot-weld 15 cm away from the corner to enable welding without obstruction.

Fold the membrane pocket and cut the crease 2 cm from the corner.

Fold one leg of the flashing below the other. Cut the leading edge with scissors in a neat curve and weld in place. Pre-weld and check the pre-weld before completing the main weld.

MAPEPLAN T FPO INTERNAL CORNER DETAIL



Fold the top membrane leg over the bottom cut at approximately 45° angle, curving the leading edge neatly with scissors.



Mark the bottom membrane, where the top overlaps the bottom, with a pencil and take away the step in the bottom membrane with a Dremel tool as shown.

Weld the top leg of the flashing in place. Pre-weld and check pre-weld before completing the main weld.

INTERNAL CORNER DETAIL



Position the MAPEPLAN pre-formed internal corner and mark, with a pencil, where the membrane below is overlapped. Using a Dremel tool, remove the step in the membrane as shown.



Working from the centre of the corner outwards, tack-weld, pre-weld and check pre-weld before completing the main weld. Use a 20 mm nozzle and narrow brass roller for awkward details.



NOTE: Before welding ensure the membrane and pre-formed corners are clean. Use a clean, white cloth and MAPEPLAN T SEAM PREP.

MAPEPLAN T FPO INTERNAL CORNER WITH A VERTICAL CREASE



Mechanically fix, or fully adhere, MAPEPLAN T field sheet membrane with pre-drilled bars, peel stop bars or fixing plates with screws to the vertical or horizontal surface of the upstand. Locate the bars or plates 15 cm away from the corner to enable welding without any obstruction.

Fold the excess membrane in the corner to form a 45° crease and weld the pocket together. Weld the pocket to the embrane upstand as shown on page 35.

INTERNAL CORNER WITH A VERTICAL CREASE



Cut the length of membrane you are going to use for the upstand and pre-crease the bottom leg using the hot air gun and roller to aid installation.

Apply MAPEPLAN ADS 300 contact adhesive to the vertical upstand and to the underside of the membrane flashing taking care not to allow glue to contaminate the area you intend to weld. Allow the solvents to flash off before bringing both surfaces together. Weld the first flashing in place.

Spot-weld, pre-weld and check pre-weld before completing the main weld.

MAPEPLANT FPO INTERNAL CORNER WITH A VERTICAL CREASE



Cut, pre-bend and install the adjoining membrane as previously described. Mark the T JOINT where the top and bottom sheet meet and remove the step with a Dremel tool.



Fold and crease the excess membrane into a pocket and weld together as shown.



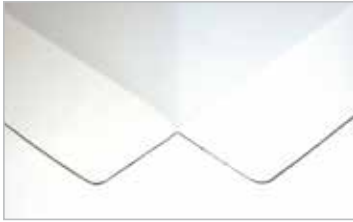
Fold the membrane back onto the opposite face. Draw a vertical line along the length of the flap in line with the bottom welded leg and neatly cut off the excess with scissors before welding into position.

INTERNAL CORNER WITH A VERTICAL CREASE



Complete the corner detail by hot air welding the flap as shown.

NOTE: Should the glue accidentally enter the area you intend to weld you must remove the glue immediately from the membrane using MAPEPLAN T Cleaner. Otherwise the membrane will remain contaminated and will not weld together.



Mechanically fix, or fully adhere, MAPEPLAN T field sheet membrane, with pre-drilled bars, peel stop bars or fixing plates with screws, to the vertical or horizontal surface of the upstand. Locate the bars or plates 15 cm away from the corner to enable welding without any obstruction.

Bond or mechanically fix the membrane flashing into position on the vertical face of the upstand. To assist with this operation, it is advisable to pre-crease the membrane shape you require, using the hot air gun and roller, before setting in position.

EXTERNAL CORNER DETAIL



Then spot-weld, pre-weld and check the pre-weld before completing the main weld.

Cut a length of membrane to fit the shape of the upstand. Cut the bottom leg of the flashing to allow it to fold at 90°.

Place the pre-formed corner in position and mark the membrane with a pencil where the pre-formed corner overlaps the membrane below.

Chamfer the step on the membrane with a Dremel tool as illustrated.

MAPEPLAN T FPO EXTERNAL CORNER DETAIL



Position the MAPEPLAN T pre-formed corner and weld in place working from the centre outwards. Spot-weld, pre-weld and check pre-weld before completing main weld.

The 20 mm nozzle is recommended, in conjunction with a narrow brass roller for awkward details.

NOTE: On corners other than 90°, use adjustable pre-formed petal corners or form the detail with MAPEPLAN T D unreinforced membrane.



Neatly cut a hole in the field sheet and then dress the membrane over the pipe or vent as illustrated.

If this is not possible, cut a square of membrane neatly, cut a hole smaller than the pipe in the centre and round off the corners with scissors. Warm and stretch the hole, using hot air from the hand gun, and then pull the square down over the pipe or vent to create an upstand and temporary water-tight seal.

Pre-formed pipe collar

Warm the collar and then pull it down over the pipe and hot air weld the flange to the main field sheet. Using a 20 mm nozzle, spot-weld as close to the pipe as possible and then, working outwards, pre-weld and check the pre-weld before



completing the main weld. (Should access or size be difficult, use a larger diameter pipe collar, cut it open on one side, then wrap around the pipe and weld the overlap on the collar and the flange to the field sheet). Otherwise form this detail in non-reinforced membrane.

Apply MAPEPLAN SEALANT around the top rim of the collar to ensure a completely waterproof seal.

Fit a stainless steel, or non-corrosive, jubilee clip around the rim and tighten as necessary.

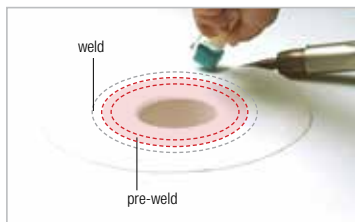
OUTLET DETAIL



MAPEPLAN T pre-formed outlets are supplied in a variety of diameters. They are gravity bore outlets supplied with gravel/leaf guards.

Cut a neat hole in the membrane to correspond with the downpipe.

To prevent wind uplift on a mechanically fixed system, apply fixing plates and screws around the pipe and screw the membrane down to the decking.

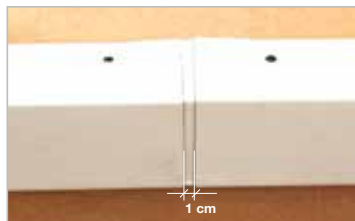


Insert the pre-formed outlet into the downpipe as shown.

Using a 20 mm nozzle, spot-weld as close to the hole as possible then, working outwards, pre-weld and check the pre-weld before completing the main weld.

Polyglass recommend several manufacturers of rigid outlets and rain-water goods that include symphonic outlet systems. They can be supplied with a factory fitted FPO flange for welding to our MAPEPLAN T roofing system. Please contact Mapei Group technical department for details.

PERIMETER EDGE FLASHING

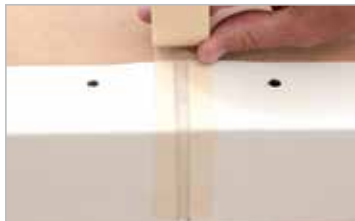


MAPEPLAN T metal laminate is supplied in flat sheets or profiled flashings, 2 or 3 metres in length.

Mechanically fix the profile trim to the perimeter edge with expansion nails or countersunk screws.

At all joints it is necessary to leave a 1 cm gap between the profiles to allow for expansion and contraction.

To ensure the face of the profile remains straight and square, insert a metal butt strap beneath the joint making sure it fits tight in to the lip of the drip.



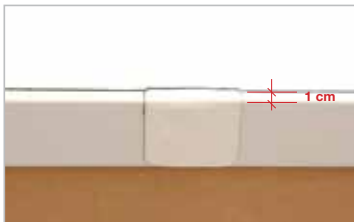
Overlay the gap with 2 cm wide masking tape. This prevents the membrane strip from welding along the joint.



Weld a 10 cm wide membrane strip to the joint as illustrated.

NOTE: Do not use domed fixings as they prevent the membrane cover flashings welding flat against the metal.

PERIMETER EDGE FLASHING



Mark the cover strip where the new membrane crosses and remove the step using a Dremel tool.

To assist the welding of the membrane along the top of the MAPEPLAN T metal, leave a 1 cm gap from the front face. Hot air weld the new flashing by spot-welding, pre-welding and checking the pre-weld before completing the main weld.

NOTE: Always ensure that the perimeter edge and fixings used can accommodate the wind loadings created. MAPEPLAN T metal profiles should be fixed at a maximum of 25 cm fixing centres. Should the front face be deeper than 15 cm a secret fix method can be used or additional screws must be inserted into the face of the metal profile.



Mechanically fix with countersunk, flat-head screws, twice bent MAPEPLAN T edge profile metal at a minimum of 25 cm centres.



Mechanically fix MAPEPLAN T field sheet with plates, telescopic tubes or MAPEPLAN bars at the base of the upstand wall.



Pre-bend MAPEPLAN T membrane and tack weld tight to the base of the upstand. Pre-weld then check the pre-weld before completing the main weld.

PARAPET WALL DETAIL



Measure, mark and pre-bend the membrane flashing so it fits tight at the top of the internal face of the parapet wall as illustrated.



Tack weld to the MAPEPLAN T edge trim. Pre-weld then check the pre-weld before completing the main weld.



MAPEPLANT FPO INTERNAL PERIMETER EDGE FLASHING



Mark the cutting line with a pencil to the vertical and horizontal surface.

Cut along the horizontal face following the pencil line.



Open the metal and bend to the required angle.



Mechanically fix the profile trim to the internal perimeter edge with expansion nails or countersunk screws.

INTERNAL PERIMETER EDGE FLASHING



Hot air weld the upstand membrane flashing to the front face of the profiled metal.



To assist the welding of the membrane along the profile, leave a 1 cm gap from the top edge. Hot air weld the new flashing by spot welding, pre-welding and checking the pre-weld before completing the main weld.

MAPEPLAN T FPO INTERNAL PERIMETER EDGE FLASHING



Using the reversed face of a MAPEPLAN T external corner mark, pencil along the line where the top membrane crosses. Cut the step in the membrane with a Dremel tool and then hot air weld the corner as illustrated.

NOTE: Always ensure that the perimeter edge and fixings used can accommodate the wind loadings created.

MAPEPLAN T profile fixing centres must not exceed 25 cm.

Do not use domed fixings to secure MAPEPLAN T metal profiles as they prevent the membrane cover flashings welding flat against the metal.

EXTERNAL CORNER TO PERIMETER EDGE FLASHING



Mark the cutting line with a pencil to both faces of the profiled metal.

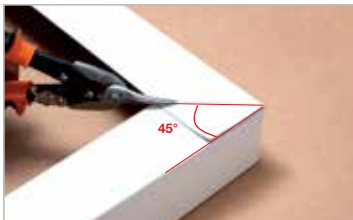


At the pencil line, squeeze the drip along the bottom edge as shown to identify the bending point.



Cut out, along the pencil lines, a 30° wedge.

MAPEPLAN T FPO EXTERNAL CORNER TO PERIMETER EDGE FLASHING



Bend the profile to form a 90° corner and trim the overlap at 45°.



Mechanically fix the profile trim to the perimeter edge with expansion nails or countersunk screws.



Pre-bend the membrane to the internal wall so that it fits tight to top of the upstand before welding to the MAPEPLAN T metal profile as illustrated.

To assist the welding of the membrane along the profile, leave a 1 cm gap from the top edge. Hot air weld the new flashing by spot welding, pre-welding and checking the pre-weld before completing the main weld.

EXTERNAL CORNER TO PERIMETER EDGE FLASHING



Complete the detail by welding the external face of an internal corner as shown.

NOTE: Always ensure that the perimeter edge and fixings used can accommodate the wind loadings created. MAPEPLAN T profiles fixing centres must not exceed 25 cm. Do not use domed fixings to secure MAPEPLAN T metal profiles as they prevent the membrane cover flashings welding flat against the metal.

MAPEPLAN T FPO WALL TERMINATION PROFILE



Mechanically fix MAPEPLAN T wall termination profile with countersunk flat head screws to the wall upstand at a maximum 25 cm centres.



Where the profile joins, weld a minimum 5 cm wide strip over the joint to seal the two together.



Mark with a pencil and remove the T-Joint using a Dremel tool as illustrated.

WALL TERMINATION PROFILE



Pre-bend the MAPEPLAN T membrane flashing to create a sharp crease and tack weld the flashing tight to the base of the upstand.



Pre-weld, check the pre-weld before completing the main weld of the bottom leg of the flashing to the main field sheet.



Tack weld the top of the flashing to the wall profile. Cut level leaving a 1 cm gap from the top of the profile to assist the welding procedure.

Pre-weld and check pre-weld before completing main weld.

Apply MAPEPLAN PRIMER before applying MAPEPLAN SEALANT along the full length of the profile as shown.



Non-destructive control method

The test is carried out on cooled membrane with a metal seam probe. The probe is run along the welded edge using sufficient pressure to identify defective seams.

Should a defective seam be detected please follow the seam cleaning procedure explained on page 9. In dirty or extreme circumstances, it will be necessary to weld a 15-20 cm wide strip of membrane over the defective welding line.

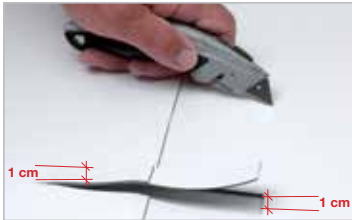
In this case the excess dirt should be removed with MAPEPLAN T SEAM PREP prior to welding with the automatic machine fitted with a scraper nozzle.

SEAM TESTING PROCEDURE

Even in this case is necessary to achieve the cleaning and preparation of the overlaps as shown on pages 9-10.

Once the membrane has cooled, re-test using the seam probe.

NOTE: To avoid mechanical damage to the waterproof coat hook test site must be rounded tip.



Destructive control method

Cut out a strip from the welded seam 1 cm wide x 15 cm in length.

Apply pressure to the weld by pulling the two ends of the strip apart.

The membrane is twice as strong at the weld. Failure must occur outside the weld as illustrated in the photograph.

NOTE: When setting up the automatic machine each day, it is recommended a test length of approximately two metres be welded and then destructive test samples taken as described above.

DAMAGE REPAIRS



Because the membrane has a black underside, it is easy to see any damage to the membrane's white top surface. Should damage occur after installation, or on older membrane, the repairs are simple.



Cut a disc of membrane that covers completely the damaged area.

Using a pencil, trace around the disc onto the membrane surface.



Scrape the top surface of the membrane with a Dremel, or similar abrasive tool, to remove the dirty top surface.



Using a clean white cloth, apply a liberal amount of MAPEPLAN T Cleaner to the area and remove the dirt by drawing it off the membrane with the cloth.



Prepare the overlaps with MAPEPLAN T SEAM PREP (see page 9-10).

DAMAGE REPAIRS



Once the solvents have flashed off, and the membrane is completely dry, weld the new patch by starting in the centre and working out, checking the integrity of the weld as you progress.

NOTE: Do not rub the dirt and the solvent into the membrane. Apply the cleaner liberally to the weld area then lift off the dirt and cleaner on to a white cloth. Allow the solvents to flash off before welding.

MAPEPLAN T FPO WELDING TO AN EXISTING MEMBRANE



When connecting or joining a new MAPEPLAN T system to one previously installed, for example a roof extension, make sure the existing membrane is free of dirt and dust. This can be achieved with the use of a pressure washer followed by cleaning treatment (see page 9-10).

Once the membrane is dry, use an automatic welding machine, to weld the two roof membranes together.

NOTE: It is recommended the use of an automatic welding machine with scraper nozzle attachment.

NOTE

Mapei Group has the right to modify or change the text, photographs or details contained in this manual. This is to enable any new or innovative production or practical installation methods to be applied to the manual should they arise.

Mapei Group will warranty only the systems and accessories manufactured by the Group. Further, these systems must be installed only by approved contractors and operatives who have undertaken training to install the MAPEPLAN T systems.

For all technical guidance on the installation of the MAPEPLAN T ROOFING SYSTEMS not covered in this manual, please contact the nearest registered Mapei Group technical department.

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