VINITEX

INSTALLATION PROCEDURES

texsa

INDEX

INTRODUCTION

This manual sets out the installation methods for **VINITEX** PVC membranes.

1. Storage

Rolls of **VINITEX** PVC membrane are delivered to site on pallets.
These should be stored in a dry place or, if this is not possible, protected against dampness and exposure to frost and snow using waterproof sheets.

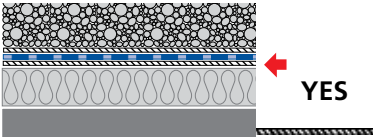
2. Labelling

All **VINITEX** PVC membranes have a white labels identifying the membrane, its thickness, length and width.

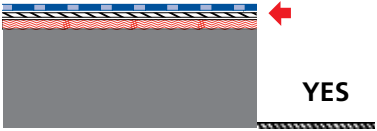
3. Equipment

The following is the equipment necessary to install **VINITEX** PVC membranes:

- hot air manual welding guns (PID)
- 20 mm nozzle (for finishing or welding details)
- 40 mm nozzle (in seam welding)
- Texsafil nozzle (to weld Texsafil cord)
- 40 mm Rubber roller
- 6 mm brass roller (to weld awkward details)
- scissors
- cutter for chafhering 1,8mm + thick PVC membranes
- the welding tester (seam probe)
- automatic welding machine (type Varimat)



insulation layer
WITH SEPARATING LAYER



bitumen
WITH SEPARATING LAYER

4. Chemical compliance*

VINITEX PVC membranes are chemically compatible with a large range of materials (refer to data sheet).

A) Insulation Material
It is necessary to lay a separation layer (minimum 120 g/m^2) between the PVC waterproofing membrane and extruded/expanded polystyrene insulation boards.

B) Bitumen Layer
In the case of bitumen a separation layer of geo-textile (minimum 300 g/m^2) must be laid over the bitumen before installing **VINITEX** PVC membranes.

*** Please contact our technical department who will advise on the chemical compliance of VINITEX PVC membranes with different materials**

5. Cleaning welding surfaces

The surface of **VINITEX** PVC membranes must be clean and dry before welding.
In the case of dirty membrane the surface should be cleaned using a white cloth and **VINITEX** PVC Cleaner.

Membranes subjected to long periods of immersion in water, snow or ice must be dried before welding

The moisture is extracted from the membrane using TEXSA SEAM PREP in conjunction with heat from a Leister hand gun.

For application guidance please refer to TEXSA SEAM PREP procedure (pag. 58).

1 HOT AIR MANUAL WELDING

Setting temperature on the Triac PID

1.1 Preliminary checks

Ensure the nozzle is clean and uniformly open across its entire width.

1.2 Operating temperature

The above temperature and speeds are average for welding our PVC membrane. Site conditions and ambient temperatures can affect these levels.

Model	20 mm Nozzle
Triac PID	450° C±10*
Model	**40 mm Nozzle**
Triac PID	500° C±10*

It is therefore recommended before any welding commences a sample length of material be welded and the seam be destructively tested (the membrane must snap outside the welded seam).

The required operating voltage is 220/240 Volts for automatic machines; 110 Volts for hand guns.

To avoid voltage drops:

- Never use excessively long supply cables or those with a small diameter (110 Volts 6 mm diameter minimum)
- Never use a shared power supply.

Make a sample weld to test the temperature before starting work. Check the sample weld with a destructive test (see 14.2 page 55).

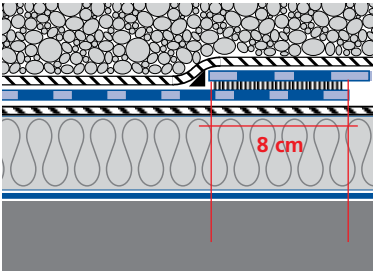
* the working temperature could be affected by environmental conditions on site (humidity, temperature, wind, etc.).

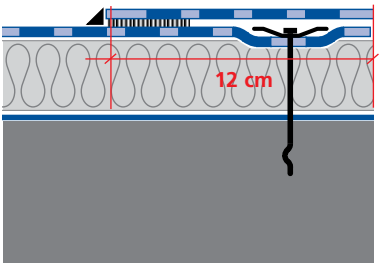
1.3 Overlap

The edges of the membranes to be welded must be clean and dry.

The overlap should be:

- 8 cm for ballasted and fully adhered roof systems;





- 12 cm for mechanically fixed roofs.

using 40 mm nozzle

1.4 Phase 1 – spot welding

Spot-weld the overlap, about every 40 cm.
Distance the spot welding from the edge of the lower sheet, by:

- 6 cm (using the 40 mm nozzle)

using 20 mm nozzle

- 5 cm (using the 20 mm nozzle)

1.5 Phase 2 - pre-welding

Weld the rear overlap area so that the following openings remain for the finishing weld:

- 4 cm (using the 40mm nozzle);

using 40 mm nozzle

- 3 cm (using the 20mm nozzle)

Position the nozzle between the two edges at an angle of 45° to the welding line.
Roll at a distance of about 1 cm from the nozzle.

using 20 mm nozzle

1.6 Phase 3 - welding

Carry out the weld at the edge of the upper layer. Position the nozzle between the two edges at an angle of 45° degrees to the welding line.
Roll at a distance of about 1 cm from the nozzle.

2 AUTOMATIC WELDING

Using automatic welding equipment such as the Varimat Leister

2.1 Preliminary operation

Clean and check the nozzle setting before welding.

2.2 Welding temperature/ speed

Varimat Leister	
TEMPERATURE	550°to 570°*
SPEED	200 to 250 cm/minute

Each day make a sample weld to check the basic settings of the automatic welding machine before starting work on the waterproofing project.

Check the sample weld with a destructive test (see 14.2 page 55).

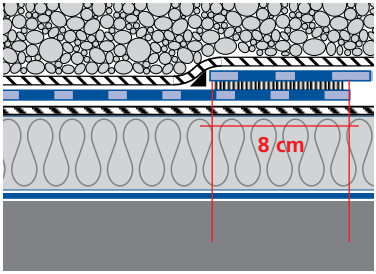
* the working temperature could be affected by environmental conditions on site (humidity, temperature, wind, etc.).

2.3 Overlap

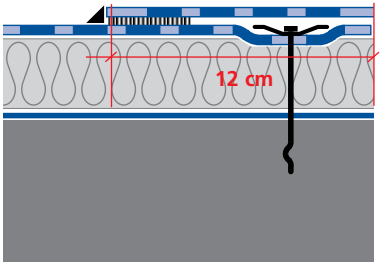
The edges of the membranes to be welded must be clean and dry.

The overlap should be:

- 8 cm for ballasted and fully adhered roofs



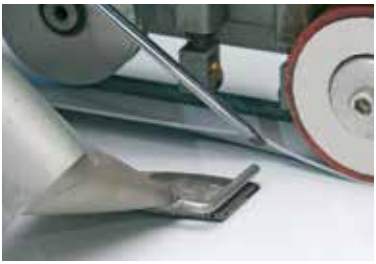
- 12 cm for mechanically fixed roofs



2.4 Inserting nozzle

Release the lock on the gun mechanism, the nozzle will lay flat on the roof membrane adjacent to the overlapping membrane.

The distance between the nozzle and the drive wheel must be set correctly to avoid welding problems.*



Slide the nozzle between the two membranes until the gun mechanism locks.

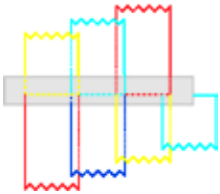
The machine will now travel automatically at the required setting

*** Please contact our Technical Department for nozzle setting.**

3 WELDING TRANSVERSE JOINTS

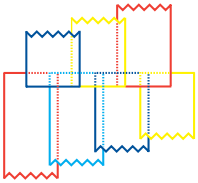
Round off sharp edges with scissors.
When possible, avoid creating multiple cross joints with more than three sheets.

For this purpose:
a) position two or more sheets perfectly parallel and aligned. Weld a third sheet or strip (min. 20 cm) transversally (90°) to previously installed sheets;



3 WELDING TRANSVERSE JOINTS

b) stagger the joints.

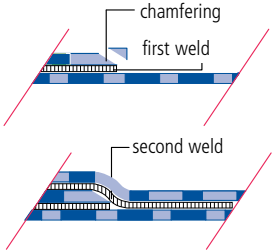


4 T-JOINTS – MULTIPLE WELDING SEAM FOR PVC MEMBRANE THICKNESS 1.8 mm +

At "T-joints" (e.g. at the trailing edges of sheets, and when installing any prefabricated **VINITEX** PVC SYSTEM):

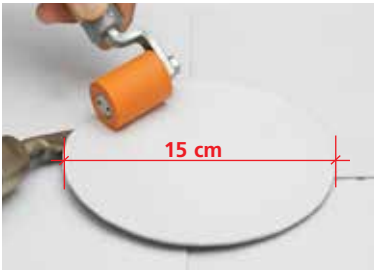
a) chamfer the welding seam edge with the mill or chamfer tool.

This operation removes the difference in height resulting from the overlapping of several waterproofing sheets and allows adequate cleaning of the seam prior to welding.



b) cut a circle of membrane (diameter approx. 15 cm) and weld over the chamfered T-joint.

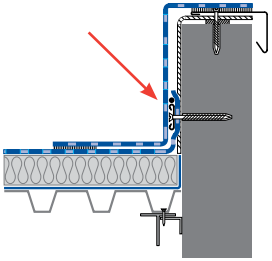
c) spot-weld, pre-weld and weld.



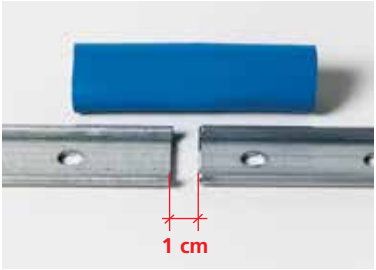
5 PERIMETER FIXING

It is always necessary to fix around the perimeter with a pre-drilled TEXSA bar; or use plates and screws at 25 cm centres.

The bar can be mechanically fixed on the horizontal or vertical surface at the base of the upstand.



Fix on the vertical surface in the case of:
- cement screeded deck;
- insulation board with thicknesses in excess of 5 - 6 cm.



Position the bars along the perimeter of the upstand and around any projections such as skylight kerbs.
Leave a 1 cm. gap between bar ends to avoid expansion problems.

5 PERIMETER FIXING

Protect the membrane from puncture by installing TEXSA BAR END PROTECTORS.
Using the speed welding nozzle, hot-air weld the TEXSAFIL PVC cord (light blue).

Note:
Mechanically fasten, using drilled bars or plates and screws, around all protrusions and changes in levels of the waterproofing membrane.

6 FIXING MEMBRANE TO A VERTICAL SURFACE

If the vertical upstand is more than 50 cm high, it will be necessary to anchor the **VINITEX** PVC membrane.

6.1 ADHERING*

Use solvent based **VINITEX** ADHESIVE.
Supports suitable for adhesives are: cement, wood, metal (after appropriate surface cleaning), polyurethane insulation panels with glass mat paper facing, tiles, etc.

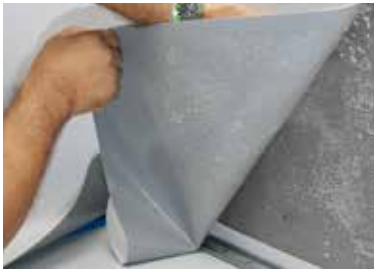
Do not use solvent based glue on:
extruded or expanded polystyrene insulation, cellular cement, newly laid bituminous membrane, panels containing pearlite, mineral wool (unless Hard Rock SPA insulation boards), fibrous or dusty surfaces.

*** Please contact our Technical Department who will advise on the the compliance of Flexocol glue with different materials.**

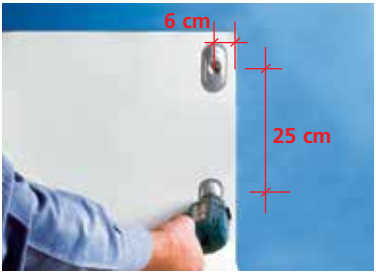
6 FIXING MEMBRANE TO A VERTICAL SURFACE

Using a roller spread the glue evenly on both surfaces.
Leave until touch dry and the solvents have dispersed from the glue.
Attach the two surfaces.

Note:
When the environmental temperature is particularly cold, soften the external surface of the membrane using, a heat source, before gluing.

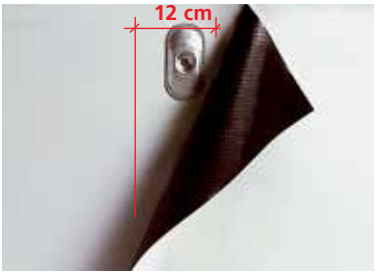


6 FIXING MEMBRANE TO A VERTICAL SURFACE



6.2 Mechanical fixing

Fixings should be positioned 6 cm from the edge and a maximum 25 cm apart. (Fixing centres will vary according to the building height and exposure. Please consulte the TEXSA Technical Department for fixing design requirements).



Overlap the fixing line by 12 cm with the subsequent sheet.
Spot-weld, pre-weld, and weld.

7 FIXING MEMBRANE TO HORIZONTAL SURFACE

7.1 Mechanical fixing

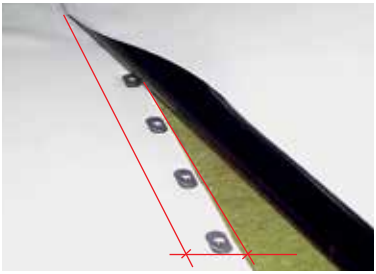
Note:

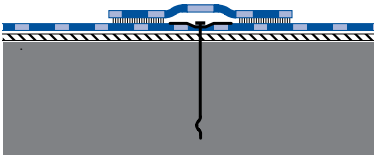
When using trapezoidal metal decks the membrane must be laid at right angles to the deck direction.
With concrete decking the membrane can be laid in any direction.

There are two methods mechanically fixing the membrane:

a) Fixing plates and screws
b) Fixing with TEXSA BARS

7 FIXING MEMBRANE TO HORIZONTAL SURFACE





a) Fixing plates and screws.
Fixing is carried out using proprietory fixing plates and screws along the edge of the membrane as shown. Fixing centres are determined by the building height and the topography of the area when subjected to wind.*

The adjoining membrane overlaps the fixed sheet by a minimum 12 cm encapsulating the fixing line.

The membrane is welded using manual or automatic methods to form an homogenous seam"

In areas of high wind exposure it will be necessary to increase the fixing centres to the perimeter and corner zones of the roof. This is achieved by inserting a line of fixings down the centre of the installed membrane and then welding a 20 cm cover strip of **VINITEX MAT** as shown in the diagram.

*** Please contact the TEXSA Technical Department regarding fixing design calculations.**

b) Fixing with TEXSA

7 FIXING MEMBRANE TO HORIZONTAL SURFACE

BARS
TEXSA BARS are installed at pre-determined centres according to the wind load requiriments of the local area and the building height.

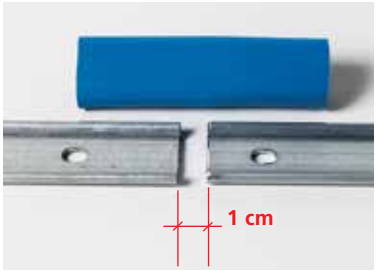
IMPORTANT: The insulation boards must be fixed independently to the membrane.

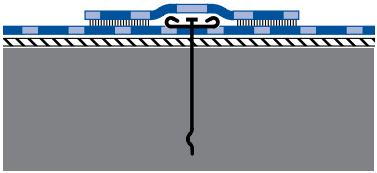
TEXSA BAR ends should be installed with a 1 cm expansion gap between each bar.

TEXSA BAR END PROTECTORS must be installed to all bar ends to prevent puncturing during movement and stress.
Hot air weld the overlap using manual or automatic methods.

Install the bar system, with bar end protectors, at the pre-determined centres recommended by the TEXSA Technical Department.
Hot air weld 20 cm minimum strip over the fixing bar as shown in the diagram.*

*** Please contact the TEXSA Technical Department regarding fixing design calculations.**





7 FIXING MEMBRANE TO HORIZONTAL SURFACE

Consideration must be given to drainage of water from the roof. TEXSA BARS should be installed to allow free flow of water from the roof area.
TEXSA BAR END PROTECTORS must be installed when using the TEXSA BAR system to avoid damage to the waterproofing membrane when subjected to movement stresses.

7.2 Fully adhering (fleece-backed VINITEX PVC membrane)

For fully adhering, use TEXGLUE. Using the spatula supplied, spread the glue onto the supporting surface. (Refer to glue installation data sheet).

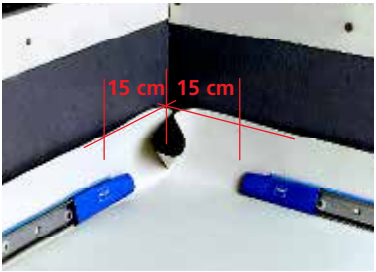
Note:
Avoid contaminating the welding edge of the membrane with glue.
Any glue spots or residue can be removed with alcohol or acetone and a clean cloth.

8 ACCESSORIES

To improve installation times the **VINITEX** PVC roofing system has a wide range of hot air weldable accessories that include vents, outlets, scuppers and internal and external corners.

Note:
To comply with the Texsa System Warranty, Texsa accessories must be installed.

9 INTERNAL CORNERS



9.1 Horizontal pre-fabricated internal corner

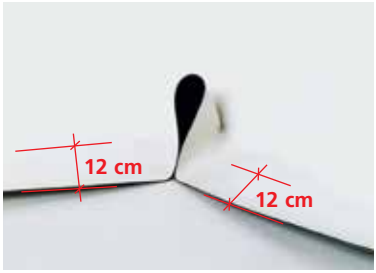
Position the VINITEX PVC membrane on the horizontal surface fixing it at the perimeter with pre-drilled bar. Locate fixing bars 15 cm from the corner, protecting the ends with TEXSA BAR END PROTECTOR.

Fold the excess membrane towards the wall.

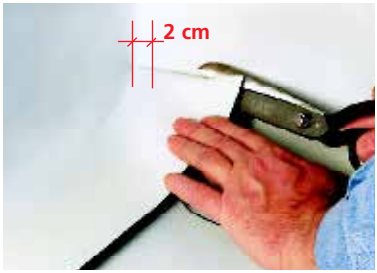
Using hot air seal and weld the "pocket" to the vertical surface.

9.2 Prefab internal corner

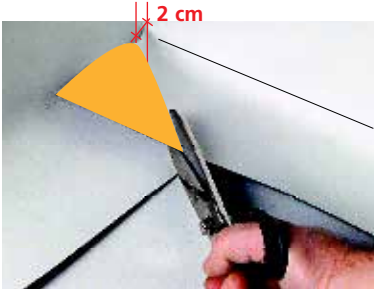
Measure and cut the membrane to fit the upstand plus an extra 12 cm (minimum) for welding on the horizontal surface. Fix this membrane to the upstand by gluing or spot-welding.



Dress the excess into the corner and cut it up to 2 cm from the edge.



9 INTERNAL CORNERS



Overlap the two edges of membrane and cut the excess material up to 2 cm from the edge as illustrated in the picture.

Spot-weld, pre-weld and weld the overlap on only the lower edge (A) of the horizontal surface.

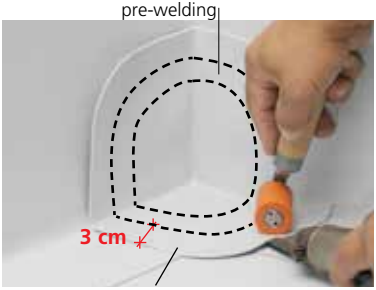
9 INTERNAL CORNERS

Chamfer the welding seam edge with the mill or chamfer tool (only on 1,5 mm + thick membranes).

Spot-weld, pre-weld and weld the overlap on the upper edge (B) of the horizontal surface.

9 INTERNAL CORNERS

Spot weld the **VINITEX** PVC prefab corner in position.



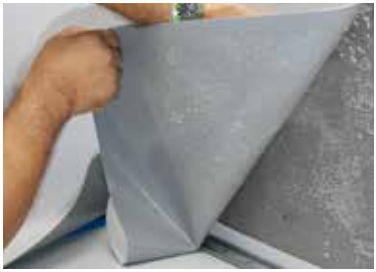
Working from the centre of the corner outwards, prepare a pre-welding line, set back 3 cm from the border of the corner.

Using the 20 mm nozzle, weld the prefab corner into position.

Note:
Always make sure the surfaces to be welded are clean and dry. Use a clean cloth and ***VINITEX*** *PVC CLEANER as required.*

9.3 Internal corner with vertical crease

Apply **VINITEX** ADHESIVE to the internal upstand and **VINITEX** pre-formed flashing leaving a 12 cm strip for hot air welding to the main field sheet.



Bond the membrane to the upstand starting at the top edge and working down to the base.

Cut and glue the second TEXSA flashing strip on the upstand, leaving 12 cm width for welding on to the horizontal surface.

9 INTERNAL CORNERS

Spot weld in position as indicated. Then fold the membrane to form an upright crease.
Weld the strip to the first TEXSA flashing and weld the crease together. Fold the crease back on to the vertical face. Spot weld, pre-weld and weld.

Close the bend on the vertical wall by spot-welding, pre-welding and welding.

10 EXTERNAL CORNERS

10.1 Horizontal surface

Position the **VINITEX** PVC membrane on the horizontal surface fixing it at the perimeter with pre-drilled bar. Locate fixing bars 15 cm from the corner, protecting the ends with TEXSA BAR END PROTECTORS.

10.2 Prefab external corner

Measure and cut the membrane to fit the upstand plus an extra 12 cm (minimum) for welding to the horizontal surface.

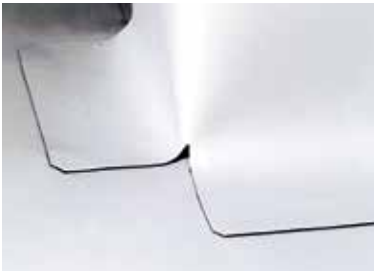
Apply **VINITEX ADHESIVO PVC** to the upstand face and to the TEXSA membrane. Allow the glue to become tack dry. Then bond together on one face of the external corner to be covered, as shown.

Make a cut in line with the corner.

Turn the membrane along the adjacent wall and bond in position.
On the horizontal surface, spot-weld, pre-weld and weld the membrane along both sides.

Complete the welding operation.

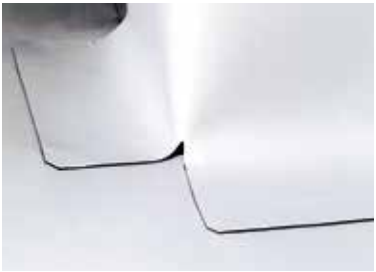
10 EXTERNAL CORNERS

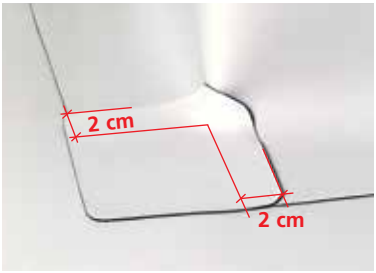


Position the prefab **VINITEX** PVC external corner.
Spot-weld, pre-weld and weld working from the centre of the corner outwards.

10 EXTERNAL CORNERS

Note:
Always make sure the surfaces to be welded are clean and dry. Use a clean cloth and **VINITEX** *PVC CLEANER as required.*





10.3 External corner

Measure and cut the membrane to fit the upstand plus an extra 12 cm (minimum) for welding to the horizontal surface.
Glue and position the membrane on one face of the external corner to be covered.
Make a cut in line with the corner.
Turn the membrane along the adjacent wall and glue in position.
On the horizontal surface, spot-weld, pre-weld and weld the membrane along both sides.
Cut out a corner patch of **VINITEX** PVC membrane for detail work (VINITEX S.A. OR VINITEX MAT). Round off the corner that is to be positioned at the vertical edge.

Round the corners to be overlapped to the edge. Heat and stretch the rounded corner of the patch that welds to the vertical upstand.

Position the patch
The minimum overlap should be 2 cm.

10 EXTERNAL CORNERS

Spot-weld, pre-weld and weld patch working from the centre outwards.

Note:
Always make sure the surfaces to be welded are clean and dry. Use a clean cloth and VINITEX PVC CLEANER as required.

11 CURVED, CONICAL AND ROUNDED DETAILS

11.1 Extractor vents, pipes etc.

Cut out a square of VINITEX MAT(OR VINITEX S.A.) membrane and round off the corners with scissors.

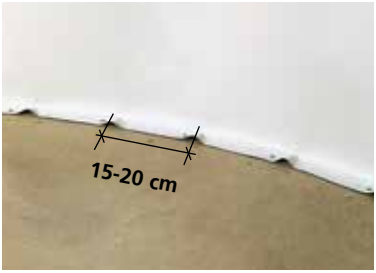
Cut a hole 1 cm smaller than the pipe size in the middle of the square. Carefully heat around the hole and stretch the membrane over the pipe creating an upstand rim at the base of the pipe.
Spot weld, pre-weld and weld to the main field sheet.

Cut a strip of VINITEX S.A. (OR VINITEX MAT) plus an extra 3 cm for vertical welding as illustrated.
The height of the strip should equal the height of the cylinder body plus an extra 3 cm for welding to the horizontal surface.
Spot-weld, pre-weld and weld the vertical seam.

Remove the resulting cylinder and manually spread the excess for welding onto the horizontal surface.

11 CURVED, CONICAL AND ROUNDED DETAILS

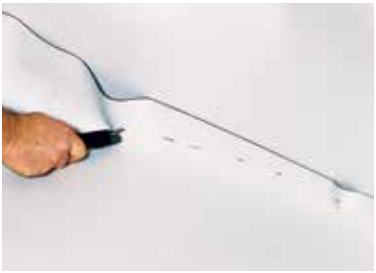
Replace the cylinder and weld to the newly formed upstand of the base flashing.



11.2 Curved vertical wall

Bond the VINITEX MAT flashing to the vertical wall using VINITEX ADHESIVO PVC, allowing 5 cm excess for fixing to the decking at 15 – 20 cm centres.

Cut the membrane and weld the excess material as indicated.



Install the **VINITEX** PVC field sheet. Bond and cut the membrane to form a bend of approximately 3 – 4 cm on the vertical wall. Once in position, cut the excess material to create a minimum upstand of 2 cm.

11 CURVED, CONICAL AND ROUNDED DETAILS

Spot weld, pre-weld and weld the field sheet to the vertical membrane using the brass roller.

12 OUTLETS

Use only TEXSA PVC or recommended outlets systems with TEXSA PVC membranes.
Cut a hole in the roof membrane to correspond with the downpipe.

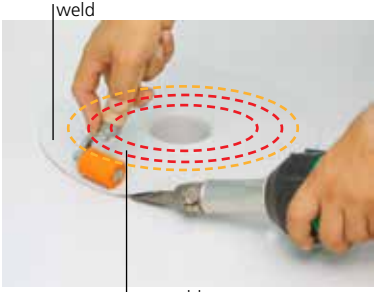
Mechanically fix the membrane around the outlet to the decking withy fixing plates and screws.

12 OUTLETS

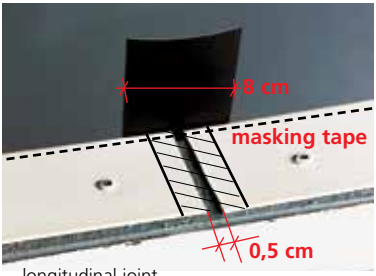
Insert the VINITEX PVC pre-fabricated outlet.

Note:
Always clean the surfaces to be welded with a clean cloth and VINITEX PVC CLEANER.

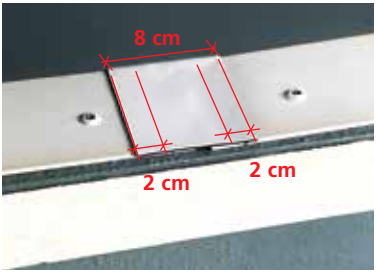
Spot-weld, pre-weld and weld the flange of the TEXSA outlet to the main field sheet.

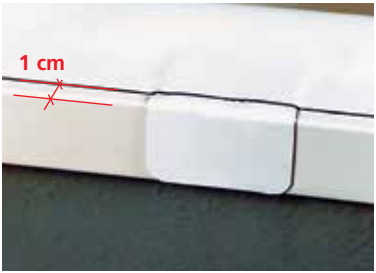


13 PERIMETER EDGE FLASHING



longitudinal joint





Install TEXSA metal laminated flashings in conjunction with a neoprene or butyl tape sealing strip leaving a 0,5 cm gap for expansion/contraction.

Fix the flashing with expansion nails or counter sunk screws.

Warning: always ensure the perimeter edge can accommodate fixings to withstand the anticipated wind loadings.

Cover the expansion joint with a 2 cm masking tape prior to welding a 8 cm wide strip (VINITEX MAT) over the joint as illustrated.

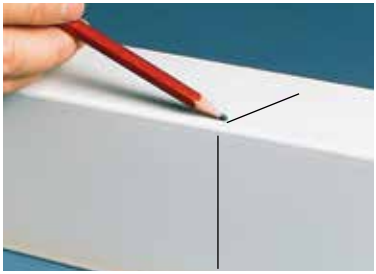
To allow for movement only weld either side of the strip to a maximum of 2 cm.
For ease when welding the membrane to the top surface of the TEXSAMETAL allow a 1 cm gap from the front face.

For flashings with face depths greater than 5 cm internal support metal butt straps or face

fixings will be required.

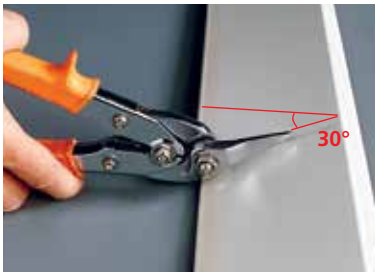
13.1 -Flashing on internal corner

Mark the cutting line, both horizontally and vertically.

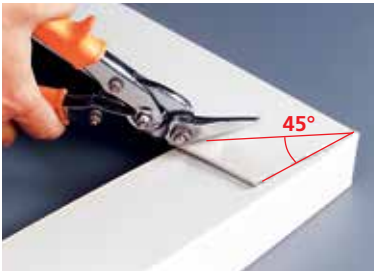


Squeeze the drip near the cutting line to identify the desired cutting point.

Cut on the horizontal level at about 30° with reference



13 PERIMETER EDGE FLASHING



to the marked line.
Bend to form a 90° corner and trim the overlap at 45° as illustrated.

After positioning the neoprene or butyl sealing strip, mechanically fix the prepared flashing to the perimeter edge.
Cut and weld a strip of membrane VINITEX MAT OR VINITEX S.A.over the new joint.

13 PERIMETER EDGE FLASHING

Weld the waterproof membrane to the flashing.
Round the corners of a piece of VINITEX MAT OR VINITEX S.A. membrane allowing a 2 cm excess for overlapping and welding.

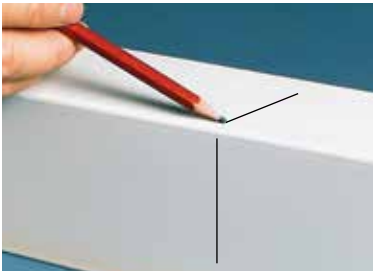
13 PERIMETER EDGE FLASHING

Heat and stretch the internal corner of the patch.

Spot-weld, pre-weld and weld the patch onto the corner.

13.2-Flashing on external corner

Mark the cutting line, both horizontally and vertically.



Squeeze the drip near the cutting line to identify the desired cutting point.

13 PERIMETER EDGE FLASHING

Cut the horizontal surface following the cutting line.

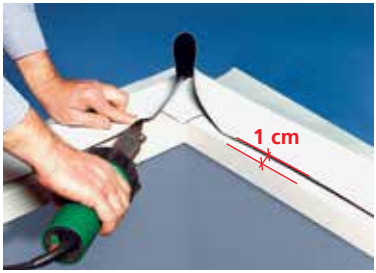
Open the flashing.
After installing the neoprene/butyl sealing strip, mechanically fix the flashing to the perimeter edge.

Round the corners of a square patch of VINITEX MAT (OR VINITEX S.A.) allowing a 2 cm excess for overlapping and welding.

13 PERIMETER EDGE FLASHING

Heat and stretch the internal corner of the patch. Position the patch over the corner area. Spot-weld, pre-weld and weld to the metal plate.

Spot-weld the flashing onto the profile starting 1 cm from the edge. The excess membrane from the vertical surface will form a pocket at the corner edge.



13 PERIMETER EDGE FLASHING

Cut the pocket up to 2 cm from the corner edge.

Trim the triangle of excess material.

13 PERIMETER EDGE FLASHING

Spot-weld, pre-weld, and weld, onto the horizontal surface of the flashing.

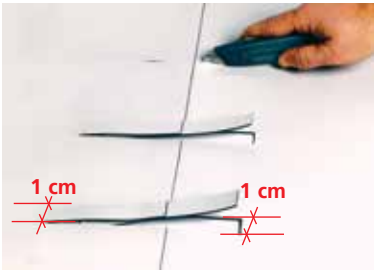
14 SEAM CHECKS

14.1 Non-destructive control

Carry out the test, using the welding tester (seam probe) on cooled material. Pass the seam probe along the welding line, exerting sufficient pressure to identify defective seams.

In the case of defective seams, follow the seam cleaning procedure prior to re-welding as necessary. In extreme situations, it is necessary to weld a 15 – 20 cm strip over the existing welding line after cleaning.

14.2 Destructive control
Cut out a 1 cm section of the welded membrane.



Apply pressure to the weld by pulling on the two ends of the sheet as illustrated in the picture.

14 SEAM CHECKS

The membrane must fail outside the welding seam.

This control must always be carried out each day on a sample weld before the installation of the waterproof membrane commences.

Note: The test, although manually performed on site, is based on the provisions set forth by the UEAtc Directive.

15 DAMAGE REPAIR

Should accidental damage occur after installation, repairs are simple.

Cut a patch of VINITEX MAT to completely cover the cut and round the corners with scissors.

Trace the circumference of the patch onto the surface.

Clean the surface of the membrane with a new cloth and **VINITEX** PVC CLEANER.

Spot-weld, pre-weld and weld the patch in place.

16 SEAM PREPARATION

For use on **VINITEX** PVC caste spread manufactured membranes subjected to long periods of immersion in water, snow or ice.

Application

a) Clean surfaces to be welded with clean cloth and dry with Leister gun.

b) Apply liberal coat of TEXSA SEAM PREP solution to both surfaces.

c) Dry out with hot air from Leister gun

d) Start the welding procedures.

17 INSTALLATION OF NEW MEMBRANE TO EXISTING

a) Manual welding
Position the new **VINITEX** PVC on the existing membrane.
Mark the overlap line.

Bend back the new material.
Clean the surface of the existing membrane with **VINITEX** PVC CLEANER.

17 INSTALLATION OF NEW MEMBRANE TO EXISTING

Re-align the new material. Spot-weld, pre-weld and weld to the existing membrane.

b) automatic welding
Position the new **VINITEX** PVC on the existing membrane.
Mark the overlap line.
Bend back the new material.

Clean with a cloth and **VINITEX** PVC CLEANER.

17 INSTALLATION OF NEW MEMBRANE TO EXISTING

Re-align the new material and weld using a Varimat automatic welder.

NOTE

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TEXSA SYSTEMS, S.L.U. guarantee exclusively refers to materials and accessories produced and supplied by TEXSA itself. The installation of membranes produced by TEXSA SYSTEMS, S.L.U.; must be performed by specialised contractors whose operatives have undergone TEXSA PVC training.

Please contact TEXSA'S Technical Department for guidance for any specific matters not covered in this manual.