



MAP

DESIGN RECOMMENDATIONS

This document has been prepared to display some recommendations that should be taken into account in the design of construction solutions with waterproof product MAP.

This document complements and is complemented by the document "MAP – User Guide" by the manufacturer VIPEQ.

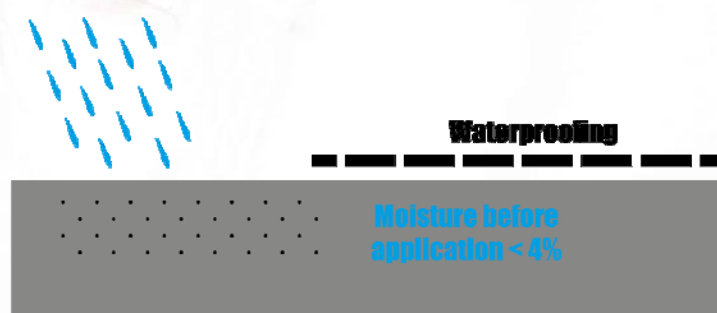
PRECAUTIONS FOR ADHERED WATERPROOF PRODUCTS:

MAP VIPEQ is a waterproof product that sticks to the substrate where it is spray-applied. As in any other adhered waterproof products, some considerations must be taken into account:

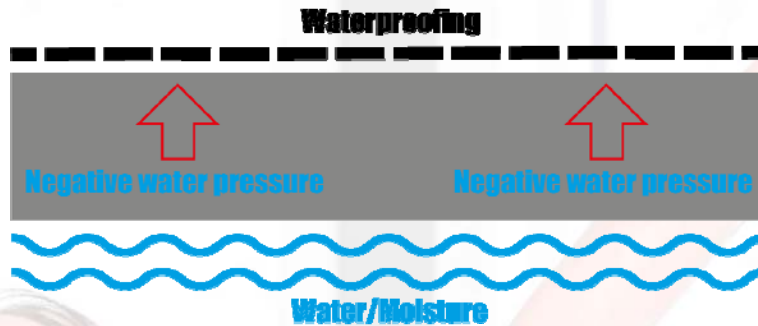
1. Moisture/Humidity in the substrate:

Some causes for moisture in the substrate can be:

- Humidity exists prior to the application of the MAP and comes from the face of the support. In other words, humidity comes by the fact that the substrate has not been waterproofed yet. In this case, as described in the document "MAP – User Guide", the substrate must be dry prior to any MAP application. If the substrate is made of hydraulic cement, ceramic or any other material that can store moisture, it is recommended a humidity not higher than 4% inside the substrate (not only superficially) prior to any MAP application.

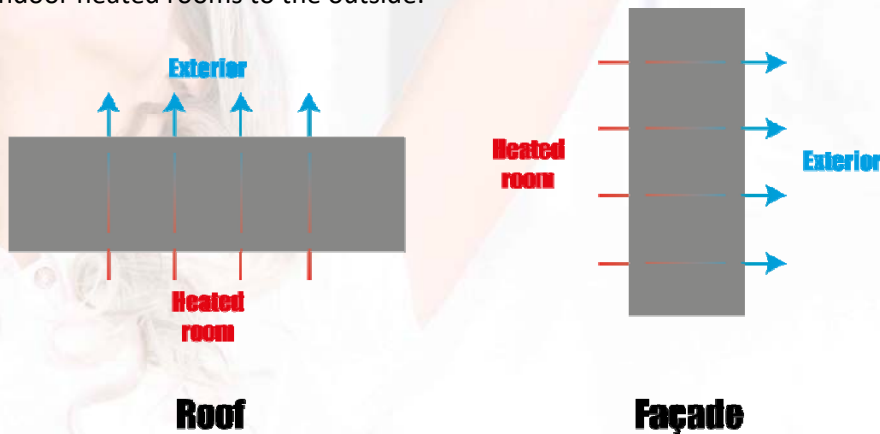


- Humidity comes from the back of the substrate, either by capillarity or by leaks from the back (i.e. in swimming pools, concrete slabs, floor screeds affected by water table, etc.). In these cases, a negative water pressure takes place and is harmful to any waterproof membrane/foil stuck to the substrate. Before any MAP application the vulnerability to this water pressure from the back of the substrate must be considered, taking some measures: redoing the substrate, repairing it or treating it with products that crystallize it and stop the humidity from the substrate, such as the Mineralizador PQ by VIPEQ.

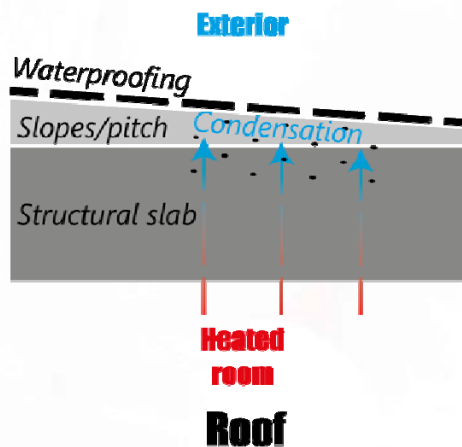


2. Water vapor flow:

Another key factor to be taken into account is water vapor flow that goes through the enclosing façades and roofs from the indoor heated rooms to the outside:



It is important to design suitable construction solutions that prevent an excess of water vapor flow, coming from the heated interior of a building to the outside, from pushing the waterproof membrane/foil from the side of the substrate or from generating moisture by condensation just under the waterproof layer.





Usual cases:

Renovation of a terrace or existing flat roof:

In most cases of roofs and terrace renovations, there are previous layers resistant to the water vapor flow, such as old waterproof membranes, concrete slabs, mortar slabs, ceramic glazed tiles, etc. The cause for humidity in these cases is usually because of leakages and not condensations that would have occurred from the beginning of the construction. If they had occurred since the original construction and were caused by condensation, it would be advisable not only to waterproof but also to thermally insulate the waterproof layer.

Heavy substrates:

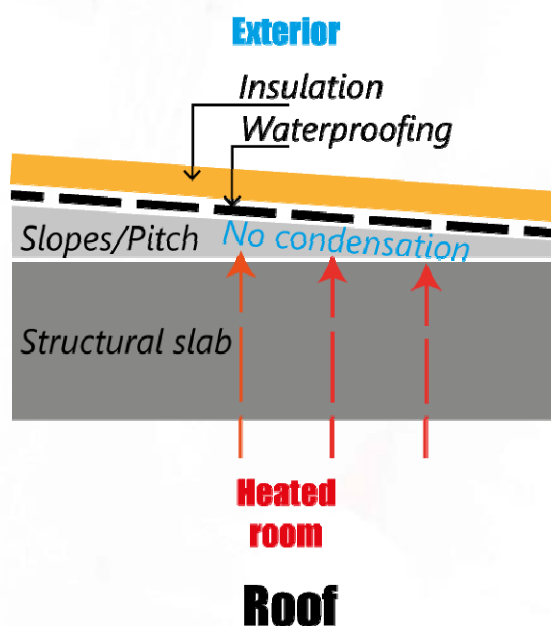
Heavy substrates have a high resistance to water vapor flow so condensations or water vapor pressure under the waterproof layer are unlikely events in these cases.

Light substrates:

For these cases, it is advisable to add a vapor barrier (i.e. polyethylene sheet, kraft paper, etc.) on a more internal layer than the insulating layer, since light substrates do not usually have a resistance high enough to reduce the water vapor flow, except for metal or plastic materials.

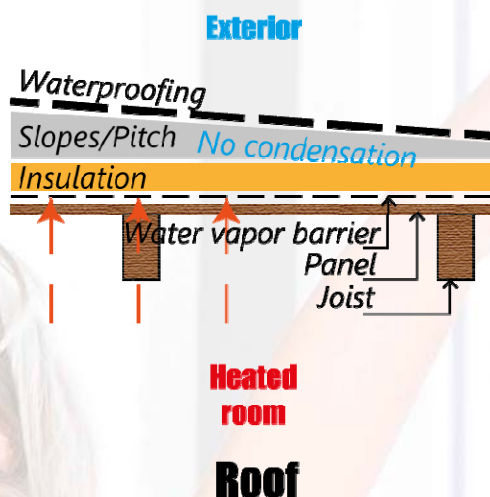
Material layers layout:

For cold climates, it is convenient to protect the waterproof layer by a thermal insulation to prevent condensation problems.



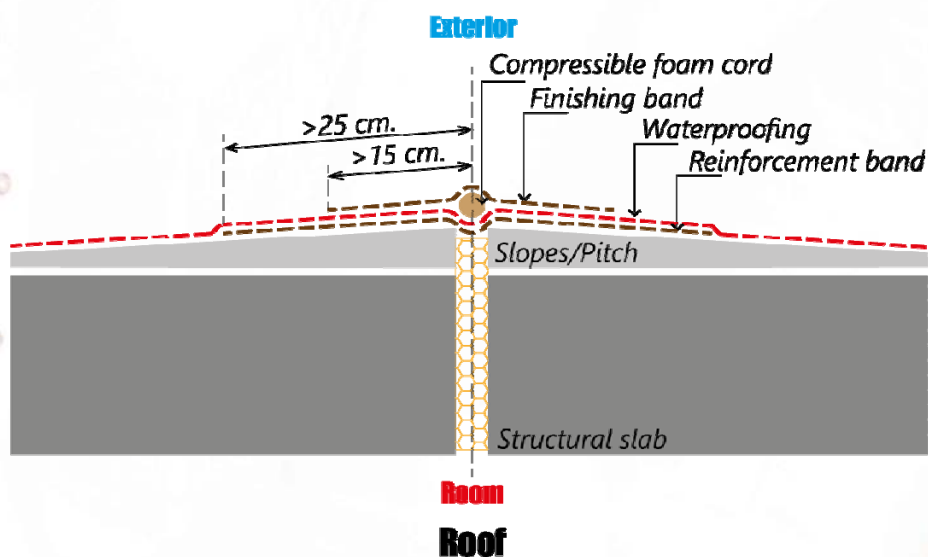


If the insulation layer is disposed more internally than the waterproof layer, then a vapor barrier should be placed on the hotter layers of the enclosing roof in order to prevent the water vapor flow from reaching the waterproof layer at a dew temperature point or from generating thrust from the substrate to the attached waterproof layer:



3. Structural and substrate expansion joints:

Structural expansion joints of the building and/or the joints of the roof substrate must be considered for any kind of waterproof product or system. For a correct application of MAP over the expansion joint, there will be a previous MAP reinforcement band that will be at least 25 cm. wide on each side of the joint and it will have a bellows shape within the joint (2 layers). It is recommended to arrange the expansion joint on the upper parts of the roof slopes. Once the MAP band over the joint has dried, the standard two layers of seamless waterproof MAP can be spray-applied. Finally, a compressible foam cord will be included on the joint and a MAP finishing band (2 layers) of at least 15 cm. wide spray-applied on each side of the foam cord.

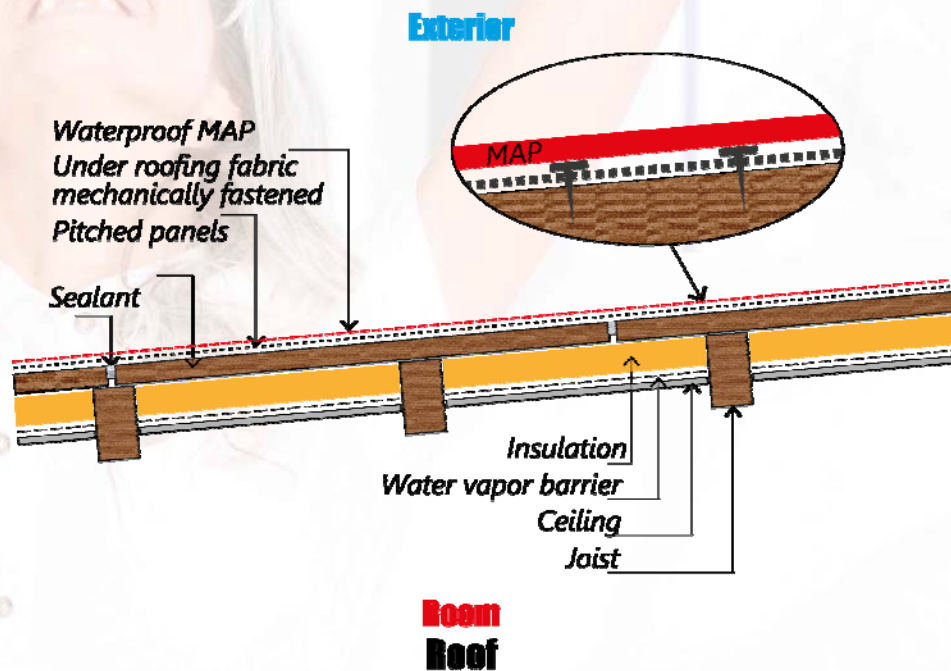




4. Joints in wood panels, composites and similar substrates

On flexible substrates with joints between panels that can experience expansions and shrinkages, it is advisable to follow these precautions:

- The joints between panels, especially if they are wooden panels, should be sealed to protect the edges of the panels (in many cases those edges are not treated against moisture).
- A thin layer of Elastomero PQ should be applied to protect the exposed side of the panel from the humidity added due to the water based MAP application.
- A waterproof under-roofing fabric should be mechanically fastened to the panel. The fabric rolls should be overlapped in its joints in order to get a continuous canvas for MAP.
- Finally, MAP should be applied in two layers as usual, so that it endures the differential bending moves of the panels and their joints.



5. Reinforcements around drains and overflows

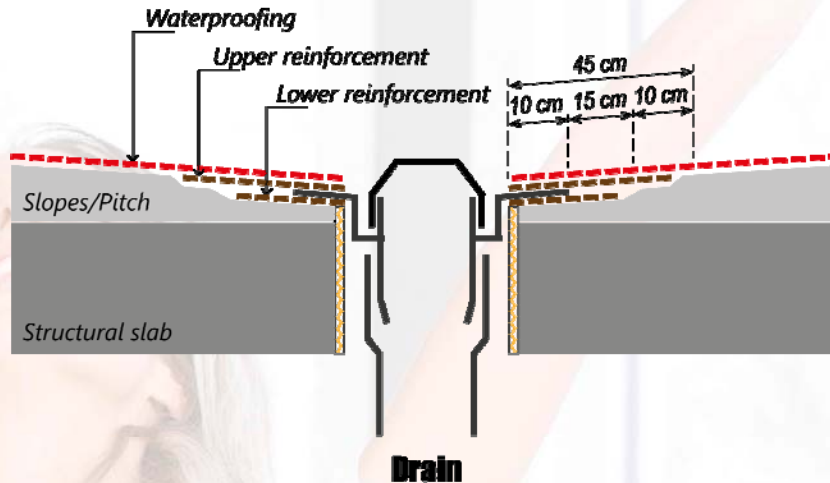
The reinforcements of the waterproof MAP around the drains or overflows should be made of prefabricated outlet or suitable molded products on site (always compatible with waterproof MAP). The flanges around the drain should be made with MAP in the following way:

- 1st layer of MAP as lower reinforcement for the prefabricated outlet or molded product on site of the drain considering a 25 cm. wide band.



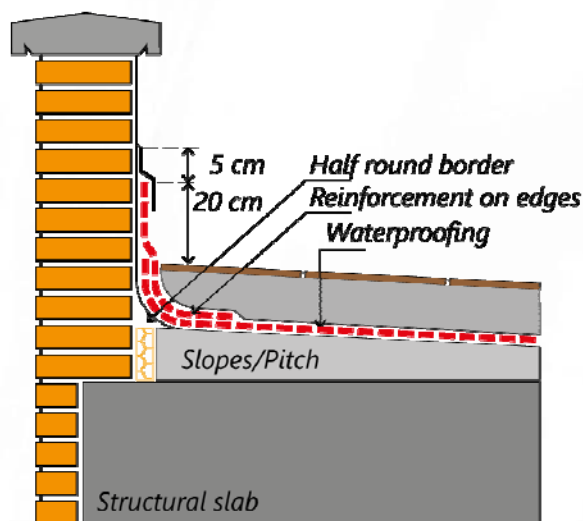


- 2nd layer of MAP as upper reinforcement for the prefabricated outlet or molded product on site of the drain considering a 45 cm. wide band.
- Finally, the standard application of two layers of MAP for a total thickness of 3 mm. should be done on top.



6. Reinforcements on parapets

On the perimeter walls and parapets the waterproof MAP should be spray-applied on a band/curb higher than 20 cm. above the finished roof in order to protect it against possible floods. Half round borders of 5 cm should also be made previously on the corners between horizontal roofs and parapets, and between vertical walls or parapets. It is convenient to overlap the MAP application of the borders with the MAP application on the flat roof.



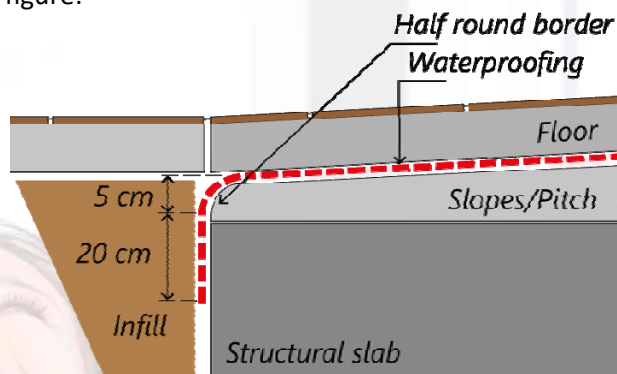


VIPEQ®

Impermeabilizaciones y
Revestimientos
Ecológicos



On the edges of the roof that do not have walls or parapets, such as basement roofs, buried floors, etc., a waterproof 20 cm high band of MAP should be applied on the retaining walls below the half-rim edge as shown in the following figure:



Disclaimer:

The information and recommendations given in this document reflects our current knowledge, laboratory tests and experience. For this reason, our guarantee is limited to the quality of the product supplied.

This company shall not assume any liability arising due to an inadequate application, misuse of our products or omission of these recommendations.

VIPEQ reserves the right to modify this document without previous notice.