

Projecting through horizontal panels

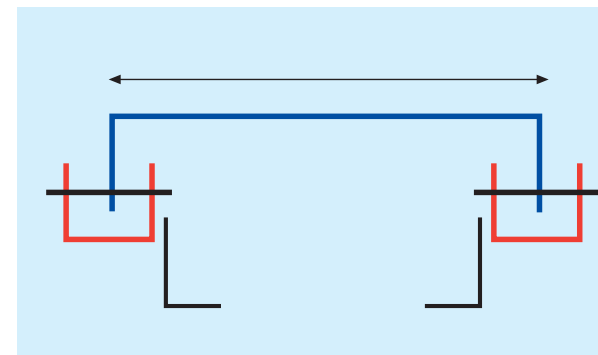
How can we project a **ventilated panel** with **wide and low** coating panels? We can adopt the classical solution by taking some more, **simple measures**.

In the previous article we have considered some examples of manufacturing of coating panels which, thanks to some constructive measures, succeeded in providing the required architectural effect though they differed in dimensions and shapes from the projected ones. We have shown photographs of polygonal panels through which has been successfully performed a coating projected to be curved, or of panels having small dimensions appropriately “jointed” to appear very large.

In addition to these size simplifications which reduce times and costs remarkably - and which are sometimes necessary, more than appropriate, for the needs linked to the maximum sheet sizes - some changes to the manufacturing of the standard panels are also necessary. They allow, for example, to have panels which are wider rather than higher, in order to create an effect linked to the building sizes. The coating panels can have vertical or horizontal higher dimension. Examples of panels having a height/width ratio equal to about 3 (for example 3,50 x 1,20) are the ones which we examined in the commercial centre project in Jeddah, Saudi Arabia, and in Snam Towers in Milan. Since both cases, dealt with

towers, the choice of the verticality of the panel was a natural consequence of the basic architectural choice, that is a slender and “soaring” building. Similarly, for opposite choices of building having a rationality effect - such as the Renault branch office in Via Tiburtina and the Service centre of the Ministry of the Finance in Settebagni, both in Rome - the vertical and horizontal joints have equal sizes (about 15 millimeters), but the prevailing horizontality effect comes from the panel dimensions, which has a width/height ratio equal to 2/2,5. In the most frequent case of vertical panels, the sub-structure is made up by adjusting stirrups and vertical posts, having a pitch not higher than one metre. The panel is hooked to the structure pivots and the sheet behaves statically as a slab which rests to the posts through the fastening pivots, with free space between the supports of about 1 metre - such as the distance between the same posts - and with the wind load P_v on the panel surface (Fig. 1). The stiffening of the folds at the borders highly limit the panel deformability under the wind push. According to the wind zones, the sheet thickness and the folds at the border, panels having a size up to 1,5 x 3 metres can be manufactured.

What happens if we want to manufacture a coating with wide and low panels, inverting the classical height/width



ratio = 3? Can the classical solution to hang the “box” panels by, with the side holes, to the post pivots be left unchanged? The answer to this question - which I have just asked by three designers this week - is affirmative: we can continue to project and build the ventilated wall with the usual lead adjusting stirrups, with the U shaped posts and the hooking pivots, because during the assembly phase this solution is certainly easy and rapid. However, it is important to horizontally stiffen the panel borders when the space between the supports is approximately higher than 1,5 metres - a value that depends, of

course, on the wind zone. How? Juts place an horizontal crossbar- which may be a pipe, a steel or aluminium press-folded profile - between a post and the subsequent one, behind the horizontal joint, in order to directly fix, through some rivets or screws, the horizontal side wall of the panel into the joint (Photo 2)

If the panel is not excessively wide, it can be sufficient to slightly increase the width of the folded horizontal border, which if it is made, for example, with



PHOTO 2

double fold, nearly boxed, highly increases the panel rigidity horizontally. The fixing through screws prevents the free dilation of the panel: in case of quite large panels, therefore, it is advisable- to avoid screeching or slight temporary deformations- to fix only on a side and study a simple hooking on the other horizontal side. But be careful: the classical solution to hook panels to vertical posts leaves a vertical visible joint, though it is reduced to the minimum for few millimetres, necessary for the moving and hooking. Through this solution the horizontal effect is given by the large size of the panel, but the vertical joint does not disappear completely. If the panels are to be

approached to eliminate the space in the vertical joint, which becomes nearly invisible, then a sub-structure system which has no vertical hooking can be made, as in the case of the Renault building in Rome (Fig. 3), which allows to exalt the horizontal effect.

By observing the prospect of this building, the horizontal panel seems a jointless continuous band. Therefore, when there are wide and low panels, you can continue to project the ventilated façade through the usual U-shaped sub-structure in aluminium profile or press-folded sheet.

Of course, since the side hooks of the panel on the vertical U's are two or more metres away- like the panel width- checking the deformation under the wind which is expected from the project, the



PHOTO 4



PHOTO 5

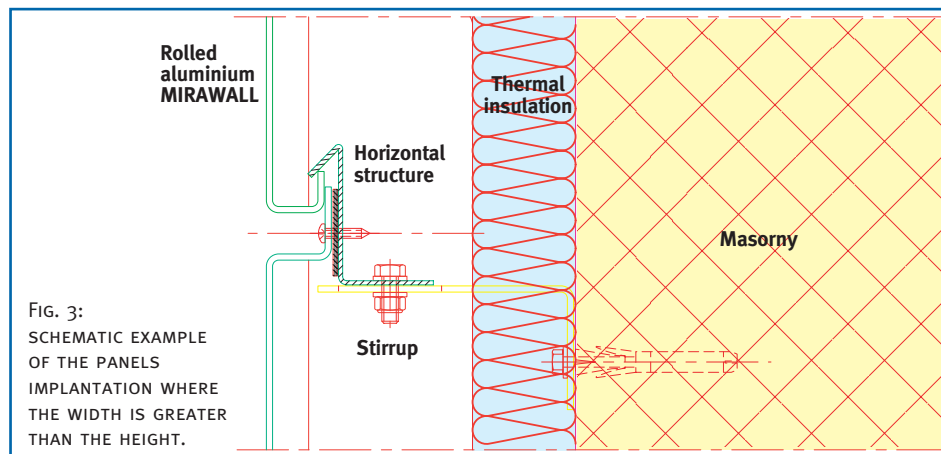


PHOTO 6

distance between the supports could be excessive: then you can quite easily remedy by stiffening the back sheet through glued profiles, or, even better, by inserting a horizontal crossbar between the two vertical posts of the sub-structure. This is the case of the Service Centre of the Ministry of the Finance in Rome Settebagni (Photo 4-5), where the panels are hooked to the vertical posts through the usual pivots on the posts and through holes cut on the panel borders, while on the horizontal sides they are stopped through two screws to a cross-bar hidden at the back, which stretches from the two posts.

In the case of the Renault branch office (Photo 6) there are no vertical posts and the sub-structure is horizontal for the architectural choice of having only vertical joints. In fact, vertical joints are approached to touch – and are nearly invisible- while the horizontal ones are over 10 millimetres and provide the horizontality effect with the adjacent continuous opening distance of the joints. In this case the panels are fixed through screws in the opening of the horizontal joint, to the profile of the sub-structure which can be made of aluminium, zincd stainless steel, tubular press-folded sheet according to the direction request and the importance of the project. ■

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