

From theory to practice: the challenge of each project

The passage from the **architectural project** to the **executive phase** has always been one of the most delicate and controversial moments. However, sometimes, **simple measures by the suppliers** of materials allow to brilliantly overcome the manufacturing difficulties and be faithful to the project architectural rendering.

A lot of companies specialized in sheet coatings took part to the meeting organized in Rome some months ago by the Italian Coil Coating Association. A key factor of this success was the theme dealt in the meeting, titled "Architecture and pre-painted: shape and colours in present and future projects". During the day many interventions took place. One of these, based on several subjects, derived from an introduction on general themes and then deepened some specific examples of interesting projects, specifying the executive details of aluminium sheet coatings. In particular, the analysis dealt with the most widespread system of ventilated wall: the one with so called "box" panels, that is coated with side walls on four sides and holes which can perform the panel front hooking, as paintings to be hanged on a wall. In the previous number of Miramagazine international I promised that I would speak of fastenings, as an answer to the requests made by e-mail. In the meeting we also dealt of this. Among the various aspects, an example of passage of the architectural need to the executive phase was mentioned. In fact, specific esthetical and functional needs often require the planner to have modules

and panels with specific sizes, with joints arrayed in a certain way and so on. If we pass to the executive phase, these needs very often meet some difficulties and- sometimes, even unsolved manufacturing problems. The ability of the façade manufacturer is to find the best compromise, which more approaches the architectural request.



From Milan...

One of the projects mentioned at the meeting is that of Snam Towers in Milan: it is a work by the Japanese architect Kenzo Tange, the project required the use of about 20.000 square metres of painted aluminium coatings.

Of course, the designers suggests what he deems as the best and most functional solution. How?

By studying, testing several times the module subdivision, the sizes of the joint openings their array, usually searching an harmonic rhythm which properly suits the building sizes (for example, high and narrow panels to make slender a building which is too low, or vice versa). Nothing more flexible than aluminium coating, to search the harmony between the practically endless possible combinations of modules and joints. Then, there is also the problem of the maximum sizes which can be performed and of the fixing. These two problems have been encountered by the manufacturing company to perform the Snam Tower coating. A very good example is represented by the head panel of the thin walls (figure on the side). The architectural project



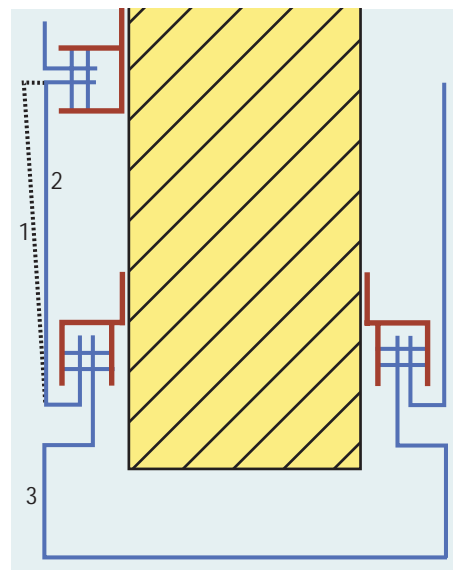
provided a vertical structure having a C profile directed externally. In this way, however, it was impossible to assemble the last head panel. In the actual performance the C profile was rotated, so that it could be assembled, at first, the structure fitted with C profile - this one turned towards the wall minor side- and then the side panels, starting the hooking on the head C. With reference to the figure on the side, the operations 1 and 2 have been performed in sequence, then the head panel was hooked (operation 3). For what concerns the eternal conflict between the architectural drawings and the executive ones, another example dealt with to illustrate the Snam Tower project was the way to perform the effect of large size panels (1,5x 3 metres high) even if due to execution difficulties, panels which had 1x 1,5 metres sizes were actually performed. The coil sheets, were in fact, 1,5 metres wide and could have the required length, with the only limitation of the press-folding machine size and the assembly difficulties.

To perform the folds, we needed at least a total width of 160 centimetres, to obtain a panel having finished front

IN THE MANUFACTURING PHASES OF SNAM TOWERS IN MILAN, THE VERSATILE MODES OF USE OF THE ALUMINIUM SHEET HAVE ALLOWED PRODUCERS TO FIND A BETTER COMPROMISE TO SOLVE THE PROBLEM OF THE MAXIMUM SIZES WHICH CAN BE PERFORMED AND OF THE PANEL FIXING.

FIGURE A:

- 1- SIDE PANEL DURING THE ASSEMBLY PHASE
- 2- ASSEMBLED SIDE PANEL
- 3- FRONT PANEL



sizes of 1,5 metres. Some panels have a width of 1,5 metres and a height of one metre. They were manufactured and assembled, one on the other, leaving a very thin joint for three panels and a wide joint every three panels and they obtained in an extremely simple way the same architectural effect of a single 1,5 x 3 metres panel. The upper coating of the pillars with large inclined corbels (capitals on the pillars), in Snam Towers, was solved in a different way. Since the sizes were excessive, it was not possible to manufacture some whole panels without joints, as required, simply by press-folding. Therefore the capital coating was performed through pieces welded between them, well refined and then painted. In this case, therefore, the pre-painted sheet was not used, but the whole capital was painted after the working. This is another feature which is added to the versatile and flexible modes of use of the aluminium sheet: to manufacture any kind of special shaped pieces - curved, with double curve and connected to other shapes - it is possible to perform a single piece through invisible weldings, first refined and then painted.



... to Saudi Arabia

Another example which I would like to point out is the possibility to simplify with some approximation, without giving up the architectural effect- and which involves large savings in terms of costs and production times and assembly- is the use of coatings with constant or variable curving. The Commercial Centre project in Jeddah, Saudi Arabia, with four curved plan towers ending with some spires at the top and a low connection body- which is at curved plan - was completely coated with flat panels, providing the same curving effect of the architectural project. During the execution phase, due to the prohibitive costs of the completely curved coating, we decided to suggest a series of samples with flat panels.

The polygonal effect, however, was always visible, unless the distance between the joints which the architect wanted not less than 1,2 metres was drastically reduced.

The solution was found through a little trick: a stroke by the press at the

THE COMMERCIAL CENTRE IN JEDDAH, SAUDI ARABIA. THE COMPARISON BETWEEN THE PROJECT ARCHITECTURAL RENDERING PHOTO AND THE ONE OF THE BUILDING COMPLETED PROVES THE MANUFACTURING FIDELITY, EVEN IF THE MANUFACTURES ABANDONED THE INITIAL DECISION TO CURVE THE COATINGS.



middle of the panel was sufficient, to divide it into two segments. In this way, the 1,2 metres panel was impressed a slight central deviation, which followed and approximated the real curve. The joints were at 1,2 metres, but the sides of the coating polygon were only 60 centimetres, and the global effect was that of a continuous curving.

The comparison between the project architectural rendering photo and the one taken when the building was completed is a proof the great fidelity in the manufacturing, even if the decision to curve the coatings was abandoned.

The total saving was about 50% and the performance times were halved. ■

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