Ceramic placement on façades: adhesives for ceramic placement

THE TECHNOLOGIC REVOLUTION THAT CERAMIC INDUSTRY HAS EXPERIMENTED, PROVIDES PLANNERS MATERIALS THAT SATISFY ALL NECESSITIES FROM COLOUR, TEXTURE, BRIGHTNESS, SHAPES AND SIZES, TO TECHNICS LIKE LOW ABSORPTION, DURABILITY AND LOW MAINTENANCE, FOR SUCH AN IMPORTANT PART OF THE BUILDING, THE FAÇADE.

The ceramic placement on façades is especially exigent from a technic point of view because it has to ensure a good adherence between the covering material and the support and also has to guarantee the compatibility of deformations between the materials that take action on the constructive system.

Bonding and grout materials have to mitigate the shearing efforts caused by the differential motions between the coating and the support, caused by the temperature gradient, daily as well as stationary, influenced by the façade orientation and the choosen colour for the coating.

The factors that guarantee the success on a façade coating intervention with ceramic materials are the following:

- *Correct choosing of the ceramic material.*
- *Correct preparation of the support.*
- *Correct choosing of the bonding material and filling material for the jointing.*
- *Implementation of a coating project that includes the disposition and dimensioning of the joints.*
- *Evaluation and accurate preparation for the placement support.*
- *Accurate placement, following the execution techniques and respecting the manufacturer instructions.*

In Spain, the most frequent support is the brick masonry or the ceramic block rendered with a mortar of screed cement.

If it is a new execution rendering, it is advisable the use of adherent latex as an additive to improve benefits. When the rendering is old, besides checking its flatness and resistance, the support has to get cleaned from dust, organic excrescences, painting, older adhesives, etc.

The progresses on the prefabricated construction and the additives, plus the increase of costs of workforce, have promoted the use of concrete on façade walls.

For the ceramic placement on façades, most especially on big sizes and instable supports, it is necessary to use deformable materials and the correct disposal and dimensioning of placement and movement joints.

The EN 12002 classifies the cementitious adhesives in function of its deformability establishing three kinds:

- *Non deformable adhesives, for façades < 2,5 mm.*
- *Deformable adhesives (type S1), for façades between 2,5 and 5 mm.*
- *Very deformable adhesive (type S2), for façade > 5 mm.*

The fundamental rules to observe are the following:

1. *Use of the cementitious adhesive of type 2 (improved) and S1 or S2.*
2. *Placement of tiles through the double gluing technique.*
3. *Choosing of the adhesive depending on the environmental conditions:*
   a) *With wind, heat and/or dryness, adhesive E, expanded open time.*
   b) *With cold, frosts risk, adhesive F, of fast curing.*
   c) *With atmospheric instability, adhesive F of fast curing.*
4. *Placement of tile with > 5 mm joints that allows: absorbing tensions on the joints of movement bounders and concealing eventually defects of flatness of the coating.*
5. *Respect the structural movement joints.*
6. *Provide of movement joints that split the coating each 9 m², with > 900 cm² tiles and each 12 m², with < 900 cm² tiles.*
7. *Protect the coating from the water penetration, through the elastic sealed and the placement of specific constructive elements such as coping, rain canopies, etc.*

For big dimension tiles placed on a high superior to 3 m, some international normative predict the placement with a mechanic mixt adhesive-anchor system, to choose in relation to the weight of the piece, the high od the covering and the construction conditions.