BALCONY facing reconstruction

The range of concrete repair products specially formulated by the Mapei Research and Development Laboratory was the star of the renovation and conservation work carried out recently on the balconies and balcony facings of a 1960s building in Piedmont.

Built in the 1960s, the Campello condominium takes up a whole block of the Borgo Enel area of the town of Chivasso in the province of Turin.
The building had suffered much from the ravages of acid rain with severe deterioration of the exterior with consequent carbonation of the concrete.
The façade overlooking the public street is made of a mixture of materials, brick, stone and plaster, while the internal façade overlooking the courtyard was finished using ordinary plaster. Most of the damage had been done to the balcony facings on both façades. The work required on the Campello condominium involved the renovation of 1,200 linear metres of balcony facings, which were in a very advanced state of disrepair and, in some cases, were bordering on dangerous.

Beautiful - inside and outside

The renovation of the façades was more than just an aesthetic operation as it also affected the structure of the building.
The lack of adequate protection for the façade covering can give rise to poor surface conditions which, in turn, can actually affect the equilibrium of part or all of the building itself.
In this particular case, some portions of plaster had come away exposing the reinforcing rods and had actually fallen on to the street (fortunately without causing any harm to anyone or anything) while other parts were in a fairly precarious state. Only a small part of the surface did not have any problems of this kind. The main purpose of the renovation work was to reconstruct the balcony facings. It began with the removal of all of the existing plaster so that the underlying concrete structure was exposed. Next, any residual substrate was removed from the visible reinforcement rods. Because of the difficulty of the work, the plaster was removed using hammers and chisels and then the surface was cleaned again using brushes and putty knives. Once cleaned of deposits, the exposed areas were treated with MAPEFER, a two-component corrosion-inhibiting cement mortar (photo1). MAPEFER's anticorrosive action is based on the fact that it is impermeable to water and aggressive gases present in the atmosphere (carbon dioxide, sulphur dioxide, nitric oxides), contains inhibitors which protect metal surfaces from oxidation, is very alkaline, and adheres perfectly to metal.
In short, thanks to MAPEFER, all of the reinforcing rods would now have long term protection.
After the MAPEFER, came a first coat of MAPEGROUT THIXOTROPIC, a shrinkage-compensated fibre-reinforced thixotropic mortar for concrete repair.
This created a rough coat. A second coat of the same product was then applied and finished off with a float.
The surface was then treated with

MAPEFINISH, a two-component cementitious mortar for finishing concrete surfaces, which waterproofed the concrete. The MAPEFINISH was smoothed using a special damp sponge. Next, the facings were painted with ELASTOCOLOR, a protective and decorative water dispersion acrylic resin-based elastic paint. White was chosen as it was similar to the one used when the condominium was first built.

Large scale progress..... for a job well done

When the work on the balconies was finished, treatment of the façades of the courtyard stairwells began. This involved renovating the damaged areas and painting the façade, which was in a much better condition than the balcony facings.
The walls were first hand-cleaned using brushes and putty knives. After this, any damaged parts were removed given that there was widespread and dangerous deterioration. The treatment of these surfaces followed the same pattern as the balconies, except that MAPEFER was not used because there were no reinforcing rods.
Having carefully cleaned the surfaces, a good layer of MAPEGROUT THIXOTROPIC was applied, followed by MAPEFINISH which not only covered the MAPEGROUT but also any small imperfections present in the plasterwork.


PHOTO 1

At the end of all of this, ELASTOCOLOR was applied to brighten up the façade and, most importantly, create a highly effective protective barrier against the destructive action of atmospheric agents (photo 2).
"In short, we can safely say that the products used in the renovation of the balcony facings and stairwell façades were very satisfactory and lived up to our expectations very well," said architect Giuseppe Laurella, the designer and director of the project.
"This is because we used products created specially by a firm which is at the cutting edge of the sector and compliant with all of the current regulations in force."


PHOTO 2

The Technical Data Sheets for the products mentioned in this article are contained in Mapei binder no. 3, Building Line.

TECHNICAL DATA

Campello condominium, Chivasso (Turin)

Built: 1960-1962

Renovated: end of 1997 to mid-1998

Project designer and director: Giuseppe Laurella, Chivasso (Turin)

Company used: Impresa edile Pasqualino Diurno, Montanaro (Turin)

Mapei products used in renovation work:
MAPEFER
MAPEGROUT THIXOTROPIC
MAPEFINISH
ELASTOCOLOR

Mapei co-ordinator: Valerio Mandelli