

REINFORCEMENT OF REINFORCED CONCRETE ELEMENTS BY COVERING WITH MORTARS AND CONCRETE

Restoration and reinforcement of reinforced concrete elements

APPLICATION DATA SHEET

Restoration and reinforcement of pillars by pouring high-performance fibre cement concrete after:

1. Removal of the damaged concrete;
2. treatment of the existing metal reinforcement;
3. protective treatment of reinforcement bars;
4. placement of connecting dowels and construction of the formwork;
5. pouring of the casting.

1) REMOVAL OF THE DAMAGED CONCRETE

The surfaces to be restored must be prepared by completely removing the damaged concrete by hand or mechanical chipping or by other suitable means such as hydro-scarifying, in order to obtain a solid support, free of loose parts and sufficiently rough.

The concrete in contact with the visible metal reinforcements must be removed from each side of bars using a needle gun; the areas to be skimmed will be preliminarily sanded and / or water sandblasted to eliminate any residue of old paint, dirt, disarming, mosses and / or lichens, dust, friable materials in general that would prevent the perfect adherence of the mortar to the substrate.

2) TREATMENT OF THE EXISTING METAL REINFORCEMENT

Perform the brushing of exposed reinforcing bars or proceed with hydro-sandblasting in order to remove the rust and bring the surface to "white-metal" condition (hydro-sandblasting is not necessary if the preparation of the surface has been carried out by hydro-scarification, but it is necessary when a long period of time elapses from this operation due to particular organizational requirements of the site, before the treatment of the reinforcing bars).

3) PROTECTIVE TREATMENT OF REINFORCEMENT BARS

Carry out the protective treatment of exposed reinforcement bars by applying single-component re-alkalizing hydraulic mortar Betonfix KIMIFER with a CE mark in conformity with UNI EN 1504-7, applied with a brush, according to the consumption rates in the Technical Data Sheet, on the metal reinforcement to be protected.

4) PLACEMENT OF CONNECTING DOWELS AND CONSTRUCTION OF THE FORMWORK;

To improve the degree of connection between the casting and the existing structure, punctual connection systems will be added by inserting dowels on each face of the pillar, every 50 cm (at staggered heights on the various faces). The presence of punctual connectors allows to redistribute the stresses on the fiber-reinforced casting even in the absence of a subdivision mesh, thanks to the presence of the metal fiber.

5) POURING OF THE CASTING

Wet both the formwork and the area to be treated to saturation and eliminate, at the time of casting, any stagnation of water (s.s.d condition) by hydro-washing. Mix Betonfix CR, CE marked according to UNI EN 1504-3 Class R4, with a cement mixer for about 5 minutes, adding the 3/4 of necessary water and then the product with the remaining water until the desired consistency is obtained. Respect the consumption rates indicated in the Technical Data Sheet.

The inserts must have a suitable contrast reinforcement anchored to the existing structure with a minimum cover of 2 cm.

For thicknesses greater than 10 cm, mix Betonfix CR with about 30% of washed siliceous aggregates, free of impurities, with minimum particle size greater than 10 mm and maximum diameter depending on the thickness of the

jet.

After the formwork is removed, it is advisable to wet the surfaces and, in the case of high temperatures and excessive ventilation, cover the elements with plastic sheets, to avoid excessive evaporation of the mixing water.

POSSIBLE ALTERNATIVES

As an alternative to Betonfix CR it is possible to use: Betonfix FB, a ready-to-use thixotropic hydraulic mortar with added polyacrylonitrile fibres and corrosion inhibitors.