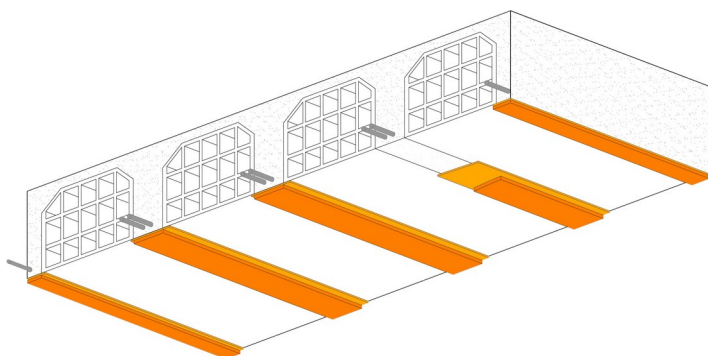


Structural reinforcement after bonding carbon fiber plate

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APPLICATION DATA SHEET

Structural reinforcement after bonding carbon fiber plates by:

1. cleaning and regularization of the substrate;
2. priming;
3. laying of the epoxy adhesive;
4. application of the plate;
5. anchoring;
- 5b. construction of connectors;
6. skimming

1) CLEANING AND REGULARIZATION OF THE SUBSTRATE

Reinforced concrete structures:

If it is necessary to carry out a restoration, prepare the surface by completely removing the deteriorated concrete by hand or mechanical chipping or by other suitable means, such as hydro-scarifying, in order to obtain a solid substrate, free of loose parts and sufficiently rough. Remove the rust from the exposed bars bringing the surface back to "white metal" conditions. Clean the substrate from dust, grease, oils and other contaminants. Wet the substrate until it is saturated, but dry on the surface (s.s.d. conditions) and treat the irons with passivating mortar **Betonfix KIMIFER** applied by brush. Repair the surface with a suitable mortar from the **Betonfix** range. Wait for the restored part to completely dry before applying the primer.

If the restoration of the reinforced concrete is necessary, proceed with the shoring of the structures subject of the intervention. Round off any edges (minimum radius of 2 cm). Plate surfaces with a tensile strength greater than 1.5 Mpa.

Clean the substrate in order to eliminate inconsistent parts and any material that could compromise the good anchoring of the following procedures.

Carefully grout any cracks or micro-cracks with suitable mortars (consult our Technical Department).

Masonry structures:

Remove any plaster and all the inconsistent or detaching parts, until you get a solid, compact and mechanically resistant substrate, in order to avoid the detachment. Prepare the substrate and Hoover the surface to be restored in order to eliminate any fragment present. Treat the surface with cortical consolidating fixative **KIMICOVER FIX**.

If necessary, proceed with the restoration of the material in continuity and the regularization of the masonry surface with **Tectoria M15** mixed with a proper latex from Kimitech range. Wait for any regularization strips to dry (at least 48 h) before proceeding with priming.

2) PRIMING

Application on the treated surface of two-component synthetic resin primer in water dispersion **Kimicover FIX** with a minimum consumption of:

- concrete or wood substrates: 0,2 Kg/m²;
- masonry substrates: 0,3 Kg/m²;
- reed or chalk substrates: 0,5 Kg/m².

3) LAYING OF THE EPOXY ADHESIVE

Spread the two-component solvent-free thixotropic epoxy adhesive **Kimitech EP-TX**. The product will have the function of levelling the surface to be reinforced and creating an adhesive layer for the treatments to be performed.

The minimum consumption is:

- 3,5 Kg/sqm on irregular surface;
- 3 Kg/sqm on wooden surface;
- 2-2,5 Kg/sqm on surfaces regularized with mortar **Tectoria M15** or **Betonfix FB**;
- 1,6-2 Kg/sqm on smooth reinforced concrete or steel surface.

4) APPLICATION OF THE PLATE

Cut the carbon plates **Kimitech PLATE** to the desired length using a flexible diamond blade. Clean with **Solvente EPOX**, lightly sandblast the side of the plate to be applied, in order to eliminate dust, oils and anything that could affect

the adhesion.

Remove dust from the surface and spread on this same side, with a flat trowel, a uniform layer of epoxy adhesive **Kimitech EP-TX** in order to have approximately 1 mm of adhesive on the side edges and about 2 mm of adhesive in the centre of the plate.

Lay the plate immediately afterwards and press it evenly onto the substrate with a rubber roller to eliminate any vacuum or air bubbles.

At the end of the work the reinforcement can be left visible. If you want to paint, skim, plaster or cover it with fire protection coating, contact our Technical Department.

It is always preferable to apply the plates next to each other rather than overlapping them. In the case where space is limited and overlapping of a second layer of plates is necessary, it is necessary to clean both faces of the plates with **Solvente EPOX** in every part of contact. To bond a second layer of plates, apply a layer of **Kimitech EP-TX** on the previously laid plate.

It is necessary to avoid that all the applied adhesive flows during crushing. Make sure that a layer of about 0.5-1 mm of thickness remains between the two plates.

5) ANCHORING

For the anchors, which are necessary as a safety device against delamination at the ends of the reinforcements when working on particularly poor supports, in case of orthogonal thrusts to the laying surface (which can be generated in the case of intradossal reinforcements of vaults) or concave angles (hooping of masonry pillars and stone materials characterized by articulated geometries) the connectors to be used should be made on site (**Kimitech FIOCCO CB**) and/or be preformed (**Kimitech FRP-LOCK**).

5B) CONSTRUCTION OF CONNECTORS

Preparation of the connection systems by connector through:

- a. preparation of the connectors;
- b. drilling and grouting of the connectors;
- c. unravelling and impregnation.

a. Preparation of the connectors made with **Kimitech FIOCCO CB**:

- cut to length of the connector;
- cut of the polypropylene tape at the extremity;
- unravelling of the extremity;
- soaking on site;
- lengthwise rolling up of the tape.

b. Drill holes in the substrate, on which the reinforcement with FRP has previously been applied, in order to fasten the connectors used as connection systems and anti-

delamination reinforcements.

The hole must be adequately sized in relation to the equivalent diameter of the chosen connector. Insertion of the previously prepared connector and grouting by using fluid epoxy resin **Kimitech EP-IN**.

c. Unravelling of the connector on the reinforcement surface and soaking using fluid epoxy resin **Kimitech EP-IN**.

For further information on anti-screening product **Kimitech FRP-LOCK** see the Technical Data Sheet.

6) SKIMMING

When fluid epoxy resin **Kimitech EP-IN**, applied on the surface of the plate, is still fresh, dust fine quartz sand (max ~ 1 mm) in order to guarantee a proper surface roughness for the skimming to be carried out with a ready-to-use skimming mortar, grey or white, **Betonfix RS**, which must be applied after at least 7 days after the reinforcement.

Dusting is not necessary if you intend to protect the reinforcement with a simple protective coating.

POSSIBLE ALTERNATIVES

*As an alternative to **Betonfix RS** it is possible to perform the skimming by applying ready-to-use one-component water-repellent protective skimming mortar with aggregates of maximum grain size 0.5 mm **Betonfix R30**, white or grey, or with ready-to-use single-component hydrophobic protective skimming mortar with aggregates of maximum grain size 0.7 mm **Betonfix R52**, white.*