INTRASODAL OR EXTRADOSAL REINFORCEMENT OF VAULTS WITH CRM

Reinforcement of arches and vaults

APPLICATION DATA SHEET

Structural reinforcement with CRM reinforcing systems through:

1. removal of flaky parts;
2. placement of the reinforcement;
3. preparation of connection systems;
4. Application of second layer of mortar
5. skimming.

1) REMOVAL OF FLAKY PARTS:

Demolition of existing plaster and loose parts and scarification of bed joints. Washing and wetting of the soaked surface (minimum masonry humidity equal to 70%). Possible reconstruction of missing or particularly damaged masonry parts. If restoration of the support is needed, such intervention will be performed using mortars from Basic, Tectoria or Limepor range.

2A) APPLICATION OF FIRST LAYER OF MORTAR AND FIXING OF THE MESH (FLEXIBLE MESHES)

On a saturated substrate with a dry surface, apply a first coat of render to the masonry with natural-hydraulic-lime-based mortar Basic MALTA M15.
Place fiberglass mesh Kimitech WALLMESH MR (to cut the mesh at the openings use shears and/or construction cutters or angle grinder), partially incorporating it into the fresh mortar of the rough coat, overlapping the mesh strips for about 15 - 20 cm in order to guarantee mechanical continuity.

2B) APPLICATION OF FIRST LAYER OF MORTAR AND FIXING OF THE MESH (SEMI-RIGID MESHES)

On a saturated substrate with a dry surface, apply a first coat of render to the masonry with natural-hydraulic-lime-based mortar Basic MALTA M15.
Place fiberglass mesh Kimitech WALLMESH MR-HD (to cut the mesh at the openings use shears and/or construction cutters or angle grinder), partially incorporating it into the fresh mortar of the rough coat, overlapping the mesh strips for about 15 - 20 cm in order to guarantee mechanical continuity.

3A) PREPARATION FOR CONNECTION SYSTEMS (FLEXIBLE MESHES)

Drilling of holes (diameter 20 mm), through (where reinforcement is foreseenon both faces) or for a depth of 2/3 of the panel (in the caseof reinforcement on only one face) in the number foreseen by the project (in any case in a number not less than 4 per m^2), to be made preferably with rotating tools.
Cleaning of the hole and insertion of pre-formed “L” connectors in fiberglass and Kimitech PLUG VR thermosetting resin with improved adhesion and grouting the hole with Kimitech EPOXY CTR epoxy resin.

3B) PREPARATION FOR CONNECTION SYSTEMS (SEMI-RIGID MESHES)

Drilling of holes (diameter 20 mm), through (where reinforcement is foreseenon both faces) or for a depth of 2/3 of the panel (in the caseof reinforcement on only one face) in the number foreseen by the project (in any case in a number not less than 4 per m2), to be made preferably with rotating tools.
Cleaning of the hole and insertion of pre-formed “L” connectors in fiberglass and Kimitech PLUG CRM thermosetting resin with improved adhesion and grouting the hole with Kimitech EPOXY CTR epoxy resin.
Alternatively, it is possible to make dry connections by making pre-holes with a smaller diameter than that of the helical bar used, cleaning the hole and inserting the Kimisteel INOX X-BAR helical bars; it is simply necessary to bend the part of the bar external to the masonry to complete the connection.

4) APPLICATION OF SECOND LAYER OF MORTAR

Wait for the first layer of mortar to "set" and apply the next layer with a trowel or machine. For plaster thicknesses greater than 30 mm, the application must be done in several coats, applying successive layers on the previous,

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untrowelled layer.

5) SKIMMING

Skimming should be carried out upon completion of the plaster curing (wait at least 1 week for each centimeter of thickness, and at least at least 3 weeks) by applying a ready-to-use natural hydraulic lime-based white skimming mortar Limepor EDO.

POSSIBLE ALTERNATIVES:

- as a mortar, instead of Basic MALTA M15 it is possible to use Tectoria M15.
- as a fiberglass mesh, as an alternative to Kimitech WALLMESH MR it is possible to use Kimitech WALLMESH HR.
- as a fiberglass mesh, as an alternative to Kimitech WALLMESH MR-HD it is possible to use Kimitech WALLMESH HR-HD.
- as a resin for grouting, as an alternative to Kimitech EPOXY CTR it is possible to use vinyl ester resin Kimitech VINYL CTR.