

GENERAL HERITAGE MANAGEMENT PRINCIPLES

All significant interventions notified and preceded through documentary research and detailed visual and if necessary, physical investigation.

Works will be planned to ensure minimum intervention and disturbance to the fabric of the building. Proposed works will be evaluated and for their potential impact on the fabric of the building and notified accordingly.

Intervention works have been carefully considered and justified in terms of its necessity as a repair, an adaptation which better reveals it's significance, or an enhancement which extends is sustainable use.

Interventions to the fabric which protect or better reveal the buildings heritage will be encouraged, and change which could cause unmitigated harm to the significance of the building will be avoided.

Every element of the works will be completed sympathetically by competent operatives with a proven track record of working within a Grade II Listed environment. The project culture of care, consideration and preservation of the buildings heritage will be maintained.

This culture will be administered via contractor selection, induction, and relevant toolbox talks throughout the duration of the project.

If required, the heritage consultant will be engaged as works progress to mitigate any detrimental effect on the heritage components of the building.

Before any works commence, the management team will carry out a review of the work area to understand the building fabric within and adjacent to the space.

METHODOLOGY

The installation methodology is below. The system does not involve penetration into the existing structure.

Slab Inspection

- After the removal of the waterproofing layer of the slab, a Slabtec personnel must conduct an inspection on the slab surface to find any damage or cracks.
- If cracks are discovered, mark up the drawing, measure the crack width and take a photo. Report the findings to the engineer to identify additional crack repair.
- Note any foreign objects or imperfections on the slab that may affect the installation of CFRP wraps and high-performance concrete.

Substrate Preparation

- Remove all foreign objects on the slab surface including all concrete laitance and contaminants such as oils or left over bitumen that would affect the adhesion of the CFRP wrap and/or high performance concrete.
- Remove any loose/detached concrete from the surface to form a sound, highly rough and strong substrate.
- Use a wet & dry vacuum or a dust vacuum to control dust when grinding/planning the concrete.
- Clean the final substrate to remove any excess dust.
- Mark out all the locations of the shear stud and the CFRP Wrap referring to the Slab Strengthening Works Layout. Prioritize the shear stud locations by adjusting the CFRP locations to avoid clashes with the shear studs.

Installation of Carbon Fiber Wrap

- Prepare the MapeWrap Primer 1 by mixing the two components. Pour component B into component A and mix with a paddle mixer until the resin is completely homogenous. Always

use the whole set when mixing to avoid any dosage errors. Once mixed, the primer must be used within 90 minutes.

- Apply the mixed primer using a roller or a brush onto the concrete surface.
- After the substrate has been primed, prepare the Adesilex PG1 to be used as a surface levelling mortar. Pour component B (white) into component A (grey) and mix at a slow speed with a paddle mixer until the mixture becomes homogenous. Always use the whole set when mixing to avoid any dosage errors. Once mixed, the mortar must be used within 35 minutes.
- Before the surface levelling resin dries, prepare the MapeWrap 31 to be used as an epoxy resin based adhesive. Pour component B into component A and mix at a slow speed with a paddle mixer until the mixture becomes homogenous. Always use the whole set when mixing to avoid any dosage errors. Once mixed, the adhesive must be used within 40 minutes.
- Apply a scattered layer of quartz sand on top the still wet surface of the surface leveling mortar and immediately apply a uniform coat of adhesive.
- Immediately apply the MapeWrap Fabric making sure it is laid out without creases. Press the fabric using a roller so that the adhesive penetrates through the fabric and apply a second coat of the adhesive over the fabric. Pass over the impregnated fabric with a roller to eliminate any air pockets formed during the application.
- Precautions to be taken:
 - o The temperature during application must be kept at least +10°C and the structure must be protected from rain and dust carried by the wind.
 - o After the application, the surfaces must be kept at a temperature of +10°C.
 - o Protect the surfaces from rain for at least 24 hours if the temperature does not drop below +15°C, otherwise, protect the surfaces for 3 days.

Installation of Shear Studs

- Drill a hole with an 8 mm bit to a depth of 70 mm. If an obstruction is encountered and the hole is deemed unusable for the shear studs, move the hole towards the center of the beam on the shortest distance where no obstruction expected and fill the abandoned hole with Mapefix EP 100.
- Clean the drilled hole with compressed air to remove dust and water and fill-up with Mapefix EP 100.
- Insert the Mini CEM-E Connector and screw into the hole making sure not to over-tighten the screw.

Installation of the Reinforcements

- For the perimeter reinforcement, mark out the locations along both the inside and outside perimeter of the slab referring to the Structural Strengthening Work Layout. Drill into the slab with an 8 to 10 mm bit where the slab and wall are connected ensuring that a minimum of 100mm embedment length can be achieved. Fill the hole with Mapefix EP 100 and insert the straight reinforcing steel into place. Allow the epoxy resin to harden for 28 hours then bend the steel down towards the slab to have the remaining length achieve a minimum concrete cover of 8mm.
- For the reinforcements along the beam span, install the reinforcing steel as per the Slab Strengthening Works Layout placing the steel under the shear stud's screw head and fixing in place using a tie wire.
- For the construction joint reinforcement, place the A412 reinforcement mesh along the construction joint and fix onto the shear studs using tie wire.

High-Performance Concrete Overlay

- Ensure that the surface is free from dust, rust, cement laitance, grease, oil, and paint. Clean with a pressure washer and wait until any excess water has evaporated off.
- Prepare the high-performance concrete, Planitop HPC Floor 46, using a forced action mixer.
- Pour the HPC into the mixer, add 5-8 l/m³ and 1.75 liters of water then mix for a minimum of 5 minutes until the mix is smooth, fluid, and lump-free. Use all the mixed quantity within 30 minutes after mixing.
- Take 3 pieces of 100 mm cube sample to be tested in 28 days.
- Pour the HPC over the slab and spread using a rake and finish the surface using a floater.
- Precautions during and after application:

- o To prepare the mortar, use only Planitop HPC Floor 46 bags that have been stored on their original pallets, in a covered area.
- o In hot weather, store the product in a cool area and use cold water to prepare the mix.
- o In cold weather, store the product in an area protected from frost at a temperature of +20°C and use lukewarm water to prepare the render.
- o After applying Planitop HPC Floor 46, it is recommended to cure it very carefully, particularly in hot or windy weather, to prevent the mixing water evaporating off too quickly and causing surface cracks. Always protect Planitop HPC Floor 46 by spraying water on the surface during the casting operations. Then cover the surface with a waterproof sheet for at least 5 days.

DRAWING REGISTER

The documents detailed below are included within this submission.

Drawings

11817-RIC-ZZ-ZZ-DR-Z-001001 Structural Strengthening Work Layout

Revision: P01

Other

Atrium Indicative CGI

Ferrino_Porcelain_Decking