TECHNY CHEMY

New Era Construction Chemicals

ANALYSIS REPORT FOR

STRUCTURAL RESTORATION

AT

PHC – MURKANKUDI - KUMBAKONAM

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ANALYSIS:

FLAT ROOF AREA: The surface has been laid with clay tiles. The pointing done for the joints has been worn out due to the age factor of the layer. In certain areas we can observe damages are also found in the tiles.

The damages seen in the surface of Tile

Further we find lot of vegetation grown over the flat roof which has damaged the roof and has allowed water to penetrate. The penetration of water dampness can be seen in MATERNITY WARD as shown in the picture.

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WALLS & ROOF SPALLING: Cracks and spalling of concrete found inside the wall. This is due to water penetration which causes reinforcement bars to get corroded. Due to corrosion the rods expand which leads to spalling in concrete surface.

CRACKS FOUND IN WALLS: Cracks are found all over the buildings. The cracks are caused due to settlement of the structure due to the soil condition.

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FLOOR SETTLEMENT INSIDE: Settlement is observed in various places inside the building causing to damages in the floors.

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SPECIFICATIONS:

(a) FLAT ROOF AREA

- This system should be adapted only over good quality tile substrates firmly laid with adequate slopes and outflow pipes.
- It is also vital to ensure that weathering course laid beneath the tiles is of high quality, firm and sound at the time of providing the waterproofing treatment.
- The tile surface to be coated shall be cleaned to be free of dust, loosely adhering materials, cement droppings and fine dust.
- The tile joints shall be raked clean to remove loose mortar.
- Re-pointing shall be done using CM 1:4 admixed with **TEC^{R} SWELL** (@ 450gms per bag of cement).
- The cleaned surface should be wetted but should be free of water puddles. The primer coat of **TEC^{R} WAVE 3000 –** High flexibility waterproofing membrane coating system shall be applied and be allowed to reach tack-free stage.
- Two top coats of **TEC^{R} WAVE 3000** should be provided over the primer coat, all as per mix and application instructions for the product.
- The treated area should be adequately cured for a minimum period of 7 days.

(b) REPAIR FOR MINOR CRACKS

- Routing out the cracks with a mechanically operated groove cutter to form a neat groove and cleaning to be free of dust and loose particles.
- The opened groove shall be wetted thoroughly using a bottle sprayer.
- **TEC^{R} KRACKFILLER** shall be mixed as per the mix instructions for the product and then be applied on to the opened groove ensuring proper filling without air bubbles. A putty knife or a spatula may be used for the purpose.
- On setting the filled material may either protrude or sag depending on the depth of the crack being filled.
- In case the filler protrudes, the projection may be rubbed down using fine finish polishing stones.
- In case the filler sags, one more layer of **TEC^{R} KRACKFILLER** may be applied as soon as the first layer sets.
- Curing is vital for expansion of the filler material. The treatment should be cured adequately for a minimum period of 3 days. Curing membrane **TEC^{R} CURE WB** may be applied as an alternative to water curing.

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(c) REPAIR FOR MAJOR CRACKS:

The cracks shall be cleaned and filled with

- The Cracks should be chipped to form a neat 'V' shaped groove and cleaned to be free of dust and loose particles
- The opened groove should then be wetted thoroughly
- Over the still wet substrate one bond coat of **TEC^{R} BONDSBR** modified slurry preparation shall be applied. The slurry shall be prepared by mixing one part of **TEC^{R} BOND SBR** with one part of cement.
- While the bond coat is still tack, the grooves shall be filled with cement mortar 1:4 admixed with **TEC^{R} SWELL$^{@}$** 450gms per bag of cement), well compacted and then finished neat.
- Once the cracks are filled stiching the cracks shall be done with 6mm rods with a cover space of 1 ft on either side and with an interval of 1.5ft
- Plastering may be carried out in all exposed areas with **TEC^{R} POROSEAL 300**
- Curing is vital for expansion of the filler material. The treatment should be cured adequately for minimum period of 3 days.

(d) ROOF SPALLING:

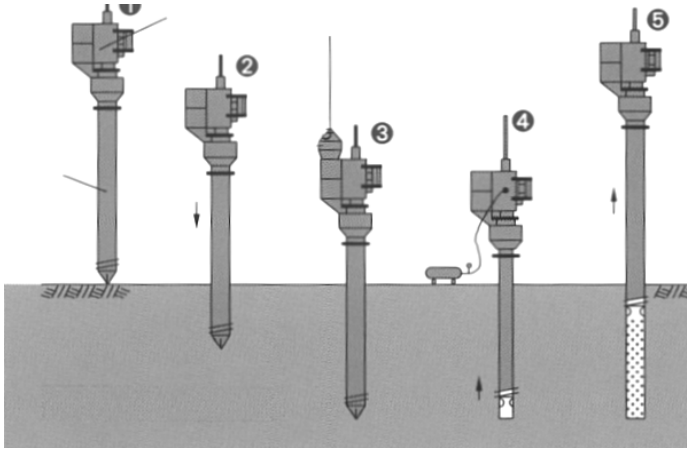
- The delaminated portions of the concrete roof slab shall be dismantled.
- The dismantled area shall be thoroughly cleaned by wire-brushing ensuring that the surface is free of dust and loose particles.
- The existing reinforcement rods shall be wire brushed to be free of rust and scales.
- Additional reinforcement if required may be provided. The additional reinforcement should be anchored to the existing portions of the concrete using **TEC^{R} GROUT PGA** – Polyester resin Based anchoring grout.
- Both the existing and new reinforcement rods shall be provided with two coats of **TEC^{R} BEAT ZR**- Epoxy Zinc Rich reinforcement coating system.
- The reinforcement coating system should be allowed to self cure at room temperature for a minimum period of 48 hours.
- After the 48 hour curing period the dismantled area including the coated reinforcement shall be thoroughly water washed.
- Over the clean and water saturated concrete substrate one bond coat of **TEC^{R} BOND SBR** modified slurry preparation shall be applied using a stiff bristled brush, working the slurry well into the substrate. The slurry shall be prepared by mixing one part of **TEC^{R} BOND SBR** with one part of cement.
- While the bond coat is still tacky cement plastering in cm 1:4 shall be carried in layers of not more than 15mm. It is strongly recommended that the bond coat be repeated between each layer.

- Curing is vital for optimum performance of the repair job. The treatment should be cured adequately for a minimum period of 7 days. Curing membrane **TEC^{R} CURE WB** may be applied as an alternative to water curing.

(e) FOR FLOOR SETTLEMENT:

FOR SOIL STABILIZATION:

FOR NEW BUILDINGS: The method of ground improvement using chemical lime piles consists of placing columns of specially prepared HYDRATED LIME into the soft soils without mixing. Quick Lime is very sensitive to high humidity. Using hydrated lime as a stabilization agent evolves two process – Modification & Stabilization.



1. The procedure involves screwing a hollow casing to the desired depth in the soil.
2. The direction of rotation is then reversed and the casing is withdrawn progressively as the quick lime is injected, by compressed air, through the opening located at the bottom end of the casing.

As the surface of fine particles of clay is negatively charged, calcium ions (Ca++) from the slaked lime are absorbed by the surface of clay particles. As a result, clay particles are bonded with each other and the weak clay is improved with a resultant increase in shear strength.

FOR OLD BUILDINGS:

IN THE EXTERIOR: The piles have to be inserted in 45^{0} rather than as straight piles used for new construction.

IN THE EXTERIOR: If the floor is removed and consolidation is done then straight piles can be used.