a.b.e.® Construction Chemicals

METHODOLOGY

Concrete Pavement/Floor Slabs

Repairs using **dura.®rep FS** - Fast Setting

All the relevant product data sheets are to be read for additional information like pot life, mixing instructions, surface preparation, ventilation, temperature application limitations, etc.

REPAIR AREAS

The areas to be repaired are to be as shown on the drawings or as indicated by the Contract Administrator. The areas are to be clearly marked out on site and agreed with the Contract Administrator before proceeding.

The areas may be adjusted by the Contract Administrator as work proceeds according to the conditions found.

The surfaces adjacent to and of areas for repair shall be cleaned to remove any dust, unsound material, plaster, oil, paint, grease, corrosion deposits, or organic growth.

Within the repair area, where reinforcement is in the repair zone, cover shall be determined by cover meter. A small area shall be chiselled out and the concrete cover and depth of deteriorated concrete confirmed by measurement.

Repair areas shall not individually exceed the 12 litre yield of one 25 kg bag of **dura.®rep FS**.

If there are any joints in the concrete in the repair area, then these shall be followed through similarly to existing.

Edges of concrete slabs to be repaired shall present an edge strip cut out to a minimum depth of 25 mm and cut back by a minimum of 50 mm. The length of repair strip may be less than 0.5 m but shall not greatly exceed 0.5 m. Temporary edge support needed. Repair strips in excess of 0.5 m shall be repaired in alternate sections up to 0.5 m long to eliminate the occurrence of shrinkage cracks.

CONCRETE PREPARATION

Break out and/or mechanically prepare by scabbling e.g. designated/unsound concrete within the repair zone.

Using a saw, disc cutter, or other suitable tool, the perimeter of the area to be repaired shall be incised to a depth of at least 12 mm causing good arises to be formed at the outer edges all to preclude feather edging of the repair compound. Saw/disc cut edges shall be grit blasted to lightly roughen.

If breaking out and the depth corresponds to the depth of concrete cover and thereby exposes the reinforcement, breaking out shall continue to expose the full circumference of the steel and to a further depth of 25 mm or as directed by the Contract Administrator. Breaking out shall continue along the reinforcement until non-corroded steel is reached and shall continue 50 mm beyond this point or as directed by the Contract Administrator. Special care shall be exercised to ensure that any reinforcement exposed is not cut or damaged.

It is essential that no carbonated concrete substrate shall be in contact with, or within 5 mm of, the reinforcing bars. In cases where carbonation has reached within 5 mm of the reinforcing bars, the concrete shall be broken out to expose the full circumference of the steel and a further depth of 20-30 mm or as directed by the Contract Administrator.

After breaking out as specified the exposed surface of concrete shall be tested for carbonation by the use of a semi-aqueous solution of phenolphthalein. The test shall be carried out on the freshly exposed concrete or at least within 30 minutes of being exposed. The test shall be carried out on sound, dry and clean air-blown dust free surfaces. If the concrete substrate still exhibits carbonation in the vicinity of the steel reinforcement, breaking out to remove a further 20 mm shall be carried out and the test repeated. If carbonation is still present the Contract Administrator shall be notified before proceeding further.

This preparation shall be such as to leave a sound exposed concrete substrate free from dust, loose particles and any deleterious matter.

REINFORCEMENT PREPARATION

All exposed reinforcement shall be cleaned of corrosion products by wet grit blasting or other approved means to achieve a surface finish to comply with a standard of steel cleanliness such as SA2½ (BS7079:Part A1/ISO8501) or as directed by the Contract Administrator. Special care shall be taken to clean out properly any pitting which may have occurred in the steel bar.

When the corrosion products have been removed and if directed by the Contract Administrator, the diameter of the

reinforcing bar(s) shall be measured. If considered necessary by the Contract Administrator the existing reinforcement shall be cut out and replaced and/or additional bars added in accordance with instructions. Any deep pitting of the reinforcing bars shall be brought to the attention of the Contract Administrator.

Reinforcement damaged during the removal of concrete or the preparation process shall be brought to the attention of the Contract Administrator and if required, shall be repaired or replaced.

Where the presence of chloride is determined, it is essential that the cleaning precess is completed by pressure washing with clean water the total exposed areas of reinforcing steel to ensure the removal of all residual contamination from the pitted surface of steel.

REINFORCEMENT PRIMING

Immediately following preparation and cleaning, the reinforcing steel shall be primed with **dura.®rep ZR** primer single component epoxy primer complying with the relevant parts of BS4652, 1971 (1979) Specification For Metallic Zinc Rich Priming Paint Type 2.

The **dura.®rep ZR** primer shall be brush applied to the cleaned reinforcement ensuring that all exposed steel is fully coated. Special attention shall be paid to the backs of the steel bars and where steel bars are tied together. It is essential that this coat is continuous with that of any adjacent repaired area where zinc-rich primer has been used. Avoid excessive over-painting onto the concrete and allow to dry.

CONCRETE REINSTATEMENT

dura.®rep FS fast setting, cementitious pre-mix pavement patching compound shall be used, which requires only to be mixed with water to produce a material with very rapid strength gain (> 20N/mm² @ 1 hour), a tough surface in use (70N/mm² @ 28 days) and resistant to shrinkage and weather. The minimum depth for repair shall be 12 mm. Use in conjunction with **epidermix 345** wet-to-dry epoxy bonding agent.

PRIMING CONCRETE

The surface of the concrete prepared to receive **dura.®rep FS** shall be thoroughly soaked with clean water and any excess removed from the surface, preferably by blowing with oil-free clean compressed air, prior to priming with **epidermix 345**.

Without delay, **epidermix 345** primer shall be scrubbed into the prepared damp concrete surface, paying particular attention to the edges of the repair area and avoiding puddling of the primer.

MIXING PATCHING COMPOUND

Before mixing the patching compound the contractor shall ensure that sufficient and correct areas for reinstatement are prepared and ready to receive patching compound.

Only mixes using one complete bag of **dura.®rep FS** shall be allowed and part bag mixes not permitted.

The mixing shall be carried out strictly in accordance with current product instructions for use and only with appropriate mixing equipment. The mixing water shall be potable quality and the carefully measured quantity of water for the mix shall be placed into the mixing container before the **dura.®rep FS**.

The **dura.®rep FS** shall be added to the mixing water and in no circumstances shall more water be added than the maximum volume stated for each bag.

APPLICATION OF REPAIR COMPOUND

Only fully integrated mixes of **dura.®rep FS** at the required consistency and workability shall be used.

Immediately following mixing and when the applied primer is tacky, the patching compound shall be placed evenly over the surface and tamped into place with a wood float to ensure full compaction.

The thickness of a single application shall not exceed 50 mm. For filling in pockets of greater depth, individual layers shall be wavy-line scratch keyed with a comb and allowed to set for at least 2 hours before priming and application of the next layer.

On attaining the correct level, the surface shall be finished by striking off and closing with a steel trowel, or textured with a roller or sweeping brush, in accordance with the requirements of the Contract Administrator.

Where formwork is used e.g. slab edges, it shall be pre-treated with a varnish to prevent moisture absorption from the repair compound.

CURING

Details of the methods of curing shall be submitted to the Contract Administrator for approval.

Curing of the finished surface of each mix shall commence immediately following laying. If a curing compound (eg **CHRYSO Cure R**) is used overspray at edges onto the surrounding substrate shall be avoided.

Prior to final set the **dura.®rep FS** shall be protected against heavy rainfall and in winter the finished surface shall be protected against frost for the first three days.

CLEANING

epidermix products should be removed from tools, equipment and mixers with **abe® super brush cleaner** immediately after use. Hardened material can only be removed mechanically.

IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.® Construction Chemicals Limited** endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot - because **a.b.e.®** has no direct or continuous control over where and how **a.b.e.®** products are applied - accept any liability either directly or indirectly arising from the use of **a.b.e.®** products, whether or not in accordance with any advice, specification, recommendation, or information given by the company.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements. **a.b.e.® Construction Chemicals Limited** has a wealth of technical and practical experience built up over years in the company's pursuit of excellence in building and construction technology.

PRODUCTS REQUIRED

- **abe® super brush cleaner**
- **dura.®rep FS**
- **dura.®rep ZR primer**
- **epidermix 345**

EQUIPMENT NEEDED

- 150 mm paint brush
- Heavy duty Festo mixer with a helical mixing head
- Pan mixer