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17th January 2022
Reference: neal.toby-2022-001

RE: Bramley House

For the attention of Amir Akiva

Dear Amir Akiva

Further to discussions regarding the above structure on the 13 January 2022, this document has been compiled for your attention by Toby Neal of Sika Limited detailing the remedial work necessary to extend the life of the structure.

Our concrete repair and protection remedial specification is based upon discussions, an understanding of the requirements and site survey and testing data where applicable.

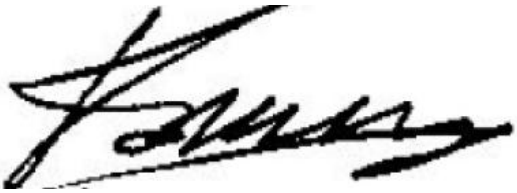
This specification is valid for a period of 12 months, after which a further site survey should be carried out to ensure the suggested proposals are still fit for purpose.

Any variations to this specification and related clauses must be confirmed by Sika Limited to ensure the suitability of the proposed changes and any impact this may have on the performance of the proposed system specified in the specification clauses.

As part of Sika Limited's continuous product development, we retain the right to alter our product specifications in accordance with relevant national and international standards without notice.

We trust this is of assistance to you. If we can be of further help on this, or any other project, please do not hesitate to contact me on +44 (0)7768 977956.

Yours sincerely



Toby Neal
Area Specification Manager

Checked by Rob Doherty
Product Manager - Specialist Construction Solutions

SPECIFICATION DOCUMENT

STACE LLP - EPPING

PROJECT: **BRAMLEY HOUSE**

PROJECT REF: **NEAL.TOBY-2022-001**

DATE: **17 JANUARY 2022**

CONTACT SHEET

Prepared for:	Stace LLP 273 High Street Epping Essex CM16 4DA
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CONTENTS

1. PROJECT OVERVIEW

GENERAL COMMENTS

- **The structure is located in a** City
- **The use of the structure is** Residential
- **The approximate year of construction is** 1950s

CLIENTS REQUIREMENTS

- Provide a long term concrete repair and protection solution with effective corrosion control measures to extend the service life of the structure.
- A guarantee of 10 yrs is also required for the above requirements.

1. PROJECT OVERVIEW continues overleaf...

2. SPECIFICATION - COATED WALKWAY SOFFIT

2.1 - SYSTEM SCHEDULE

AREA	MATERIAL
Classification	Concrete Repair & Protection
Guarantee required	10 Year
Remediation System Reference	Special
Total Corrosion Management?	No
Reinforcement Corrosion Protection Coating	Sika® MonoTop -1010
Placement Method Options	Hand Placed
Repair Mortars	Sika® MonoTop-4012
Smoothing Coat	Sikagard® 545W Elastofill
Protective Coating Primer System	Sikagard® 552W Aquaprimer
Protective Coating System	Sikagard® 550W Elastic

The following specification is to be read in conjunction with the project condition report, drawings and project specific documentation where included, and all points should be considered as part of the scope of works.

2.2 - REMEDIAL PROPOSALS

The following remedial proposals are based on visual observations, investigation data (If available) and clients requirements.

Concrete repair and protection proposals are in accordance with BS EN 1504 Products and systems for the protection and repair of concrete structures- Part 9 General principles for use of products and systems.

CONCRETE & STEEL REINFORCEMENT PREPARATION

- Clean and prepare all concrete surfaces
- Remove cracked and delaminated concrete
- Prepare repair area
- Remove corrosion from exposed reinforcement

CONCRETE REPAIR OPTIONS

Carry out concrete repairs using the following repair mortar options depending on concrete breakout volumes & structural requirements:

2.3 - GENERAL

Repair and Protective Material Selection/Compliance

In all cases the Contractor shall provide manufacturers' evidence to verify that they meet the requirements set out in BS EN1504 and as such all materials where relevant should be 'CE' marked.

All materials must be compatible and shall not have any effects on long term durability and bond. The materials must be supplied from a BS EN 1504 approved manufacturing plant and supplied from a single manufacturer to ensure compatibility and ensure long term durability.

For individual product application requirements refer to current Product data sheet.

2.4 - CONCRETE SUBSTRATE QUALITY AND PREPARATION

Coated Concrete Surfaces (Remain)

If it is deemed that existing coatings are to be overcoated rather than removed, then compatibility testing between existing coating and new Sika® coating system together with additional tests outlined below should be undertaken prior to proceeding with the works. However, it should be borne in mind that failure to remove existing coatings may lead to an increased risk of technical compromise. Before proceeding, trial results must be interpreted by the Contract Administrator. Sika Limited is not responsible for failures related to the underlying coating.

Existing Coatings

Existing coatings must be tested to confirm their suitability.

For existing coatings to be considered for overcoating with Sika® coating, all test criteria from the Dry Cross-Cut Tests & Adhesion Tests shall be satisfied as stated below.

Dry Cross-Cut Test

Carried out in accordance with BS EN ISO 2409

At least 2 cross-cut tests need to be performed for each zone to be assessed. The results shall be interpreted as acceptable if they achieve: GT 0, 1 or 2.

Adhesion Test

Carried out in accordance with BS EN 1542

At least 5 pull off tests shall be performed per zone.

The results shall be considered as acceptable if they achieve the following:

Crack-Bridging/Flexible Systems:

Adhesion test average $\geq$ 0.8 N/mm2 (MPa) with no single value below 0.5 N/mm2 (MPa) or cohesive failure in the substrate.

Rigid Systems:

Adhesion test average $\geq$ 1.0 N/mm2 (MPa) with no single value below 0.7 N/mm2 (MPa) or cohesive failure in the substrate.

All testing shall be carried out using an accredited testing house.

Existing Coatings and new Sika® Coating System

Wait at least 2 weeks prior to conduct Dry Cross-Cut Test and Adhesion Tests.

All acceptance criteria mentioned for existing coatings apply for the existing coatings and new Sika® coating system.

Thickness of existing coating shall also be assessed to ensure full system of existing and new coatings do not exceed requirements for permeability to water vapour SD< 5.0m to prevent water vapour build up, condensation issues and possible coating system failure.

2.4 - CONCRETE SUBSTRATE QUALITY and PREPARATION continues overleaf...

Failure to carry out any of the above compatibility, cross cut and adhesion tests will invalidate any guarantee.

By suitable means, remove all delaminating coatings (and exposed laitance) back to a firmly adhering edge to the approval of the Contract Administrator.

Remaining coatings must be cleaned by high pressure water jetting or blastcleaning to remove all surface contaminants such as grease, dirt, etc, prior to overcoating.

The resultant surface should be sound, clean and stable,with all defective locations exposed for attention.

Prior to the application of Sikagard coatings, to improve adhesion, use one coat of Sikagard®-552 W Aquaprimer applied by brush or roller at a consumption rate of not less than 0.2 ltr/m² on top of water based coatings or Sikagard®-551S applied by brush or roller at a consumption rate of not less than 0.2 kg/m² on top of solvent based coatings.

If original type of coating is unknown, conduct trials with primers and Sikagard® coating to ensure compatibility and acceptable cross cut and adhesion values.

A trowel applied re- profiling mortar of Sikagard®-545W Elastofill and 20% by weight of 0.1- 0.3 mm kiln dried quartz sand should be used to re-profile and fill any remaining blowholes on the concrete coated surface prior to using a water based Sikagard® Anti – Carbonation coating.

2.5 - CONCRETE REMOVAL

After removal of defective concrete, the prepared area shall be free from dust, loose material, surface contamination and materials which reduce bond or prevent suction or wetting by repair materials.

Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable mechanical or very high pressure waterblasting (up to 110 MPa / 16500 psi) techniques.

Tying wire fragments, nails and other metal debris embedded in the concrete should be removed where possible.

The edges where concrete is removed should be cut at a minimum angle of 90° to avoid undercutting and a maximum angle of 135° to reduce the possibility of debonding with the top surface of the adjacent sound concrete and should be roughened sufficiently to provide a mechanical key between the original material and Sika concrete repair mortar.

Ensure sufficient concrete is removed from around the reinforcement to allow application of the reinforcement corrosion protection coating and compaction of the repair material.

2.6 - PREPARATION OF STEEL REINFORCEMENT

Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed to a minimum standard of SA2 or SA2½ depending on the reinforcement corrosion protection coating used.

The whole circumference of the exposed reinforcement shall be uniformly cleaned, except where structural considerations prevent it.

Unless the cleaning is carried out immediately before application of the reinforcement corrosion protection coating, the reinforcement shall be protected against further contamination.

Surfaces should be prepared using abrasive blast cleaning techniques or high pressure waterblasting techniques.

Method and choice of cleaning shall take into account bar congestion, contact between bars, proximity to concrete substrate and other factors which prevent access for cleaning.

Where exposed reinforcement is contaminated with chloride or other material which may cause corrosion, the reinforcement shall be cleaned by low pressure waterblasting techniques to wash away contaminants.

If environmental constraints preclude the use of abrasive or water blasting preparation techniques and where corrosion has been induced by carbonation and ingressed chlorides are not present. The following preparation maybe adopted.

Rust, scale, mortar, concrete, dust and other loose and deleterious material which reduces bond or contributes to corrosion shall be removed to a minimum standard of C St 3 as defined in BS 7079: Part A1.The whole circumference of the exposed reinforcement shall be uniformly cleaned except where structural considerations prevent it. Final surface condition should have a faint metallic sheen finish.

Unless the cleaning is carried out immediately before application of the reinforcement corrosion protection coating, the reinforcement shall be protected against further contamination.

Steel preparation maybe carried out by removing loose rust by very thorough scraping, hand or machine wire brushing, abrasive paper/cloth, grinding or other appropriate techniques to achieve the required final surface condition.

Method and choice of cleaning shall take into account bar congestion, contact between bars, proximity to concrete substrate etc.

After removal of the rust to the required standard. Clean the steel reinforcement with a dry clean brush.

Where a guarantee is required for the project. Sika® Galvashield XP Compact galvanic anodes should be installed into repair areas where the above preparation has been undertaken.

2.7 - REINFORCEMENT CORROSION PROTECTION COATING APPLICATION

(BS EN 1504-7 Classification)

Immediately after preparation to Sa 2 or other specified preparation standard specified in this document, apply to the whole exposed circumference of reinforcement, two coats of Sika MonoTop 1010. Wait until the first layer has dried before applying second layer. Allow to harden before applying repair mortars.

2.8 - REPAIR MORTAR APPLICATION

Structural repairs

Hand Applied

(BS EN 1504-3 Classification R4)

Before applying the concrete repair mortar, apply a bonding primer of Sika® MonoTop-610/1010.

Pre-wet the surface of the prepared repair area.

The surface should not be allowed to dry before application of the bonding primer. The pre-wetted surface should achieve a dark matt appearance without glistening and surface pores and pits should not contain water.

Apply the pre-mixed Sika® MonoTop-610/1010 to pre-dampened repair substrate at a thickness of >1.0mm.

Apply pre-mixed Sika® MonoTop-4012 repair mortar "wet on wet" onto the bonding primer between the minimum and maximum layer thicknesses and compacted without inclusion of entrapped air pockets using a trowel or gloved hand.

Where layers are to be built up to prevent sagging or slumping, each layer should be allowed to harden and exothermic reaction of the material completed. The first layer shall be at ambient temperature before applying the second layer. Do not smooth the first layer before applying a second layer. The first layer should have sufficient roughness to provide a mechanical key for subsequent mortar layers.

Finishing of the applied repair mortar should be carried out to the required surface texture as soon as the mortar has started to stiffen. To prevent surface cracking, do not apply water or overwork the surface with finishing tools.

Site adhesion values to comply with BS EN 1504-3:

Structural Repairs: Class R4 > 2.0 N/mm^2 (MPa). Class R3 > 1.5 N/mm^2 (MPa).

Non Structural repairs:Class R1 & R2 > 0.8 N/mm^2 (MPa)

2.9 - CURING TREATMENT

It is essential to cure the repair mortar immediately after application for a minimum of 3-7 days depending on site exposure and weather conditions, to ensure full cement hydration and to minimise cracking. Use polythene sheeting taped down at the edges or other approved method.

Curing compounds shall not be used if subsequent smoothing coats/pore filling or protective coatings are to be used.

2.10 - SMOOTHING COAT APPLICATION

Surface preparation should have been carried out in accordance with concrete substrate quality & preparation clause prior to application.

Apply one coat of Sikagard® 552W Aquaprimer by brush or roller at a consumption rate of not less than 0.12 ltr/m² prior to applying Sikagard® 545W Elastofill

Tight trowel 1 coat of Sikagard® 545W Elastofill to ensure that all blowholes and other surface imperfections are filled.

Apply a smoothing coat of Sikagard® 545W Elastofill by short piled roller or trowel to achieve a minimum dry film thickness of 1.0mm to achieve the required surface texture in preparation for over coating with Sikagard® 550W Elastic or Sikagard® 675W Elastocolor.

Site adhesion values to comply with BS EN 1504-2. Adhesion test average for smoothing coat must be ≥0.8 N/mm2 (MPa) with no single value below 0.5 N/mm2 (MPa) for crack bridging coatings.

2.11 - PROTECTIVE COATING SYSTEM: PRIMER APPLICATION

Following application of Sika MonoTop® 3020 or Sikagard® 545W Elastofill smoothing coat/pore filler (if applicable), apply by brush or roller one coat of Sikagard® 552W Aquaprimer at a consumption rate of not less than 0.12 ltr/m².

2.12 - PROTECTIVE COATING SYSTEM: COATING APPLICATION

(BS EN 1504-2 Classification)

Following application of the Sika MonoTop® 3020/Sikagard® 545W Elastofill smoothing coat/pore filler (if applicable) and primer, apply by brush, spray or roller 2-3 coats of Sikagard® 550W to achieve a minimum total dry film thickness (dmin) of 340 microns.

To ensure the final (dmin) values are achieved wet film gauge measurements should be carried out by the applicator during application using comb gauge or wheel gauge as defined in EN ISO 2808.

Dry film thickness readings can be determined by methods stated in EN ISO 2808. Where required, the applicator will be responsible for arranging this testing with an appropriate testing body.

Site adhesion values to comply with BS EN 1504-2 Adhesion test average for coating must be $\geq$0.8 N/mm^2 (MPa) with no single value below 0.5 N/mm^2 (MPa) for crack bridging coatings.

A coating primer may not be required if the above coating adhesion values can be achieved by the coating on the smoothing coat/pore filler finish.
To be confirmed by trials prior to full coating application.

If a guarantee is required a primer shall always be used.

It is recommended that samples of the coating are applied to areas of the structure as controls before application to the complete structure for adhesion tests, and agreement of colour and surface finish.

2.13 - PRODUCT DESCRIPTIONS

REINFORCEMENT CORROSION PROTECTION COATINGS

- Sika MonoTop® -1010 is a 1-part, cementitious, polymer modified coating material used as bonding primer and reinforcement corrosion protection. It contains recycled waste materials which leads to a reduced carbon footprint compared to an equivalent performing mortar. Meets the requirement of BS EN 1504-7.

BONDING PRIMER

- Sika MonoTop® -1010 is a 1-part, cementitious, polymer modified coating material used as bonding primer and reinforcement corrosion protection. It contains recycled waste materials which leads to a reduced carbon footprint compared to an equivalent performing mortar. Meets the requirement of BS EN 1504-7.

CONCRETE REPAIR MORTARS

- Sika MonoTop® -4012 is a 1-part, cementitious, fibre reinforced, low shrinkage repair mortar suitable for hand placed & wet spray applications. It contains recycled waste materials and can reduce the carbon footprint application activity calculations. Meets the requirements of BS EN 1504-3 Class R4 mortar.

SMOOTHING COAT:

- Sikagard® 545W Elastofill is a one component, water dispersed plasto-elastic, acrylic polymer based texturing undercoat for use beneath Sikagard 550W Elastic. Can also be used as a re-profiling mortar over existing coatings when mixed with sand. Meets the requirements of BS EN1504-2

PROTECTIVE COATING PRIMERS

- Sikagard® 552W Aquaprimer is a one component, water dispersed acrylic primer for use under Sikagard protective coatings.Meets the requirements of BS EN1504-2

PROTECTIVE COATINGS

- Sikagard® 550W Elastic is a one component, water based, pigmented coating and available in a wide range of colours. It prevents the ingress of carbon dioxide and moisture whilst permitting two-way water vapour diffusion. It is highly crack-bridging and elastomeric.Meets the requirements of BS EN1504-2

3 APPENDICES

3.1 DISCLAIMER

CDM REGULATIONS

Sika Limited does not fulfil the role of the Principal Designer and therefore preparation for the proposed specification and subsequent works should only commence when all parties involved with the design and execution of the works are satisfied the appropriate CDM regulations have been fulfilled.

DISCLAIMER

The information contained herein and any other advice are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. The information only applies to the application(s) and product(s) expressly referred to herein. In case of changes in the parameters of the application, such as changes in substrates etc., or in case of a different application, consult Sika's Technical Service prior to using Sika products. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose.All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

3.2 PRODUCT DATA SHEETS

Coated walkway soffit

Sika® MonoTop-610	**VIEW**
Sika® MonoTop-612	**VIEW**
Sikagard® 552W Aquaprimer	**VIEW**
Sikagard® 545W Elastofill	**VIEW**
Sikagard® 550W Elastic	**VIEW**