



constructive solutions

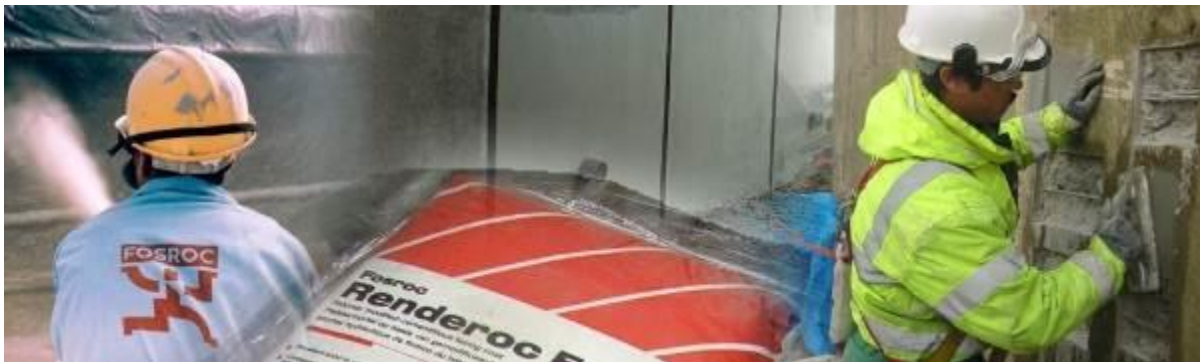
Concrete Repair and Protection Specification

Project: Balcony Repairs – Stockport Homes

Client: Stockport Homes

Contact: James Hood

Specification No: JS18045



Date of Issue: 14th September 2018

Prepared By: Jon Sweeney

Approved By: Gordon Sprouse

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SECTION 1 – PROJECT CONTACT DETAILS

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SECTION 2 – FOSROC OVERVIEW

With more than 80 years' experience in developing tailored solutions for the construction, structural and civil engineering markets, Fosroc has become a world-leader in this field, building a reputation for innovation, quality, customer focus and expert technical support.

Our commitment to customer service and technical support is what sets the company apart from our competitors. Working closely with architects, structural engineers, contractors and owners we can best understand their requirements and together we can develop a bespoke solution for a construction project, adding value and becoming more than a materials supplier, but a solution provider. This approach has been successfully applied in major infrastructure projects including highways, airports and marine, as well as industrial, commercial and residential projects.



Our comprehensive product offering is backed by expert technical and sales support including:

- Project Specification
- Technical Support
- Site Support
- CAD & BIM detailing
- Training

Where required we offer practical product application training either on site or at our Tamworth HQ to ensure correct installation. We also offer CPD seminars upon request covering a range of topics including: - Below ground waterproofing, - Concrete Repair to EN1504, Joint Sealant Design. Fosroc is an ISO accredited company.

Fosroc Overview (continued)

Fosroc has developed a substantial reputation for developing innovative products. By listening to its client needs it has introduced products that the market requires:

Waterproofing

Fosroc's wide range of fully integrated Proofex and Supercast waterproofing products means we are able to supply Waterproofing Types A (Barrier) B (Structurally Integral) and Type C (Drained Protection). These products are tested to international standards and many have achieved BBA accreditation.

Concrete Repair

Our internationally renowned range of concrete repair materials tested to EN1504 provides a fully integrated solution for refurbishment to both new and old structures.

Grouts and Anchors

Fosroc's Conbextra grouts and Lokfix anchors have long established reputation worldwide and are also tested to EN1504.

Industrial Flooring

Nitoflor and Nitodek ranges provide durable and sustainable solutions for floors and car parks.

Protective Coatings

Fosroc's Dekguard products provide anti-carbonation and chloride resistance, while our Nitocote range is resistant to chemicals or water.

Joint Sealants

Fosroc offers a range of sealants for pavements, facades and wall joints including Thioflex and Nitoseal MS offering high resistance and durability in demanding environments.

Admixtures

Fosroc's extensive admixture range includes BBA approved Supercast Watertight Concrete Powder for watertight concrete.



SECTION 3 – FOSROC SUPPORT PACKAGE

As part of Fosroc's continued commitment to client support we offer an extensive support package, which includes the following aspects:

- Identified Primary Project Contact
- Technical presentation of the system being used
- Tool box talks to ensure all relevant personnel are familiar with the proposed solution
- Technical project support via Specification Hub and Technical Training Centre
- Detailed bespoke specifications and recommendations taking into account client's requirements and site conditions
- Site visits available upon request
- Fully compliant EN 1504 systems
- Product Warranty issued following satisfactory completion*
- Site trials and bench marking

* See item G in General Notes

SECTION 4 – SCOPE OF SPECIFICATION

This concrete repair product specification is designed to be incorporated into contract documents for work involving FOSROC products.

Recipients shall satisfy themselves that the specification details are applicable to their particular works and that there is compliance with all relevant regulations and standards.

The advice provided in this document is based on information received prior to its preparation. No liability is accepted for information not provided that would have affected the product specification.

It is the responsibility of the installing contractor to be satisfied that the Fosroc products included in this specification document can be installed as specified. It is also the responsibility of the installing contractor to ensure that all the latest product information is to hand, and that product instructions for use, safety procedures, etc., are understood and followed exactly.

SECTION 5 – GENERAL OBSERVATIONS AND INTRODUCTION

Stockport Homes made contact with the specification team at Fosroc and requested a site visit. There are around 70 Balconies, with varying issues, in need of repair and coatings.

The evident issues were noted as follows:

- the levels on the surface of the balconies with no fall to drain water
- the corrosion which is visible on the underside of some balconies.



General View of the Structure



Typical Soffit Condition



Typical Balcony

SECTION 6 – SUMMARY OF PROPOSED SOLUTION

Preparation

The preparation of the substrate is key to a long lasting coating and repair which should include removal of all existing surface finishes.

This then enables the identification of all concrete defects by carrying out a hammer survey on all prepared surfaces.

All concrete designated as defective should be removed which is imperative to the success and durability of the repair work.

The defective areas should be broken out back to sound concrete free of contamination with each area having a square cut edge of a depth at least equal to the minimum depth of the selected repair product to avoid feather edging.

Defective concrete should be removed to a minimum depth of 12mm to provide a clean sound substrate

All exposed steel reinforcement should be checked and replaced if needed. Steel should be cleaned and then primed with Nitoprime Zincrich Plus.

The prepared substrate should be pre-soaked so that it's saturated surface dry.

Repair and Protection of Soffit and Vertical Surfaces

Priming of the concrete is very important. Renderoc Primer is the advised product. This is applied to all areas where the affected concrete has been removed prior to application of a hand applied mortar. Renderoc HB is the recommended product as most of these repairs will be overhead and this is a high build BSEN1504-3 R2 classification mortar.

Curing of the products is very important for a successful and long lasting repair. All repair areas should be correctly cured by application of Nitobond AR immediately after application of the repair mortar.

It is recommended that the balconies are coated with an anti-carbonation coating. Removal of the current paint is essential to achieving long lasting protection. For anti-carbonation protection application of Dekguard Elastic is recommended.

Repair and Protection of Balcony Deck Surfaces

For the deck repairs it is advised to use a different system. As the area will be trafficked the correct priming of the substrate is essential to the repair. Priming with Nitobond EP will provide a much stronger bond with the repair mortar.

It is recommended that Paveroc or Patchroc is used as the reinstatement mortar. Paveroc is suitable for larger repair areas whereas although Patchroc achieves a much shorter return to service time the maximum individual repair areas is 4m². Immediately cure with Concure WB.

Nitodek FS is the system that should be used to provide waterproofing and protection to the deck of the Balconies. This system is made up of 5 elements; primer, membrane, fleece, wearcoat with anti-slip grains and topcoat.

Fosroc will make regular visits to site to provide application advice and to provide any training that is needed.

SECTION 7 – PRODUCT SCHEDULE

SOFFIT AND VERTICAL REPAIRS

Product	Description	Use
Nitoprime Zincrich Plus	Single component active zinc-rich primer that combats corrosion by electrochemical means	To all exposed and prepared steel reinforcement
Renderoc Primer	Two component cement based bonding primer for hand placed repair mortars	To all delineated and prepared repair areas prior to application of the Renderoc HB mortar
Renderoc HB	Single component repair mortar conforming to the requirements of BS EN1504-3 Class R2	To reinstate all delineated, prepared and primed vertical and soffit repair areas.
Nitobond AR	Single component polymer emulsion that aids the curing process of cement mortars	To all repair areas immediately following application of the Renderoc HB repair mortar
Renderoc FC	Single component polymer modified cementitious fairing coat compliant with BS EN1504-3 Class R2	To all concrete areas where further protective measures are to be applied and a consistent appearance is required
Nitoprime DG	Primer for Dekguard Elastic	To all soffit and vertical concrete areas to be overcoated following completion of the repair work
Dekguard Elastic	High performance crack accommodating elastomeric acrylic protective and decorative coating for concrete and masonry conforming to the requirements of BS EN 1504-2	To all primed areas of concrete to be overcoated

BALCONY DECK REPAIRS

Product	Description	Use
Nitoprime Zincrich Plus	Single component active zinc-rich primer that combats corrosion by electrochemical means	To all exposed and prepared steel reinforcement
Nitobond EP	Epoxy-resin concrete bonding agent for bonding new cementitious materials to existing cementitious surfaces	To prime delineated and prepared repair areas prior to application of the deck reinstatement mortar
Paveroc	High performance reinstatement mortar for concrete pavements and floors conforming to the requirements of BS EN 1504-3 Class R4	To reinstate all delineated, prepared and primed deck repair areas.
Patchroc GP	Fast setting patching mortar for concrete pavements and floors conforming to the requirements of BS EN 1504-3 Class R4	Fast setting alternative to Paveroc for areas up to 4m ² .
Concure WB	Water based concrete curing compound for use as a spray applied membrane to retain moisture in concrete for effective curing	Apply immediately following installation of the deck repair mortar.
Nitodek FS Balcony System 3 (Primer / Membrane / Fleece / Topcoat)	Fast setting reinforced elastomeric waterproofing system for trafficked surfaces	To prepared balcony surfaces
Nitoseal MS60	One part low modulus general purpose joint sealant	Termination detail for balcony waterproofing system

SECTION 8 – DETAILED SPECIFICATION INFORMATION

8.0 SUBSTRATE QUALITY AND PREPARATION

Prepare and clean all concrete surfaces including those with existing coatings by high pressure water jet and / or mechanical means to ensure cement laitance and all surface contamination are removed back to a sound substrate.

8.1 TESTING AND SURVEY

8.1.1 Testing and Structural Survey

It is recommended that comprehensive condition testing of the structure is undertaken including the following:

1. Hammer test all concrete surfaces to identify any loose or unsound concrete
2. Carbonation testing at locations agreed with the client's representative to identify the extent of carbonation.
3. A full concrete cover survey should be undertaken to establish the depth of cover to steel reinforcement which can be used in conjunction with the above carbonation and chloride test data to analyse the likely extent of corrosion to the steel reinforcement.

8.1.2 Survey of Required Repairs

The first survey will be undertaken once all the coatings are removed to identify all the defects that require repair with the extent agreed with the client's representative,

A second survey will be undertaken after the defective areas have been cut out and records of repairs and sizes will be produced on detailed drawings and presented to the client's representative for approval.

Measurement of the repairs sizes should be undertaken in accordance with the Concrete Repair Association standard form of measurement and recorded on suitable log sheets or location drawings.

8.2 REMOVAL OF DEFECTIVE CONCRETE

The concrete should be free from dust, loose material, surface contamination and materials which reduce bond, prevent suction or wetting out by repair materials.

Delaminated, weak, damaged and deteriorated concrete and where necessary sound concrete shall be removed by suitable mechanical means back to a sound substrate.

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

Any exposed steel reinforcement should be fully exposed around its entire circumference to allow correct preparation and protective of the steel

During the breakout process, if reinforcement steel is exposed that shows extensive corrosion and loss of mass of more than 10%, consideration should be given to replacing the steel reinforcement. The client's representative's advice and instructions should be sought

To avoid undercutting, the concrete should be cut at a minimum angle of 90° and a maximum angle of 135° to reduce the possibility of de-bonding with the top surface of the adjacent sound concrete, and should be roughened sufficiently to provide a mechanical key between the original material and Fosroc repair mortar.

8.3 STEEL REINFORCEMENT REPLACEMENT

Should it be found that additional steel is repaired or damaged steel needs replacing this can be fixed in place using Lokfix P25, being a pourable anchor grout that complies to BS EN 1504 -6 and has a compressive strength at 28 days of 100MPa.

8.4 STEEL REINFORCEMENT PREPARATION

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 ST3 when using Nitoprime Zincrich Plus as the steel primer.

Surfaces should be prepared using suitable mechanical means.

Where exposed reinforcement is contaminated with chloride or other material which may cause corrosion, the reinforcement shall be cleaned by low pressure water-blasting [up to 18 MPa (2700 psi)] techniques.

8.5 STEEL REINFORCEMENT COATING (BS EN 1504-7 Classification) Nitoprime Zincrich Plus

Nitoprime Zincrich Plus is supplied as a single component grey-coloured liquid based on metallic zinc.

Standards Compliance:

Nitoprime Zincrich Plus complies with EN1504-7 Reinforcement Corrosion Protection method 11.1

Specification Clause

The steel reinforcement primer shall be Nitoprime Zincrich Plus, a single-component zinc-rich liquid packed and supplied ready to use. An unbroken 40 microns thick coating shall be capable of providing 'active' galvanic protection. It shall be a suitable viscosity to enable the coating to penetrate imperfections and pits within the surface of corrosion-damaged steel bars. The formulation of the primer shall be such that drying occurs to allow the application of the repair mortar to proceed after 2 hours at 20°C. It shall be fully compatible with the Renderoc system of concrete repair.

Supply

Nitoprime Zincrich Plus: 1.9 litre and 800ml cans
Fosroc Solvent 102: 5 litre and 25 litre tins

Coverage

Nitoprime Zincrich Plus: 8 m² / litre

Note: this coverage figure is theoretical — due to wastage factors and the variety and nature of possible steel substrates, practical coverage figures may be reduced.

8.6 CONCRETE REPAIR MORTARS

8.6.1 HAND APPLIED REPAIRS TO VERTICAL AND SOFFIT SURFACES Renderoc HB

Description

Renderoc HB is supplied as a ready to use blend of dry powders requiring only the site addition of clean water to produce a highly consistent, lightweight repair mortar.

It is based on Portland cements, graded aggregates, lightweight fillers and chemical additives which produces a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability.

Renderoc HB has been specifically engineered for vertical and overhead repair work. It can be applied in sections up to 80 mm thickness in vertical locations and up to 50 mm thickness in overhead locations in a single application and without the use of formwork. Thicker sections can be achieved by the use of formwork or can be built up in layers. Deep pockets can sometimes be filled in a single application dependent on the configuration of the pocket and the volume of exposed reinforcing steel.

Renderoc HB can be quickly and efficiently applied by the wet spray technique. For detailed advice refer to Fosroc Document "Application of Renderoc mortars by the wet spray process 0714".

The material should not be applied at less than 10 mm thickness.

Standards Compliance

Renderoc HB complies with the class R2 according to EN1504-3, repair methods 3.1, 3.3, 7.1 and 7.2

Specification Clause

The repair mortar shall be Renderoc HB, a one component, polymer modified, high build cementitious mortar, conforming to the requirements of BS EN 1504-3 Class R2. The cured mortar shall achieve a compressive strength of 22 MPa at 28 Days and a drying shrinkage of <300 microstrain at 7 days. The repair mortar shall be bonded to the substrate with Renderoc Primer and cured with Nitobond AR.

Supply

Renderoc HB:	18kg bags
Renderoc Primer:	20 Kg Part A + 5 litres Part B
Renderoc Primer Handy Pack:	4 Kg Part A + 1 litre Part B

Estimating

Renderoc HB:	Approx. 14.5 - 15.0 litres / 18kg bag (approx. 1.45 - 1.5m ² at 10 mm thickness)
Renderoc Primer:	Approx. 13 litres - 2m ² /litre
Renderoc Primer Handy Pack:	Approx. 2.5 litres - 2m ² / litre

8.6.2 HAND APPLIED REPAIRS TO DECK SURFACES (up to 18m²) PAVEROC

Description

Paveroc is supplied as a ready to use blend of dry powders which requires only the site addition of clean water to produce a highly consistent repair mortar. It is based on Portland cements, graded aggregates, and chemical additives providing a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability. Paveroc is designed for horizontal use. It may be applied up to a maximum thickness of 100 mm. Thicker sections can be built up in layers. Material should not be applied at less than 12 mm thickness. Individual bay sizes should not exceed 18 m². Consult the local Fosroc office for further information.

Standards Compliance

Paveroc complies with the classification R4 according to EN 1504-3, repair methods 3.1, 3.2, 4.4, 7.1 and 7.2. Paveroc complies with LU Standard 1-085 'Fire Safety Performance of Materials'.

Specification Clause

The repair mortar shall be Paveroc a one component cementitious mortar conforming to the requirements of BS EN 1504-3 Class R4. The mortar shall be bonded to the prepared substrate with Nitobond EP and cured with Nitobond AR. The cured mortar shall achieve a compressive strength of 65 MPa at 28 days and a drying shrinkage of < 300 microstrain at 7 days.

Supply

Nitobond EP	2.5kg and 4.5kg packs
Paveroc:	25 kg bags

Coverage and Yield

Nitobond EP: 2m² per kg

Paveroc: Approximately 11.5 litres / 25kg bag
(approx. 0.9 m² at 12 mm thickness)

Note: the actual yield per bag of Paveroc will depend on the consistency used.

8.6.3 HAND APPLIED REPAIRS TO DECK SURFACES (up to 4m²) Patchroc GP

Description

Patchroc GP is supplied as a ready to use blend of dry powders which requires only the site addition of clean water to produce a highly consistent repair mortar.

It is based on Portland cements, graded aggregates, and chemical additives providing a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability. Patchroc GP is designed for horizontal use. It may be applied up to a maximum thickness of 100 mm. Thicker sections can be built up in layers. Material should not be applied at less than 12 mm thickness. Individual bay sizes should not exceed 4m².

Standards Compliance

Patchroc GP complies with the classification R4 according to EN 1504-3, repair methods 3.1, 3.2, 4.4, 7.1 and 7.2

Patchroc GP complies with LU Standard 1-085 'Fire Safety Performance of Materials'.

Specification Clause

The repair mortar shall be Patchroc GP, a one component cementitious mortar conforming to the requirements of BS EN 1504-3 Class R4. The cured mortar shall achieve a compressive strength of 65 MPa at 28 days and a drying shrinkage of <300 microstrain at 7 days. The mortar shall be bonded to the prepared substrate with Nitobond EP and cured with Nitobond AR.

Supply

Nitobond EP 2.5kg and 4.5kg packs

Patchroc GP: 25kg bags

Coverage & Yield

Nitobond EP: 2m² per kg

Patchroc GP: Approx. 12.0 litres / 22kg bag
(Approx. 1.2m² at 10 mm thickness)

8.7 CURING AGENTS

8.7.1 CURING AGENT FOR VERTICAL AND SOFFIT SURFACES

Nitobond AR

Description

Nitobond AR is single component polymer emulsion systems designed as curing membranes for Renderoc repair products or as a surface sealer.

Specification Clause

The repair mortar shall be cured in accordance with good practice with Nitobond AR. The polymer emulsion should be an integral part of the concrete repair system and should also be able to be used as a surface primer /sealer for protective pigmented coatings

Curing

Details of the methods of curing shall be submitted to the Contract Administrator for approval. Curing techniques shall be instigated immediately following application of repair mortar to any given area. Large areas (0.5 m² at a time) shall be cured as trowelling progresses without waiting for completion of the whole area.

NITOBOND AR may be low-pressure spray applied as a curing membrane. In fast drying conditions it will be necessary to supplement this with polyethylene sheet taped around its edges. Note: NITOBOND AR is compatible with the DEKGUARD range of surface coatings and does not require removal prior to application of a DEKGUARD material. Other curing membranes will require removal prior to further surface treatment.

During application and curing all work shall be protected against direct strong sunlight.

Supply

1 litre and 5 litre bottles; 25 litre drums

Coverage and Yield

As Curing Membrane Nitobond AR 6-8m²/litre

As Surface Sealer Nitobond AR 6-10m²/litre diluted 10-1 with clean water

8.7.2 CURING AGENT FOR DECK SURFACES

Concure WB

Description

Concure WB is a water based concrete curing compound based on a low viscosity wax emulsion. It is supplied as a white emulsion which forms a clear film on drying.

When first applied to a fresh cementitious surface the emulsion breaks to form a continuous, non-penetrating white coating. This dries to form a continuous clear film which provides a barrier to moisture loss, ensuring more efficient cement hydration, improved durability and reduced shrinkage.

Standards Compliance

Concure WB gives 75% or greater curing efficiency when tested to BS 7542 and complies with ASTM C309 and AASHTO M148 as Type 1.

Specification Clause

The curing compound shall be Concure WB, a water based emulsion with a curing efficiency of at least 75%

Supply

200 litre and 20 litre drums

Coverage & Yield

The recommended coverage rate is between 3.5 and 5.0 m²/litre
(0.200 to 0.285 litres/m²)

8.8 LEVELLING COAT TO VERTICAL AND SOFFIT SURFACES Renderoc FC

Description

Renderoc FC is designed for vertical and overhead use to infill honeycombing and voids up to 3 mm deep in the surface of concrete which is not trafficked and is subsequently coated. Renderoc FC is supplied as a ready to use blend of dry powders requiring only the site addition of clean water to produce a highly consistent cementitious fairing mortar. The material is based on a blend of cements, graded aggregates, special fillers and chemical additives to provide a material with good handling characteristics, while minimising water demand. The product exhibits excellent thermal compatibility with concrete and is fully compatible with other Renderoc mortars and Dekguard coatings.

Standards Compliance

Renderoc FC complies with the class R2 according to EN1504-3, repair methods 3.1, 7.1 and 7.2.

Specification Clause

The fairing coat shall be Renderoc FC, capable of use without independent priming and curing systems and shall be manufactured to produce a fair faced finish to concrete or masonry prior to taking a finishing coat. It shall be capable of providing the following properties.

- Compressive strength at 1 day of 10 MPa and at 28 days of 22 MPa.
- Bond strength by pull off of 3.02 MPa.
- Adhesive bond after freeze thaw cycling of 3.45 MPa.
- Chloride ion content of 0.02%.

Supply

Renderoc FC: 25 kg bags

Coverage and Yield

Renderoc FC: Approx. 15.0 litres / 25 kg bag (5 m² at 3 mm thickness)

Notes: the actual yield per bag of Renderoc FC will depend on the consistency used

8.9 PROTECTIVE COATING TO VERTICAL AND SOFFIT SURFACES

Dekguard Elastic

Description

The Dekguard Elastic system comprises a single component penetrating primer and a single component elastomeric pigmented coating, both ready for immediate site use. Dekguard Elastic is an elastomeric, water based protective coating based on a special acrylic polymer. It provides excellent elongation and recovery, low dirt pick-up, resistance to aggressive elements, UV light and rain. It is available in a wide range of colours.

Standards Compliance

Dekguard Elastic complies with the requirements of BS EN1504-2-Surface Protection Systems Principles 1.3, 2.2 and 8.2.

Fire tested to BS 476, Pt 7: 1987. Spread of flame: Class 1.

Fire tested to BS 476, Pt 6: 1989. Propagation index I - 0.0. Sub index i1 - 0.0.

Building Regulations rating: Class 0

Fire rating: EN 13501-1 2007 Euroclass B.

Specification Clause

The protective coating system shall comprise Nitoprime DG, an acrylic film-forming penetrating silane-siloxane primer and Dekguard Elastic, a single component elastomeric coating conforming to the requirements of BS EN1504-2 Principles 1.3, 2.2 and 8.2.

The total dry film thickness of the coating shall be not less than 400 microns and shall be capable of providing carbon dioxide diffusion resistance equivalent to not less than 125 mm of 30N/mm² concrete cover (by the Taywood method) and a reduction in chloride ion penetration not less than 99% (by the Aston University Diffusion Cell method).

It must exhibit a water vapour transmission resistance (SD) of not more than 0.76 metres (by the Klopfer method) at a dry film thickness of 400 microns.

When tested to BS 476, Pt 7 : 1987, it must exhibit a Class 1 spread of flame and achieve a Class 0 Building Regulations Rating when tested to BS 476, Pt 6 : 1989 and Pt 7 : 1987.

Supply

Nitoprime DG: 25 litre drums

Dekguard Elastic: 10 litre drums

Fosroc Solvent 102: 5 litre drums

Coverage

Nitoprime DG: 2.5 m² per litre

Dekguard Elastic: 2.5 m² per litre per coat

8.10 BALCONY WATERPROOFING SYSTEM

Nitodek FS Balcony System 3

Description

The Nitodek FS system is a hybrid fast curing trafficable waterproofing system that combines MMA Technology with polyurethanes to produce a slip resistant solution that is both hard wearing and flexible suitable for balconies, car park decks, ramps and turning circles. Bespoke systems can be produced from the suite of system products to suit specific situations and performance requirements.

Specification Clause

The balcony waterproofing system shall be Fosroc Nitodek FS Balcony System 3 comprising Primer, Membrane, Fleece and Topcoat.

Supply

Nitodek FS Primer Resin	10kg
Nitodek FS Membrane Resin	25kg
Nitodek FS Fleece	1.02m x 100m roll
Nitodek FS Topcoat Resin	25kg
Nitodek FS Hardener	25kg
Nitodek FS Anti Slip Grains	25kg

Coverage and Yield

Nitodek FS Primer & Hardener	0.4kg/m ²
Nitodek FS Membrane & Hardener	1.2 kg/m ²
Nitodek FS Topcoat & Hardener	0.7kg/m ²
Nitodek FS Anti Slip Grains	3.0kg/m ²

Note: Coverage rates above are a guide only and are in practice dependent on substrate profile and porosity.

8.11 SEALANT FOR TERMINATION DETAIL

Nitoseal MS60

Description

Nitoseal MS60 is a tough, durable elastomeric joint sealant. It is based upon hybrid silyl modified polyether technology. It is suitable for use over a wide range of external and internal building applications and has excellent weather resistance. Nitoseal MS60 has excellent primer-less adhesion to a wide range of common building substrates.

Standards Compliance

ISO 11600 Type F 25LM

ASTM C920 Type S, Grade NS, Class 25

BS EN ISO 140-3:1995 Laboratory measurement of airborne sound insulation of building elements

BS EN ISO 717-1:1997 Rating of sound insulation in buildings and of building elements. Airborne Sound Insulation.

EN 15651-1:2012: Sealants for façade elements

Specification Clause

The sealant shall be Nitoseal MS60 conforming to ISO 11600 Type F 25LM installed to the correct width / depth ratio formed by insertion of a suitable diameter Expandafoam Cord to the required depth in accordance with the manufacturer's published information.

Supply

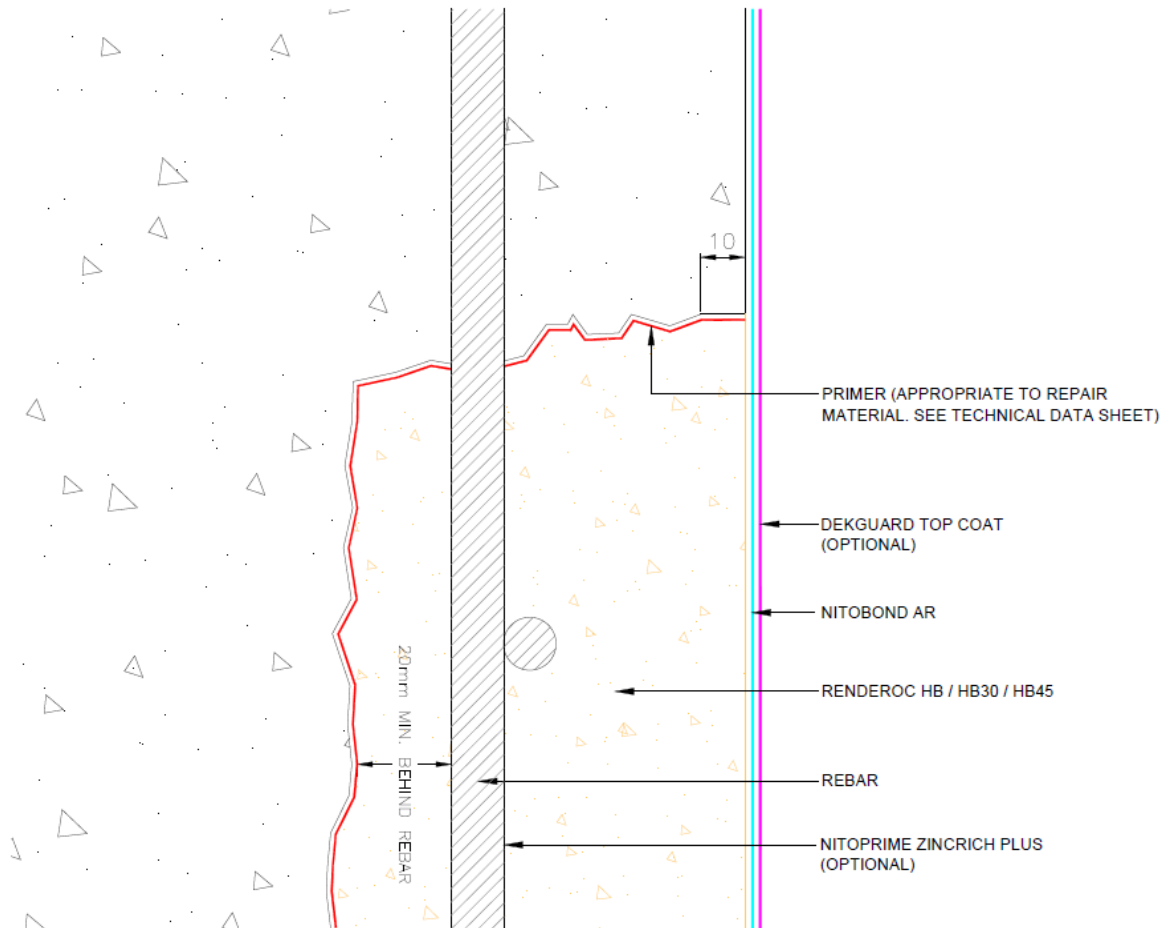
Expandafoam Cord (dia): 12mm, 15mm, 20mm, 25mm, 30mm, 40mm, 50mm

Nitoseal MS60
600ml sachets x 10 per box
380ml cartridges x 20 per box

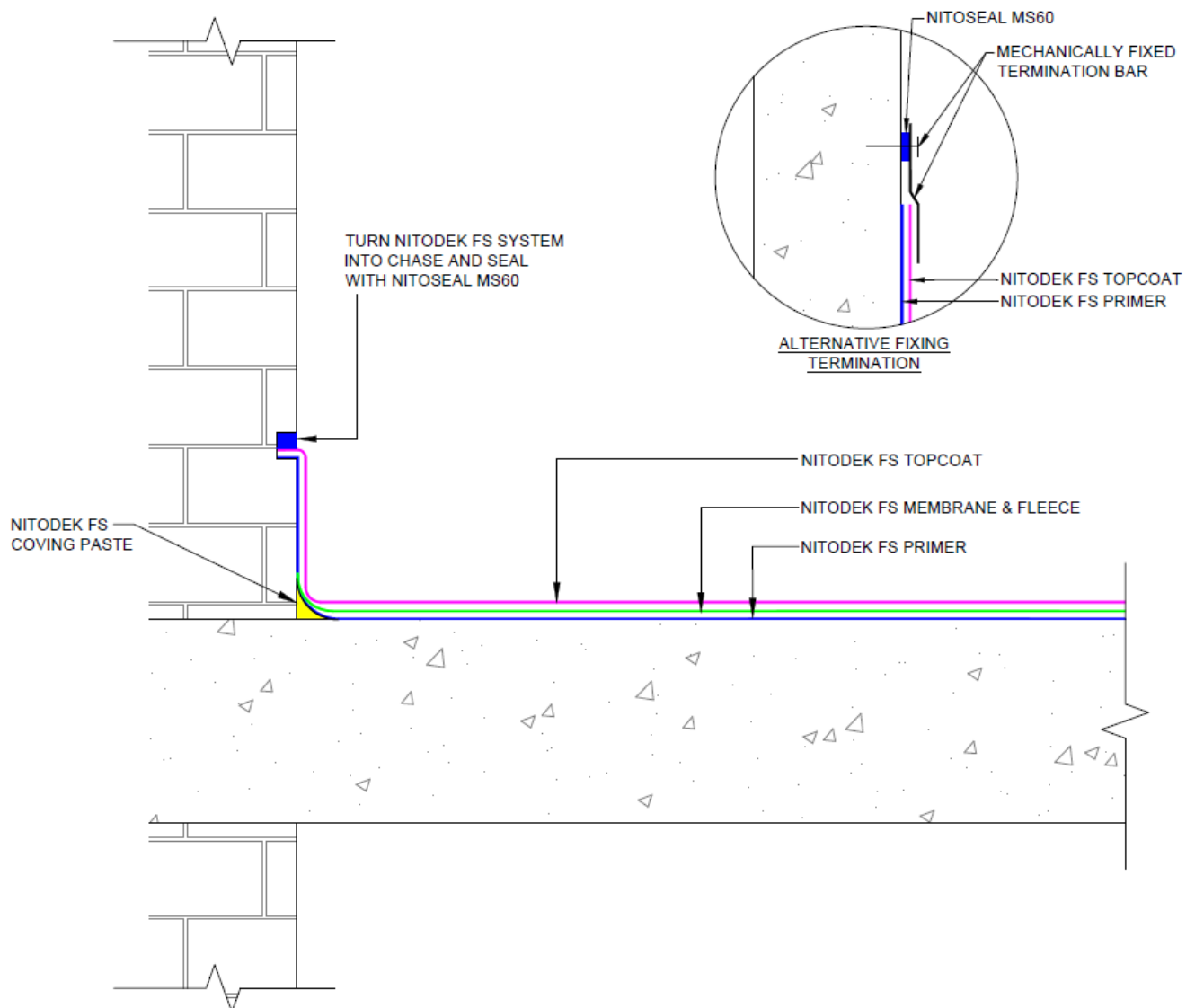
Estimating

Joint size mm	Litres/ metre run	Metres / 380ml cartridge	Metres/ 600ml sachet
10 x 6	0.06	6.3	10.0
12 x 10	0.12	3.2	5.0
20 x 10	0.20	1.9	3.0
25 x 12	0.30	1.3	2.0
30 x 15	0.45	0.8	1.3

SECTION 9 – ILLUSTRATIVE DRAWINGS



Typical Detail for Repair of Vertical and Soffit Surfaces



Typical Balcony Deck Waterproofing Detail

SECTION 10 – EXAMPLE PROJECT CASE STUDY

Palladium cinema



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Llandudno landmark renovation

Fosroc's products have been used in a £700,000 scheme to carry out repairs and renovate the external fabric of a landmark pub in Llandudno.

The predominantly masonry structure of the former Palladium cinema, built in the 1920's, was in a very poor state when concrete repair specialists JDF Restoration Ltd were brought in to carry out repairs using Fosroc's BBA approved concrete repair system. Renderoc HB was used to bulk out larger areas, prior to the building being rendered using Renderoc FC cementitious fairing coat.

The renovation was completed using Deguard Elastic, a high performance, decorative coating to help maintain and protect the structure. Deguard Elastic not only accommodates substrate cracking up to 6mm, is UV-resistant and has low dirt pick-up, but also provides a barrier against the aggressive coastal environment.

The renovation completed earlier this year leaves the building both safe and in good condition for years to come.

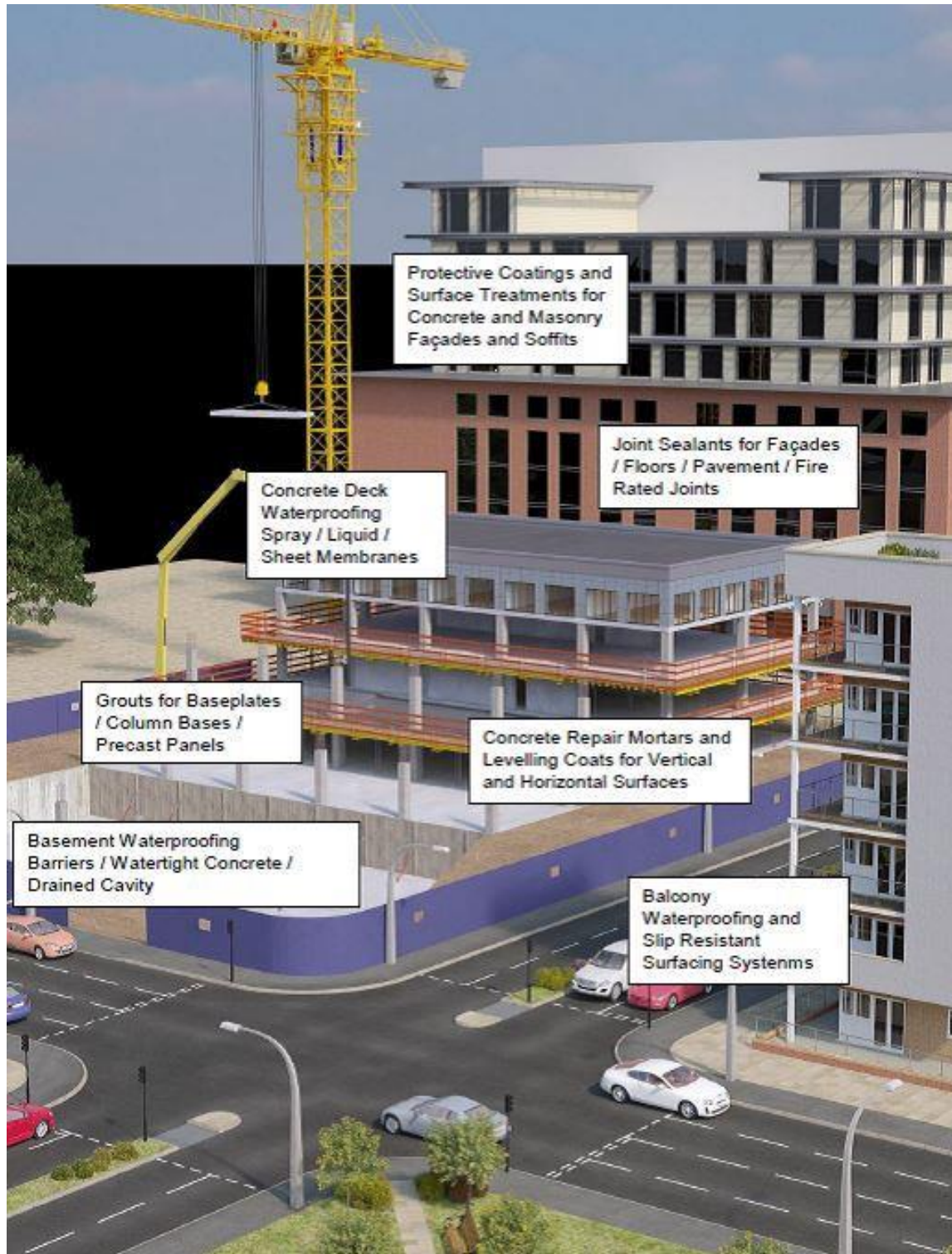


- Project: **Palladium cinema**
- Date: **2011**
- Site Owner: **Weatherspoons**
- Contractor: **JDF Restoration**
- Products: **Deguard Elastic, Renderoc FC, Renderoc HB**

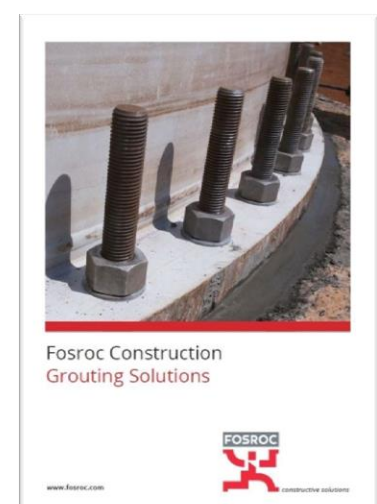
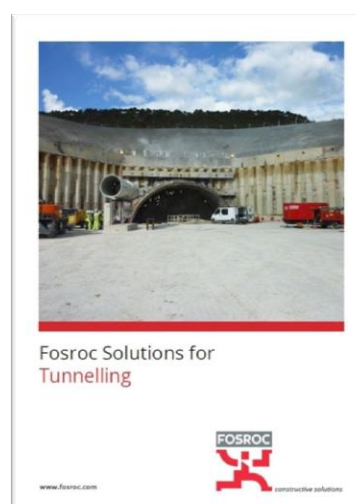
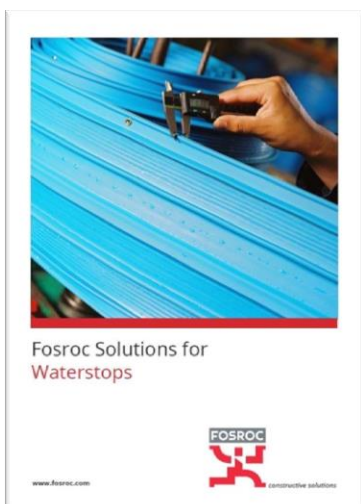
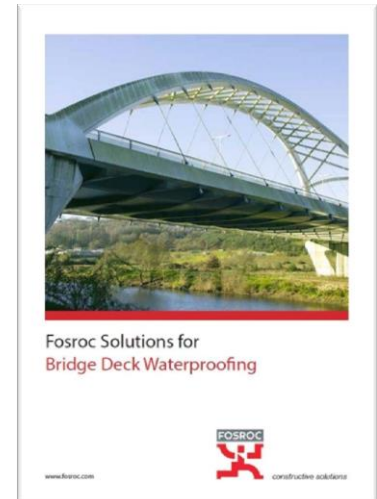
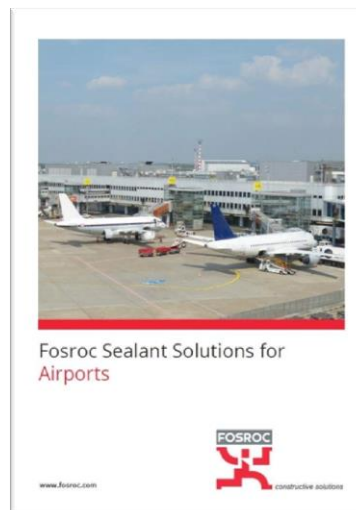
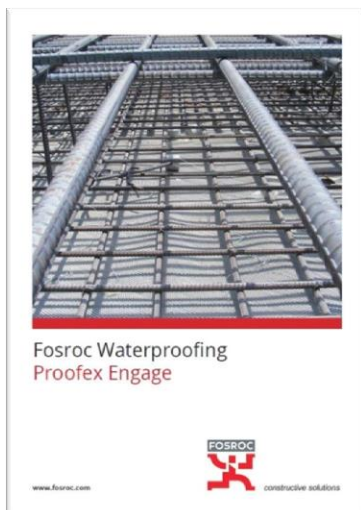
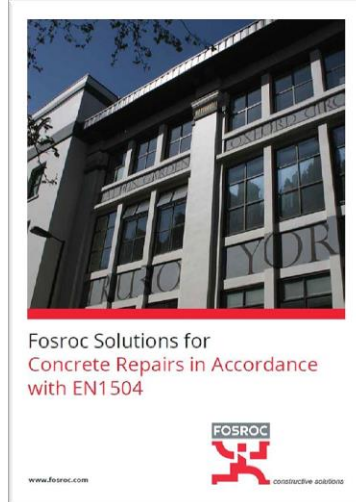


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SECTION 11 – COMPLETE CONSTRUCTIVE SOLUTIONS FROM FOSROC



SECTION 12 – AVAILABLE BROCHURES



SECTION 13 – RIBA & CPD SEMINAR PRESENTATIONS



FOSROC CPD SEMINARS



Below Ground Waterproofing

in accordance with BS 8102

- Understanding of the scope and key values of BS 8102:2009
- The correct approach to specifying below ground waterproofing solutions
- Overview of the performance levels (grades) required according to the finished internal environment
- Basic understanding of types A, B and C waterproofing
- Appreciation of risks and consequences of inadequate or inappropriate waterproofing solutions



Specifying Car Park Decks

Car park structures repair & protection

- Car park decking with reference to BS 8204
- Functional requirements
- Substrate condition and preparation
- Product selection
- Testing during and post application
- Case histories



Making Good : Concrete Repairs

in accordance with BS EN 1504

- Assessing damaged concrete
- Factors to consider
- Repair requirements
- Selection of repair methods
- Specifying protective systems
- Conclusions and additional information
- Case histories



Filling the Gap in Joint Design

Joint design and sealants

- Introduction to Fosroc Limited
- Design Considerations
- Application Detailing
- Risk Factors
- Sealant Selection
- Dublin Airport Case Study
- Conclusions and Summary

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SECTION 14 – GENERAL NOTES

- A. All materials used for the repair and protection of the structure should be provided as a complete system from one manufacturer and the installer should refer to the latest relevant product datasheet at time of installation.
- B. All surface preparation, mixing, priming, application and curing recommendations contained within the product data sheets must be adhered to and followed carefully.
- C. COSHH Safety Data Sheets in the mandatory 16-section format shall be supplied as required by FOSROC Limited, to comply with the current regulations for all products covered by this Specification.
- D. If the project is delayed beyond 12 months of the issue of this specification then the client's representative or contractor should check with Fosroc Limited to ensure the contents of the specification remains current.
- E. Choosing the correct contractor is paramount to a successful concrete repair project and only contractors recommended by Fosroc Limited and who are members of a suitable recognised trade association should be considered.
- F. All materials used with be certificated to comply with relevant British and European requirements and should be CE Marked.
- G. When applying a new coating over existing coatings it is of paramount importance that a samples area is undertaken to assess the compatibility and quality of adhesion between the two materials.
- H. Provided that a written request for a product warranty is received in advance of product supply and all required information provided to enable the application process to be completed, Fosroc will issue a 10 year product warranty document following the successful completion of the works for all Fosroc products supplied to the project. A specimen copy of the warranty document is provided in the Appendix.

APPENDIX – SPECIMEN PRODUCT WARRANTY

Fosroc Product Warranty

Reference Number *[Sequential number take from file]*

The warranty is issued to (the “Client”):

“Client”	<i>[Insert full name of client here]</i>
“Project”	<i>[Full address and details of the project]</i>

The warranty is issued by:

“Supplier”	Fosroc Ltd, Drayton Manor Business Park Coleshill Rd Tamworth Staffs B78 3XN
“Specialist Contractor”	<i>[Insert Specialist Contractor full details]</i>
“Covered Services”	<i>[Insert details of any application/installation that is covered by the warranty]</i>
“Products”	<i>[Insert details of the products supplied by supplier that are under warranty and reference number on datasheet current at the time of application]</i>
“Warranty Period”	means a period of <i>[insert number of months/years]</i> from the Commencement date
“Commencement Date”	means the earlier of (a) the date of completion of the Covered Services, or (b) the date 6 months from the delivery of the Products to the Specialist Contractor (if appointed by the Client); <i>[insert date]</i>
“Special Exclusions”	<i>[Please specify any special exclusions that apply to the Products or Covered Services not set out in clause 2.2]</i>

Project: Stockport Homes – Balcony Repairs



Fosroc Product Warranty

Reference Number *[Sequential number take from file]*

NOW THEREFORE IN CONSIDERATION of the mutual covenants and conditions herein contained, **THE PARTIES HERETO AGREE AS FOLLOWS:**

In consideration for the supply of the Products and payment by the Client to the Supplier for the Products and the Covered Services the Warranty set out in schedule 1 hereof shall be granted to the Client.

Capitalised words used in schedule 1 shall have the meanings defined above.

Signed for and on behalf of
Fosroc Ltd,
Drayton Manor Business Park
Coleshill Road
Tamworth
Staffs B78 3XN

Signed for and on behalf of
[Insert Client Name]

For Fosroc

Signature

Signature

Name

Name

SCHEDULE 1

1. WARRANTY

1.1 The Supplier warrants, subject to the conditions and exclusions contained herein, that:

- (a) upon delivery, the Products will be free from defects;
- (b) the Covered Services will be free from material defects in workmanship; and
- (c) when properly installed and maintained the Products will perform for the Warranty Period in accordance with the product data sheets published by the Supplier at the time of the contract or issue of the warranty.

1.2 This warranty is limited to the components of the Products and not to the workmanship of any application or installation unless and to the extent they are specified to be Covered Services.

1.3 To the maximum extent permissible by law, the warranty and any remedies set out herein are exclusive and in lieu of all other warranties, remedies and conditions (whether written or oral) express, implied or statutory, including without limitation any implied warranties whether of merchantability or of fitness for a particular purpose or otherwise.

2. WARRANTY CONDITIONS

2.1 The validity of this warranty only relates to valid claims received by the Supplier within the Warranty Period and is subject to the following:

- a) The structure, substrate and/or surface shall be sound and prepared properly for installation and the Products shall be transported, stored, handled, applied and cured in accordance with the instructions of the Supplier;
- b) In respect of Product defects, the application or instalment of the Products shall be performed by either: (1) a Specialist Contractor appointed by the Supplier and such application or installation to be specified as Covered Services; or (2) a Specialist Contractor appointed by the Client and such application and instalment shall be completed in accordance with clause 2.3 hereof; and
- c) Where the Product is specified to require routine or preventative maintenance and inspection the Client shall maintain and inspect the Product in accordance with the Suppliers instructions.
- d) Note for liquid applied Waterproofing membranes: Prior to concealment, an independent integrity test is conducted to an approved Fosroc procedure to detect any locations of penetrations (for example: punctures and / or holidays in the product). The cost of the test will be to the account of all or any party relying on this warranty.
- e) There is no right of any off set or with holding of payment against this warranty.

2.2 This warranty shall not apply to any malfunction, failure or defect of the Products or the Covered Services caused or contributed to by:

- a) Any maintenance, repairs or penetration made to the Products or the surface on which they are applied whether this is prior but since a site visit by Fosroc or anyone appointed by Fosroc. During application or subsequent to installation without the prior knowledge and prior written approval of the Supplier.
- b) Natural or man-made disasters including, but not limited to severe storms, gales, hail, flood, lightning, tornado's, earthquakes, earth-tremors, fires, wilful damage, vandalism and or malicious mischief;
- c) Any latent defect in the structure or surface on which the Products are installed or applied including without limitation structural movement, settlement, cracking, deflection and or due to changes in use of the structure or surface where such change in use may have an affect on the Products or the Covered Services;
- d) Placement, erection and or construction of any installation on against or through the Products after the application of the Products was completed;
- e) Abnormal use and wear & tear or exposure during all or part of the in service life;
- f) Abuse of the Products or Covered Services including any physical or chemical attack or damage, using the Product outside the published performance criteria or due to improper concealment or mixing;
- g) The product must be protected from exposure to chemicals or adverse weather conditions until full cure of the product has been achieved. As specified in the relevant data sheets(s)

- h) Any Special Exclusion.
- i) Changes of use of the structure or abnormal use of structure
- j) Placement, erection or construction of any new installation on or through the product after the completion date.

2.3 In the event that the Specialist Contractor is appointed by the Client the following Special Conditions shall apply;

- a) The Client shall ensure that the employees, contractors and agents of the Specialist Contractor shall have the necessary skills and expertise to provide the installation and associated services, and such are to be provided with all reasonable skill, care and diligence.
- b) The Specialist Contractor shall correctly mix, apply and install the Products in accordance with the instructions of the Supplier. Such instructions are the published data sheets, application statements and specification clauses for the Products available on the current Fosroc website or from the above address and such other instructions provided by the Supplier from time to time. The Specialist Contractor must ensure that the information is the latest supplied

For the avoidance of doubt any failure to comply with the above shall constitute a Special Exclusion for the purposes of clause 2.2.

3. WARRANTY CLAIMS PROCEDURE

- 3.1 Immediately upon being made aware of any potential failure, defect or malfunction in the Products or the Covered Services the Client shall give the Supplier and the Specialist Contractor written notification of the defect quoting this warranty reference number and any other relevant information of the cause or nature of the defect it is aware of. Any claims relying on this warranty must be notified in writing within 21 days of discovery.
- 3.2 The Client shall and make arrangements for representatives of Supplier to inspect the affected Products and/or Covered Services and the Client shall be responsible for providing access and clearing the vicinity surrounding the affected Products to allow inspection of the alleged defects and to enable the Supplier to determine whether the failure, malfunction or defect is covered by this warranty or due to external or not warranted factors. This may include on site inspections, testing and analysis. If no fault found any costs will be to the account of those parties relying on this warranty either jointly or severely.
- 3.3 If the defect is covered by this warranty, the Supplier will submit a full schedule of works to the Client for any warranted replacement Products and/or repairs and the Supplier shall determine the appropriate course of action to be taken to remedy the defect or failure which shall always be subject to section 4 of this warranty.

4. WARRANTY REMEDIES

- 4.1 The obligations and liability of the Supplier arising out of or in connection with the Products and/or the Covered Services shall, subject to clause 5 below, be limited to the timely replacement and reinstallation of the defective Products. Such replacement and reinstallation of the Products shall be limited only to those areas of the Project where a warranted defect has occurred. Fosroc reserves the right to suggest and implement an alternative remedy. If the alleged failure or deterioration is proven to not be the responsibility of Fosroc then all costs associated with the investigation of such failure or deterioration shall be borne by any party either jointly or severely relying on this warranty.
- 4.2 The cost for removal and subsequent replacement of any materials which covers or otherwise conceals the Products is excluded from this warranty

5. LIABILITY

- 5.1 Except as set out herein and to the maximum extent permissible at law, the Supplier under no circumstance accepts any liability for loss, costs or damage whether direct, consequential, indirect special or otherwise including without limitation any liability, cost or damage for loss of profit or revenue or loss of opportunity and it is expressly agreed that the entire liability of the Supplier for all loss, costs, damages or expenses arising out breach of this warranty shall be limited to the replacement and reinstallation of any defective Products as set out in clause 4 hereof, and if that is not possible (regardless of the cause) the said liability shall be limited to the sum of payments received by the Supplier for the Products and/or Covered Services (where applicable).
- 5.2 Nothing in this Agreement shall exclude or in any way limit either party's liability for fraud or any other liability to the extent the same may not be excluded or limited as a matter of law.
- 5.3 The Supplier will not be liable for any delays in completion of warranty repair works resulting directly or indirectly from any delay by the Client to provide access for inspection and assessment of any defect or for any cause beyond the Supplier's reasonable control, including, but not limited to, wars, industrial dispute, riot, malicious damage, fire, storm, flood, act of God, accident, non-availability or shortage of material or labour, failure by any subcontractor or supplier to perform, failure of production equipment, any statute, rule, order, regulation, resolution or supervening illegality made or issued by any concerned government or quasi-government department or authority.
- 5.4 Fosroc's financial liability for any such remedial costs due to failure of the product shall be adjusted to reduce linearly from 100% at the start of the guarantee period to 0% at the end of the guarantee period. Such adjustment will be calculated on the date of payment.
- 5.5 Any remedy applied under this warranty would not extend the warranty as a matter of course. This would be at the discretion of the Supplier.

6. ASSIGNMENT

- 6.1 This warranty is personal to the Client and shall not be assigned in whole or in part to any other person without the prior written consent of the Supplier, such consent to be at the Supplier's sole discretion.

7. GOVERNING LAW AND DISPUTES

- 7.1 This warranty shall be governed by and construed in accordance with the English Law. Any dispute arising out of or in connection with this warranty shall be finally settled by arbitration. The arbitral award shall address costs and expenses of arbitration and all matters related thereto, including the allocation of such costs and expenses between the Parties. The award of the arbitrator shall be final and binding upon the Parties

8. ENTIRE AGREEMENT

- 8.1 This warranty comprises the entire warranty granted for the Products and the Covered Services and no oral or written representations made by any agents or employees of the Supplier shall be binding on the Supplier unless specifically and expressly incorporated herein.
- 8.2 No document varying and or extending this warranty will be binding on the Supplier unless it is agreed and is in writing and is signed by an authorised representative of the Supplier and is attached to this warranty and specifies this warranty by its reference number.