Section A : Health, Safety and Environment

A1. Personal safety requirements:

1.1 Observe the site owner’s Health, Safety and Environment policy at all times and obey all written and verbal instructions from site managers and representatives.

1.2 Wear Personal Protective Equipment at all times including hard hat, safety glasses, boots, gloves, air hood and masks as required.

1.3 When using high-pressure plural component spray equipment, all personnel working in the application area must wear double-filter breathers with Occupational Safety and Health Administration (OSHA) ratings.

1.4 When applying coatings in enclosed areas, all personnel working within the enclosed area must wear full-face masks with OSHA-rated supplied air respirators.

A2. Cleaning:

Clean spills and oversprays as they occur, and equipment as necessary, using Fosroc proprietary solvents and equipment cleaners.

Clean site to the site owner’s satisfaction prior to final acceptance.
Section B : General

B1. Quality Control Procedures:
- including mandatory maintaining of a Project Log

A sample panel must be prepared for guidance and as reference panel for the project. The sample panel must be step down to show each coat /procedure. All work standards will be measured against this approved sample. Product batch numbers must be recorded on delivery along with the compilation of certificates of conformity. A Project Log must be maintained throughout the course of the project. See Sections B2 to B5 below for Project Log requirements.

B2. Environmental Conditions:
– mandatory that all conditions below must be met, for application work to be carried out. A Project Log, with several readings per day, must be maintained, of air and surface temperatures, humidity and dew point.

i) Air temperature -30ºC to +70ºC and Surface Temperature -30ºC to +80ºC
   Important Note: for applications where the surface temperature is below +5°C, e.g. in cold storage rooms in service; Fosroc must be consulted for project-specific advice.

ii) Weather Conditions; The relative humidity must be ≤ 90% and Surface temperature must be at least 3ºC above the dew point.

B3. Concrete Substrate Condition:
– mandatory that all conditions below must be met, for application work to be carried out. A Project Log must be maintained, detailing substrate condition, preparation methodology and repair work, primer used and coverage rate.

iii) The concrete must have achieved 75% of its design strength. If the condition iv) below is met, normally this would indicate that 75% of design strength has been achieved. If in doubt, contact Fosroc for further advice.

iv) Concrete relative humidity (as measured by the “Vaisala test”) must be ≤ 75% *.
   Alternatively, concrete moisture meter must show <5% moisture *.
   Calcium Chloride test for moisture transmission must show ≤ 14.6g/ m²/24hours  (≤3 lb/ 24hr/1,000 ft²).

* Note: If the concrete relative humidity is >75% and/or contains >5% moisture, Fosroc Primer 195 must be used. Contact Fosroc for further advice.
In this case the concrete surface must not be completely coated; a suitable surface area must be left exposed for the entrapped moisture to escape.
B4. **Equipment:**

The following list of equipment must be adopted as a *minimum* requirement.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective clothing</td>
<td>Protective overalls</td>
</tr>
<tr>
<td></td>
<td>Good quality gloves, goggles and face mask, supplied air hood</td>
</tr>
<tr>
<td>Preparation</td>
<td>Proprietary blasting equipment.</td>
</tr>
<tr>
<td>Mixing</td>
<td>Pneumatic pump and mixers.</td>
</tr>
<tr>
<td>Priming</td>
<td>Spreader</td>
</tr>
<tr>
<td>Polyurea application</td>
<td><strong>Recommended:</strong> Wiwa DuoMix PU460 with Probler P2 Gun</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Probler P2 Gun is highly recommended and can be retrofitted onto older spray machines</td>
</tr>
<tr>
<td></td>
<td>Other: Graco: EXP-2 (Electric)</td>
</tr>
<tr>
<td></td>
<td>EXP-3 (Electric)</td>
</tr>
<tr>
<td></td>
<td>HXP series (Hydraulic)</td>
</tr>
<tr>
<td></td>
<td>Fusion AP (Air Purge Gun)</td>
</tr>
<tr>
<td></td>
<td>Fusion MP (Mechanical Purge Gun)</td>
</tr>
<tr>
<td></td>
<td>Gusmer: FF 2500 (Hydraulic)</td>
</tr>
<tr>
<td></td>
<td>FF 3500 (Hydraulic)</td>
</tr>
<tr>
<td></td>
<td>H-20/35 (Pro Hydraulic)</td>
</tr>
<tr>
<td></td>
<td>GX-7 DI (Mechanical Purge Gun)</td>
</tr>
<tr>
<td></td>
<td>GAP Pro (Air Purge Gun)</td>
</tr>
<tr>
<td></td>
<td>GlasCraft: GlasCraft Guardian A6</td>
</tr>
<tr>
<td></td>
<td>MH, MMH, MHIII (Hydraulic)</td>
</tr>
<tr>
<td></td>
<td>Probler (Air Purge Gun)</td>
</tr>
<tr>
<td></td>
<td>Probler P3 (very low output/thin film applications)</td>
</tr>
</tbody>
</table>

The Applicator must maintain testing, spray and other installation equipment in proper operating condition throughout testing, preparation and installation. Provide minimum one reserve spray equipment as required.

Equipment and hoses must be flushed with appropriate non-solvent, inert chemical e.g Mesamoll available from Bayer AG, when not in use for prolonged periods.

B5. **Application Details:**

- The project log must include details of pump and gun models used, static and dynamic working pressures and temperatures, amount of product used, surface area covered and dry film thickness readings (several per application day, using ultrasonic gauge)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature of components in line hoses</td>
<td>+70 °C to +80°C</td>
</tr>
<tr>
<td>Process Pressure</td>
<td>1,750 - 2,200 psi (120 - 150bar)</td>
</tr>
<tr>
<td>Gel Time</td>
<td>5 - 10 seconds</td>
</tr>
<tr>
<td>Cure Time, walkable</td>
<td>2 minutes</td>
</tr>
<tr>
<td>Light Foot Traffic</td>
<td>15 - 20 minutes</td>
</tr>
</tbody>
</table>

Note: at the lower end of the application temperature range, and especially at the bottom end of the range (-30°C), longer cure and trafficable times must be expected; consult Fosroc for advice.
B6. **Applicator:**

The client/main contractor must be satisfied that the applicator has suitable equipment and expertise, and will follow the procedures detailed in this Method Statement and the relevant product data sheets.

B7. **Source of Products: - A log of product batch numbers must be maintained**

Only Fosroc products are to be used in the application, with such products being sourced from Fosroc directly or from a Fosroc authorised distributor.

B8. **Storage of products:**

- **Fosroc Polyurea A Side (ISO)**
  Storage temperature +5 to +30°C.
  Keep dry. Keep from freezing. Keep containers tightly closed when not in use.
  Recommended storage in covered, temperature-controlled environment. Use dry air desiccant for intake vent on drum.

- **Fosroc Polyurea B Side (AMINE)**
  Storage temperature +5 to +30°C.
  Keep dry. Keep from freezing. Keep containers tightly closed when not in use.
  Recommended storage in covered, temperature-controlled environment. Use dry air desiccant for intake vent on drum.
  If the product is coloured (pre-pigmented), the use of drum rollers is recommended, to allow periodic rotation to prevent pigment settlement.

- **Fosroc Nitoprime 31, Fosroc Primer 195, Fosroc Nitoprime 150, Fosroc Nitoproof UVR Topcoat, Fosroc Nitodek UVR Topcoat**
  Storage temperature +5 to +30°C.
  Keep dry. Keep from freezing. Keep containers tightly closed when not in use.
  Recommended storage in covered, temperature-controlled environment.
Section C : Application Methodology

C1. System:

Filler/ Bughole repair : Fosroc Nitomortar FC/ FCB
Fosroc Nitoprim 31/ Fosroc Primer 195: 2.5 - 4.0 m²/ litre (250-400ml /m²) on concrete
Fosroc Primer 195 : 150ml/ m² on steel
Sand (fire-dried) Broadcast : DRY Quartz sand 0.2 - 0.5 mm particle size
Fosroc Polyurea : 1.5-3.0 mm thickness, see product Data Sheet
Colour stable topcoats : Fosroc Nitoproof UVR Topcoat (see C9)
                       Fosroc Nitodek UVR Topcoat (see C10)

C2. Surface Preparation:

2.1 All surfaces must be clean and free from debris, loose or flaking material, standing water, oil, grease and organic growth.

2.2 Concrete surfaces must be free from laitance and any traces of shuttering, release oils and curing compounds.

2.3 Check for soluble salts on surfaces to be coated. Test with Chlor*Test. If amount of soluble salts exceeds recommended limits, treat with Chlor*Rid. Repeat the process until acceptable limits are reached.
Maximum amounts of soluble salts (micrograms per cm²):
Chlorides 3 immersion, 7 non-immersion
Nitrates 5 immersion, 10 non-immersion
Sulfates 10 immersion, 20 non-immersion

2.4 Blasting is highly recommended as an effective method of surface preparation and to provide a suitable key for Polyurea coating. Abrasive blast per ICRI Technical Guideline No. 03732 or SSPC SP13. Achieve a concrete surface profile of ICRI CSP-3 to CSP-5. The minimum blast profile must be 75 - 100 microns.

2.5 For Bare Steel all welding seams must have a surface finish which ensures that the quality of the paint system will be maintained in all respects. Holes in welding seams, undercuts, cracks, etc. must be avoided. If holes are found, they must be remedied by welding and/or grinding. All weld spatters must be removed. All sharp edges must be removed or rounded off in such a way that the specified film thickness can be build-up on all surfaces. The radius of the rounding must be minimum 2 mm. The steel must be of first class quality and must not have been allowed to rust more than corresponding to grade B of ISO 8501-1:2007. Any laminations must be removed. Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85μm, Ry5) (ISO 8503-2).

2.6 Following the above preparation, care must be taken to ensure that any surface irregularities are filled with Fosroc Nitomortar FC/ Fosroc Nitomortar FCB.
C3. **Filling Of Bug Holes with Fosroc Nitomortar FC/ FCB:**

3.1 Refer to the relevant Fosroc Nitomortar product data sheet. Before mixing together, the hardener and base components must be stirred thoroughly in order to disperse any settlement.

3.2 The entire contents of the hardener and base containers must be mixed together thoroughly, until a uniform consistency, a fully homogeneous trowellable mortar, is achieved.

3.3 Due to the easy workability of the product, the mixed product can be taken directly from the mixing vessel or subdivided onto spot boards for individual applicators.

3.4 Apply the mixed Fosroc Nitomortar FC/ FCB to the substrate using appropriate application equipment; such as trowel, scraper, filling knife, squeegee.

3.5 Once the Fosroc Nitomortar FC/ FCB is cured (approx. 4-6 hrs @ 35ºC/ 10-12 hrs @25ºC) it shall be slightly abraded and cleaned to a dust-free surface before the application of primer.

3.6 All cracks shall be chased to a 5mm x 5mm groove and filled using Fosroc Nitomortar FC/ FCB.

C4. **Priming:**

4.1 Primer to be used on sound, dry concrete (refer to Section B2) and at ambient/substrate temperature of ≥10ºC is Fosroc Nitoprime 31. If the minimum temperature or concrete substrate condition is not met, then Fosroc Primer 195 must be used. For steel surfaces use Primer 195, for other surfaces consult Fosroc for advice.

4.2 Mix the entire contents of the hardener and base containers well, ensure the mixed product is of uniform consistency. DO NOT dilute the primer under any circumstances.

4.3 Apply the mixed primer immediately at a consistent coverage rate (in the range 250-400ml per m² dependent on concrete porosity). Note on occasions where the substrate is extremely porous, >400ml per m² may be required. Recommended coverage rate of Fosroc Primer 195 on steel is 150ml per m².

4.4 Broadcast DRY sand (fire-dried, 0.2 - 0.5mm diameter) onto the wet primer (see Section C5).

4.5 Allow the primer to become touch-dry (ca.2hour@35ºC/ 4hrs@20ºC/ 6hrs@10ºC/ 8hrs@5ºC) before applying the Fosroc Polyurea, otherwise pinholing may occur due to trapped air in the substrate expanding on application of the hot-spray applied Fosroc Polyurea.

4.6 The entire primed surface must be coated within 24 hours. If the primer has been allowed to dry >24 hours then a fresh application of primer (100ml per m²) must be carried out, and allowed to become touch-dry (see above) before applying the Fosroc Polyurea.
C5. **Sand Broadcast:**

5.1 This methodology is designed to maximise intercoat adhesion between primer and polyurea coating. This methodology is (i) highly recommended but optional in the case of application of Fosroc Polyurea WPE (except in internal tank coating applications where it is mandatory) and (ii) mandatory for the application of Fosroc Polyurea FLM for trafficked areas.

5.2 Broadcast DRY quartz sand (fire-dried, 0.2 - 0.5 mm particle diameter) evenly onto the wet primer at a suggested rate of 4 m² per kg (range 2.5 - 10 m² per kg).

5.3 Allow the primer to dry (see 4.5 above). Remove any loose sand by brush, vacuum or positive air pressure.

C6. **Application of Fosroc Polyurea:**

6.1 Add pigment paste to Part B AMINE drum in the correct quantity as appropriate. Using a drum mixer, mix at low speed 300-400rpm for 20 minutes or until a homogeneous mixture is formed without any streaks. In the case of pre-pigmented coloured Part B AMINE, similarly mix the product at low speed 300-400rpm for 10 minutes or until a homogeneous mixture is formed without any streaks. **DO NOT** mix at higher speed, in order to avoid air entrapment. **DO NOT** dilute the product under any circumstances.

6.2 Fosroc Polyurea is spray-applied using a plural-component proportioner with air purge or mechanical purge spray gun and tip (see section B2). The components in the line hoses must be circulated and heated to (+70°C to +80°C).

6.3 Apply Fosroc Polyurea at a consistent rate using a standard cross-hatch spray pattern, with a minimum of 2 alternate directional passes for complete coverage, at the required application coverage rate.

6.4 Anti-slip feature can be achieved by immediately post-spraying a fine mist of Fosroc Polyurea over the coating surface, allowing discrete droplets to fall onto the coating surface to give anti-slip feature; or alternatively, by the introduction of fine, dry sand into the coating as a separate component supplied in-situ by modified spray gun. Contact Fosroc for further advice.

6.5 Special coating properties may be provided by the introduction of specialized fillers and fibres, provided as a separate component supplied in-situ by modified spray gun. Contact Fosroc for further advice.
C7. Treatment of field/day joints and movement joints:

7.1 The method to be utilized when beginning work >12 hours following previous application work (field/day joints), or in the case of dirty or dusty coating surface; Clean and reactivate the polyurea surface with a Nitoprime 150 wipe; apply at a suggested rate of 10g per m$^2$, to a minimum overlap of 50mm (preferably 100mm) onto the previous coating. Apply polyurea when the surface is dry, typically after 20-30 minutes at temperatures of (+20ºC to +35ºC).

7.2 Movement joints should be debonded with a continuous strip of Proofex Total Tape prior to polyurea application.

C8. Use of Geotextile as separation layer with Fosroc Polyurea:

Where a geotextile layer is required, it must be pinned down to the substrate and oversprayed with Fosroc Polyurea. Non-woven Polypropylene-type geotextiles are recommended, typically grades 140g/m$^2$ are used for roofs and 340g/m$^2$ for below-ground construction.

C9. Application of Fosroc Nitoproof UVR Topcoat

Colour stable and fire rated topcoat suitable for coating polyurea, particularly Fosroc Polyurea WPE. See Fosroc Nitoproof UVR Topcoat data sheet for detailed information. Pour and drain the full contents of the hardener container into the base container and mix thoroughly with a slow speed electric stirrer fitted with an appropriate paddle, for a minimum of 3 minutes until homogeneous. Apply to the Fosroc Polyurea surface at the required coverage rate using a medium-hard rubber squeegee, then lightly backroll with a roller to remove the squeegee lines, leaving a uniform finish. Allow to dry, approximately 6 hours at 20ºC. A sand broadcast can be used for anti-slip effect, see Fosroc Nitoproof UVR Topcoat data sheet for further information.

C10. Application of Fosroc Nitodek UVR Topcoat

Colour stable topcoat suitable for coating polyurea, particularly Fosroc Polyurea FLM. See Fosroc Nitodek UVR Topcoat data sheet for detailed information. Pour and drain the full contents of the hardener container into the base container and mix thoroughly with a slow speed electric stirrer fitted with an appropriate paddle, for a minimum of 3 minutes until homogeneous. Apply to the Fosroc Polyurea surface at the required coverage rate using a medium-hard rubber squeegee, then lightly backroll with a roller to remove the squeegee lines, leaving a uniform finish. Allow to dry, approximately 12 hours at 20ºC. A sand broadcast can be used for anti-slip effect, see Fosroc Nitodek UVR Topcoat data sheet for further information. For car park decking applications with Fosroc Polyurea FLM, See Fosroc Polyurea FLM data sheet for detailed information.
Section D : Approval and variations

This method statement is offered by Fosroc as a ‘standard proposal’ for the application of Fosroc Polyurea. Any variation to the above system must be approved by Fosroc in writing. Where alternative methods are to be used, these must be submitted to Fosroc for approval, in writing, prior to commencement of any work. Fosroc will not accept responsibility or liability for variations to the above method statement under any other condition.