

1 Scope

1.1 This method statement applies to GeoBondX.

2 Installation

2.1 It is recommended that GeoBondX is applied by experienced contractors. We are able to suggest contractors in any given locality who have attended Complete Streets's resin system product familiarisation training.

2.2 It is recommended that the weather forecast should be checked prior to starting any planned application, if wet weather is expected work should be delayed.

3 Equipment & Materials Checklist

- Suitable personal protective equipment (PPE) as dictated by product labelling and specific site requirements
- GeoBondX packs containing Parts A & B
- Selection of suitable resin/aggregate mix design
- The correct grades and proportions of aggregates to achieve the desired mix
- Algaecide/fungicide if necessary, see 5.1.4
- Degreasing agent if necessary, see 5.1.3
- Primer C if necessary, see 5.1.7
- An adequate power supply for the mixers
- Plastic sheet to protect the surface where mixing is carried out
- High torque plaster/mortar type mixer with spiral mixer blade attachment
- Forced action mixer of a suitable capacity and power (e.g Baron Forced Action Mixer)
- Wheelbarrow or means of transporting mix
- Stopwatch
- Apparatus to measure ground temperature
- Polyethylene sheet to protect the wheelbarrow from material set off
- Suitable protection for all other surfaces from contamination
- Flat bladed squeegee
- Suitable stainless-steel trowel e.g. plasterers trowel
- White Spirit
- A clean brush or cloth for lubricating the trowel face with white spirit
- Cleaning Solvent for the cleaning of tools
- Complete Streets dried and graded Crushed Glass 300 for enhancing slip/skid resistance.

- Masking tape
- Battens for day joints, when required

• End-stop beading, when required

4 Aggregate

4.1 Aggregate is a natural product and as a consequence variations of colour will occur, this can be reduced by inspection of the aggregates prior to use and selecting bags from different pallets to minimise colour variations.

4.2 The final strength of a resin bound aggregate surfacing system using GeoBondX resin is determined by the choice of resin, aggregate (and its grading), mix design and degree of compaction during installation. Selection of an appropriate resin/aggregate mix design is crucial to a successful installation and the installer must satisfy themselves that the proposed mix is suitable for the intended use/site conditions.

4.3 Some aggregates have a greater resistance to crushing when subjected to heavy loads or by the repeated power steering turning action of wheels whilst the vehicle is stationary.

4.4 A blend of aggregates is typically selected to give the correct strength and cohesive matrix for the particular use, as part of this the nominal aggregate sizes can be from 1mm to 5mm, or for Tree pits 1mm to 10mm.

Natural aggregates such as gravel, flint, quartz, granite, and marble can be used to enhance your design.

4.5 If considering using other special materials, please consult Complete Streets for further advice prior to use.

4.6 Aggregates supplied for use in these systems can contain minor concentrations of iron, this is a natural occurrence which upon weathering may result in areas of rust staining. At no point prior

4.7 or during application can any potential iron within the aggregate be identified and therefore resin bound gravel suppliers or installers cannot be held responsible for any iron staining that may occur.

Preparation

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5.1 Preparation - Existing Sound Surfaces

- 5.1.1 Ensure both the GeoBondX Method Statement and Safety Data Sheets have been read and understood.
- 5.1.2 Ensure that the substrate is sound, contamination free, able to withstand the load that is expected from normal use and otherwise suitable for the purpose. This is of fundamental importance to a successful installation of resin bound surfacing.
- 5.1.3 Remove any oil, grease and similar contamination by treating with a suitable degreasing agent, followed by flushing with water. De-icing salt should be removed by flushing with water.
- 5.1.4 Fungal and algal growth is best removed by treating with proprietary fungicide and/or algacide products according to the manufacturer's directions, followed by thorough rinsing or pressure washing.
- 5.1.5 Surfaces should be cleaned and free of any laitance from concrete. Surface contaminants will affect the adhesion of GeoBondX.
- 5.1.6 The substrate should be allowed to dry completely before the application of GeoBondX.
- 5.1.7 It is important that no dust is present on the substrate surface as this will affect the self-priming properties of GeoBondX. If the substrate is friable an application of Complete Streets Primer C may aid in the adhesion of the substrate. (Note: undertake a test on a small representative area to determine its suitability before full application.) When using Complete Streets Primer C, it is important to allow at least 1 hour, and no more than 6 hours, before applying GeoBondX to the surface. Priming and GeoBondX application must take place on the same day.
- 5.1.8 Ironwork, kerb edges etc should be masked to prevent contamination with the resin.
- 5.1.9 Any edges that are not abutted should be restrained by an end-stop bead of the correct depth. This will serve to prevent the edges from deteriorating, provide a guide to assist application and ensure that the correct thickness of GeoBondX is being applied. The beads are commonly fixed using an instant-grab caulking adhesive, but are best nailed or screwed to the substrate.

Preparation - New Surfaces

5.2

- 5.2.1 New areas intended for overlaying with GeoBondX should be ideally constructed as part of a fully sustainable drainage system (SuDS) where surface water can permeate through to the soil. Where this is not possible, the pavement should be constructed to withstand the expected loads using pavement quality concrete or asphalt to recognised national standards. Because water will drain through the GeoBondX surface course, drainage measures will need to be constructed in the impermeable substrate to handle run-off.
- 5.2.2 Because GeoBondX is permeable, new asphalt does not have to be left for any specific period to allow the migration of light oils. However, to promote greater adhesion, it is advised that the asphalt should be left slightly open-textured as this will provide a mechanical interlock with the GeoBondX surface course.
- 5.2.3 External concrete should ideally be finished as tamped or combed with a maximum texture depth of 5mm and should be left for a minimum of 7 days to allow surface drying.
- 5.2.4 Whilst resin bound paving using GeoBondX resin is resistant to deformation, it is important to ensure that the surfaces upon which it is laid are free from defects and faults and are capable of withstanding the effects of expected loadings during both summer and winter conditions.
- 6 **Mixing**
- 6.1 Ensure that the area where mixing is to be carried out is protected using a suitable plastic sheet. Immediately after mixing, it is important that a quick and efficient routine is taken to ensure the prompt laying and installation of the mixed resin bound aggregate surfacing.
- 6.2 Do not apply to substrates below 5°C. During cold weather, it is advisable to store all materials in warm conditions prior to use, this will greatly assist the mixing and application processes.
- 6.3 It is advisable to keep materials in the shade during hot weather.
- 6.4 A preliminary check should be made to ensure that the aggregate used is thoroughly dry. Aggregates should not be used when wet or visibly damp. Under no circumstances should damp aggregate be used as this will seriously affect the performance of the final resin bound aggregate surfacing.

- 6.5 Mixing of batches should be carried out using a forced action mixer with a recommended minimum mixing capacity of 60 litres (e.g See Baron Forces Action Mixer range). The use of 'Belle' type mixers, concrete mixers or other mixer types are not recommended due to their non-forced action and consequential mix separation.
- 6.6 Load mixer with the aggregate as dictated by the mix design.
- 6.8 Whilst continuing to mix the GeoBondX base (Part A) in its pail, using a drill and spiral mixing blade, pour the total content of the GeoBondX Activator (Part B). Sufficient ullage should be allowed in the base pail for this to take place.
- 6.9 It is important to mix all components thoroughly until homogeneous, ensuring that all material from the sides and bottom of the container are included. Note: Once the base and activator have been totally mixed the curing process will start to occur and no delays prior to and during the laying of the product should be allowed.
- 6.10 Start the forced actioned mixer containing the dry aggregate and mix for no more than 5 seconds to combine aggregate types or segregated material. Pour in the mixed GeoBondX resin. Blend the aggregate and resin for up to 2 minutes, until homogeneous or evenly coated.
- 6.11 Ensure that the mixing times for each batch are identical. Batches left in the mixer for longer than others will be subjected to higher shear and can appear darker once installed. Variable mixing times must be avoided.
- 6.12 Discharge the mix directly into a polythene lined wheelbarrow.
- 7.4 In order to ensure that the correct depth and spread rate is achieved, battens of the required thickness can be placed and used to gauge the depth and area applied per mix.
- 7.5 A hand applied, double-ended trowel is used for final compaction and finishing of the surface. Apply white spirit sparingly to the trowel using a cloth, wipe off any excess white spirit. Use the trowel to compress the mixed material, smoothing out any irregularities. Do not use any substance other than white spirit for this purpose as this may adversely affect the performance and appearance of the finished resin bound aggregate surfacing system.
- 7.6 Where a matt finish or a higher level of immediate slip/skid resistance is required, Complete Streets Crushed Glass 300 grade should be lightly broadcast onto the surface whilst still wet and tacky. Apply at a coverage of approximately 100 g/m² (0.1 kg / m²), maintain an even coverage to prevent streaks or patches. Increase the amount of Crushed Glass 300 to achieve the desired slip/skid resistance. The clarity of the Crushed Glass 300 allows the resin surface to maintain its intended finish. Other non slip/skid products are available from Complete Streets.
- 7.7 It is essential that the GeoBondX is well compacted during installation to ensure good contact between the graded aggregates. Sufficient pressure must be applied to the trowel to achieve this. Insufficient contact will result in a more open surface, which will be at greater risk of damage due to traffic or falling objects. The installer must also ensure that GeoBondX is compacted to the thickness capable of withstanding the expected loads and traffic levels.

8 Design Elements

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- Application**
- 7.1 Note: GeoBondX should not be laid during wet weather. If it starts to rain during application stop work and protect existing surface.
- 7.2 Transport the mixed material to the required application area and place on the pre-prepared surface.
- 7.3 Pre-level the material using a flat-bladed squeegee allowing an excess depth that can be consolidated to the required finished depth. Knowledge of the m² per pack at the required depth will assist with achieving correct application.
- 8.1 When it is required to introduce design elements within the surfacing, such as borders and inserts using different coloured aggregates, different techniques may be employed. Wooden battens of suitable thickness, cut to shape and faced off with a suitable masking tape that will prevent sticking to the resin e.g brown parcel tape or polyethylene tape can be used to create edges. Templates for complex design elements such as logos or roundels can be cut from MDF of the correct thickness, taped as before and loosely fixed or placed onto the substrate undertaking the same procedure. Alternatively, commercially available stainless steel or aluminium edging profiles may be incorporated into designs to add special definitions.

9 Joints

9.1 Existing Joints

- 9.1.1 Existing joints within concrete slabs should be reflected within the GeoBondX surfacing.
- 9.1.2 Rake out any dirt or loose jointing material and reinstate using a proprietary jointing compound. Mark out or place pegs at the two ends of the joint and apply GeoBondX as prescribed. Upon curing, snap a chalked string-line between the two datum points and diamond sawcut a 10mm channel through the thickness of the GeoBondX surfacing. In-fill the joint slightly below existing levels using suitable jointing compound.

9.2 Day Joints

- 9.2.1 Day joints may be necessary if the work stretches over consecutive days or if impending weather dictates.
- 9.2.2 Use a batten of the correct height for the finished thickness of the surfacing, preferably faced with polypropylene (brown parcel tape) Fasten the batten to the substrate, if necessary.
- 9.2.3 From at least 0.5m before the joint is struck, ensure that the resin bound surfacing is finished at the height of the batten, (using another piece of batten as a guide, this is necessary to ensure that there is no noticeable change in level at or near to the joint itself). Apply and finish the mixed material up to the day joint itself.
- 9.2.4 Once the initial cure is under way, the batten can be removed.
- 9.2.5 If continuing with the same mix type the following day and in order to prevent this straight joint being clearly visible, it is recommended that stones along the visible top edge of the joint are flicked off before curing has taken place to create a 'fuzzy' interface rather than a clearly defined straight line. If continuing the next day, new material can then be worked into and from the cured joint. Once completed the joint should be hardly discernible.

10 Cleaning of Equipment

- 10.1 Tools and equipment should be cleaned with the recommended cleaning solvent immediately after use. Where resin has been allowed to slightly cure, it may be possible to remove with a scraper blade. However, once the resin has cured, it will not be possible to remove it.

11 Storage

- 11.1 Store all unopened materials under cover in dry conditions and in temperatures of between 5-35°C.
- 11.2 If the activator component (Part B) is stored at very low temperatures, crystalline deposits may form within. The activator must not be used in this condition. However, activators that are affected in this way, should be placed under room temperature conditions, at a minimum of 20°C and allowed to warm to room temperature. Shake the sealed container to dissolve any crystalline deposits.
- 11.3 Please read and comply with manufacturer's instructions regarding handling, storage and use. Aggregates, when stored correctly, should have an unlimited shelf life. Please check aggregate suitability before use.

12 Aftercare

- 12.1 The final resin bound aggregate surface requires minimal maintenance. To maintain the appearance of the surface, it is important that a good housekeeping regime is undertaken. This can be carried out by the regular sweeping and maintenance of the surface. Leaves and general detritus should be removed as soon as possible.
- 12.2 Where it is necessary to remove stains caused by oil spillages and leaking vehicles, the use of suitable proprietary domestic detergents and or degreasers may be used ensuring that their directions of use are followed and comply with any safety precautions advised.
- 12.3 Cold/warm water pressure washing may be used to remove ingrained dirt etc, however close contact by high pressure water jetting should be avoided.
- 12.4 After wear and exposure to the elements the resin surface will naturally lose its sheen. GeoGlaze has been specifically produced for the GeoBondX range, please refer to the GeoGlaze product information sheet for more information.