

Specialized Insulated Concrete Formwork Specification

1. Introduction

This specification is for the application of Specialized Construction Products fibreglass mesh reinforced Insulated Concrete Formwork (ICF) flanking and finishing system. Powaflex which is the basis of this system is a preblended, polymer-based plaster that can be easily applied as a single levelling/flanking coat 3-4 mm thick over properly prepared polystyrene backgrounds to produce a semi-flexible, high quality even and true surface prior to a selected polymer-based finishing plaster being applied.

The specially developed plaster mix contains a blended mix of aggregates, polymer, proprietary ingredients, and a unique fibre reinforcement which not only relieves curing stresses but also provides an excellent surface key for a variety of conventional plaster finishes.

2. Health & Safety

Avoid contact with eyes and prolonged contact with skin. Wash thoroughly after handling all wet or dry material. In case of eye contact, flush immediately with running water for at least 15 minutes. Consult a physician immediately. Do not take internally. The potential irritant nature of cement dust (in dry powder form or from subsequent cutting of the hardened product) is recognised. Paper dust masks or a respirator must be worn at all times when the product is being mixed. Be sure to provide adequate ventilation when working in enclosed areas. The wet compound is alkaline and prolonged skin contact should be avoided. People with sensitive skin must wear rubber gloves when handling the product. Materials Safety Data Sheets are available on request.

3. Pre-Plaster Requirements

The ICF substrate must be installed in strict accordance with the manufacturer's/designer's specifications and recommended installation procedures. The manufacturers required curing time must be allowed after placement of the substrate to ensure it has completely cured and the walls have stabilized.

The finished appearance of the wall is highly dependent on the standard of the wall construction. This system must not be used in situations where water may pond. A minimum slope of 10° is required on all sills and copings. All pipes must have a downward rake of a minimum of 5° and must be sealed in place using MS Sealant before plastering and after the installation of the Powaflex.

All meter boxes should have an aluminium or lead flashing fixed over the head and must allow water to drain to the outside of the building.

Particular attention to detail and workmanship must be given to flashing and sealing building penetrations or junctions with other building materials. This plaster system is not designed as a waterproofing element for junctions between dissimilar materials. Its job is to provide an aesthetically pleasing, crack resistant surface coating. All junctions between the ICF substrate and dissimilar materials must be correctly flashed and sealed with MS Sealant, The MS sealant must be installed in strict accordance with the manufacturer's requirements and must be left to properly cure prior to plastering. Construction joints must be provided according to the block manufacturers design criteria. All construction joints must be in place and must be waterproof prior to the commencement of plastering.

All penetrations in the ICF must be fully waterproofed before the installation of any joinery. For this purpose, Specialized Construction Products recommends the use of their Tankit Waterproofing Membrane. For further information regarding this specialist system advice or guidance should be sort from Specialized Construction Products.

4. Surface Preparation

All nibs, protrusions, and excess mortar on the surface of the panels or irregularities in the slab must be ground off prior to plastering.

All surfaces to receive an application of Specialized's ICF System must be clean and free of debris, dirt and dust, efflorescence, grease, oils, curing agents, cleaning solutions, mould and algae or any other contaminants that may affect adhesion. Painted or glossy surfaces must be specially treated prior to the application of any plaster material, please refer to Specialized Construction Products for specialist advice before you proceed. All cracks that may be the subject to ongoing movement must be correctly repaired and reinforced.

Some smooth, dense concrete surfaces such as poured insitu concrete must be slush coated before application of Powaflex to ensure a suitable bond is created, please refer to Specialized Construction Products for specialist advice before you proceed. Tilt slab and other precast concrete items should be chemically cleaned with Dulux Acratex 400/4 Tiltwash to ensure any mould release agents are removed before the plaster is applied.

All gaps in the ICF must be flush filled with adhesive spray foam prior to the Powaflex base coat plaster being applied. Any oxidization on the surface of the polystyrene must be removed with a stiff broom and water, and then the cleaned surface must be scratched to provide a key before plastering begins.

Failing to correctly prepare the substrate may cause delamination, chalking or failure in the base coat.

Do not wet down surface of the walls before plastering and do not apply the Powaflex plaster to surfaces that are wet from rain or overnight dew.

5. Materials Application

On-site application is beyond the control of Specialized Construction Products. Therefore, it cannot guarantee workmanship, supervision, aesthetic quality or the correct preparation and application of its products or the substrates to which its products may be applied.

6. Base Coat Plastering

Any walls that are out of alignment due to poor preparation during the construction of the ICF should first be levelled with Thermorender plaster. The Thermorender must be applied a minimum of 4mm thick to ensure it maintains its cohesive strength and can be applied up to 50mm thick in one application. If any areas require greater than a 50mm application, this must be done in several coats and left to dry between coats. All stress points should be reinforced with butterflies of mesh. Once a layer of Thermorender has been applied to the substrate it should be floated or screeded flat to achieve a level plane which is free of deviations. Once the material is dry it can be sanded flat using a longboard or scraped with a broad knife to remove any ridges or minor bumps which

have been left behind. The finished thickness of the Thermorender will be dependent on the condition and alignment of the substrate it is covering.

Once the substrate is flat and true the entire surface of all walls and any polystyrene shapes added to the surface of the substrate must be mesh reinforced with 160g fibreglass mesh embedded in Powaflex plaster. The instructions for mixing the base coat plaster are clearly spelt out on the bag.

It is important that each mix stands for approximately 10 minutes and is then re-stirred and the final consistency adjusted. This allows the thickening agents in the plaster to take effect and stops the brew becoming too thick too quickly. Do not use plaster that has been mixed for more than one hour.

The plaster will continue to stiffen slightly over the hour.

Thickness is critical - a minimum thickness of 3-4mm must be achieved with this first coat. Do not force the mesh hard down onto the surface of the substrate. The mesh pattern should be “grinning” through, but the mesh itself completely covered with plaster. Apply a 100 to 200mm band of plaster around the corner and imbed the overhanging corner mesh. Once imbedded scrape away the plaster at the edge of the mesh to ensure there is no plaster ridge there when you join on later. Repeat the process. Mesh must overlap the adjacent drop and plaster coat by at least 30mm. The mesh and plaster coat must cover all polystyrene surfaces including the polystyrene edges around all window reveals and sills

7. Curing

The curing time of Specialized’s ICF System will vary due to ambient temperature, relative humidity, surface temperature, surface porosity, application methods, and/or the thickness of the material. All freshly applied material must be protected from inclement weather for a minimum of 24 hours after application. It is the responsibility of the plaster applicator to determine if the product is cured and/or dry prior to applying any additional coats that may be required or exposing the applied product to rain, snow, dew, and/or any other inclement weather condition that may have a detrimental effect. Although this system contains cement and it will not fully cure for 28 days, if the Powaflex has had a finish applied over its surface, it can be painted after the finish coats have cured for a minimum of 3-4 days.

8. Acrylic Texture Finishing Options

- Acratex 951 Coventry Coarse Acrylic Texture - 15L
- Acratex 951 1mm Super Trowel Acrylic Texture - 15L
- Acratex 951 Sienna Coarse Sand Finish Acrylic Texture - 15L
- Acratex 951 Sienna Natural Acrylic Texture - 15L
- Specialized FlexiFloat 20kg - (This product is a bagged texture and not tintable)

- Specialized FlexiFlat -20kg (This product is a bagged texture and not tintable)

9. Paint System

The SCP Powaflex system must be coated with 2 coats of Dulux Acratex 955 Acrashield Advance tinted to the selected colour and applied by brush and roller at a spread rate of approximately 6m².

Dulux Acratex 955 Acrashield Advance, an exterior paint system complies with all of Parts 7, 8, 9 or 10 of AS 3730. This paint system must be applied in accordance with the paint manufacturer's instructions.

Other paint systems are not covered by this specification sheet and Specialized Construction Products will not warrant the use or suitability of alternative paint systems over the surface of its plaster finishes.

The chosen paint system must have a Light Reflective Value (LRV) of no less than 25%.

10. Cleaning

Cleaning may be accomplished with water immediately after use. Clean the whisk and the bucket between mixes and discard the cleaning water. Remove splatter or spills with water before the material sets.

11. Plaster Storage

In bagged form this product must be stored in a dry area, off the floor on a timber pallet or timber dunnage and it must be protected from the weather and from mechanical damage. Rotate the stock to ensure that the oldest material is used first. Plaster stock that is older than six months should be discarded.

12. Limitations

DO NOT apply the system when the ambient or surface temperature is below 10°C or above 30°C or will be in that range for the 24-hour period after application. When hot, dry, or windy conditions exist, moist curing and protection must be provided. Material that is allowed to freeze or material that dries too quickly may suffer irreparable damage.

DO NOT add any other materials to the Powaflex or deviate from the mixing or application procedures outlined in any of Specialized Construction Product's technical data sheets without written approval from Specialized Constructions Products.

DO NOT apply Powaflex unless the substrate has been properly cleaned and prepared. See Surface Preparation above.

DO NOT add any more water than prescribed by the technical data sheet.

DO NOT wet the wall prior to the application of this material.

DO NOT reactivate Powaflex plaster with more water once it has begun to set.

DO NOT mix more plaster than you can use in 45 minutes

NOTE: Failure to follow the manufacturers written specifications could result in the following but not limited to spalling, cracking, peeling, chipping, delamination, discolouration, wash off, and overall system failure.

13. Maintenance

The wall cladding system should be regularly cleaned, at least annually, by washing with clean water to remove dirt and to maintain the finish appearance. Grime may be removed with warm water and detergent.

Plastered walls should be recoated with either Dulux Acratex 955 Acrashield Advance an approved paint system at 5 to 8-yearly intervals or sooner if required to maintain watertightness.

Regular checks, at least annually, must be made of the system to ensure that the weather resistant coating is maintained watertight, and that the sealant, flashings, and other joints continue to perform their function and do not allow water to penetrate. Failure to correctly maintain the system may void any long-term warranties offered with the system. Any accidental damage to the cladding must be repaired immediately using Specialized Construction Products materials.

14. Warranty

The recommendations, suggestions, statements, and technical data provided by Specialized Construction Products are based on the best current knowledge available and are given for information purposes only without any responsibility for their use. It is expressly understood and agreed that the buyer's sole and exclusive remedy shall be the replacement of defective products, and under no circumstance, shall Specialized Construction Products be liable for incidental or consequential damages. Specialized Construction Products neither assumes, nor authorizes, any others to assume for it any liability with respect to furnishing of the product. Handling and use of the products are beyond the control of Specialized Construction Products, therefore, no warranty is made, expressed or implied, as to the results or on-site quality that can be obtained from the use of the product.

Specialized Construction Products guarantees this product is free from manufacturing defects and will perform to its specification for 10 years from the date of application if application occurs within the products stated shelf life.

Material Guarantee Period

15 years from date of practical completion to plastering.

Workmanship Guarantee Period

5 years from date of practical completion to plastering.

Technical Assistance

Assistance and information are available by calling Specialized Construction Products on (09) 414 4499 or 0800 800 79 or by e-mail at info@specialized.co.nz.