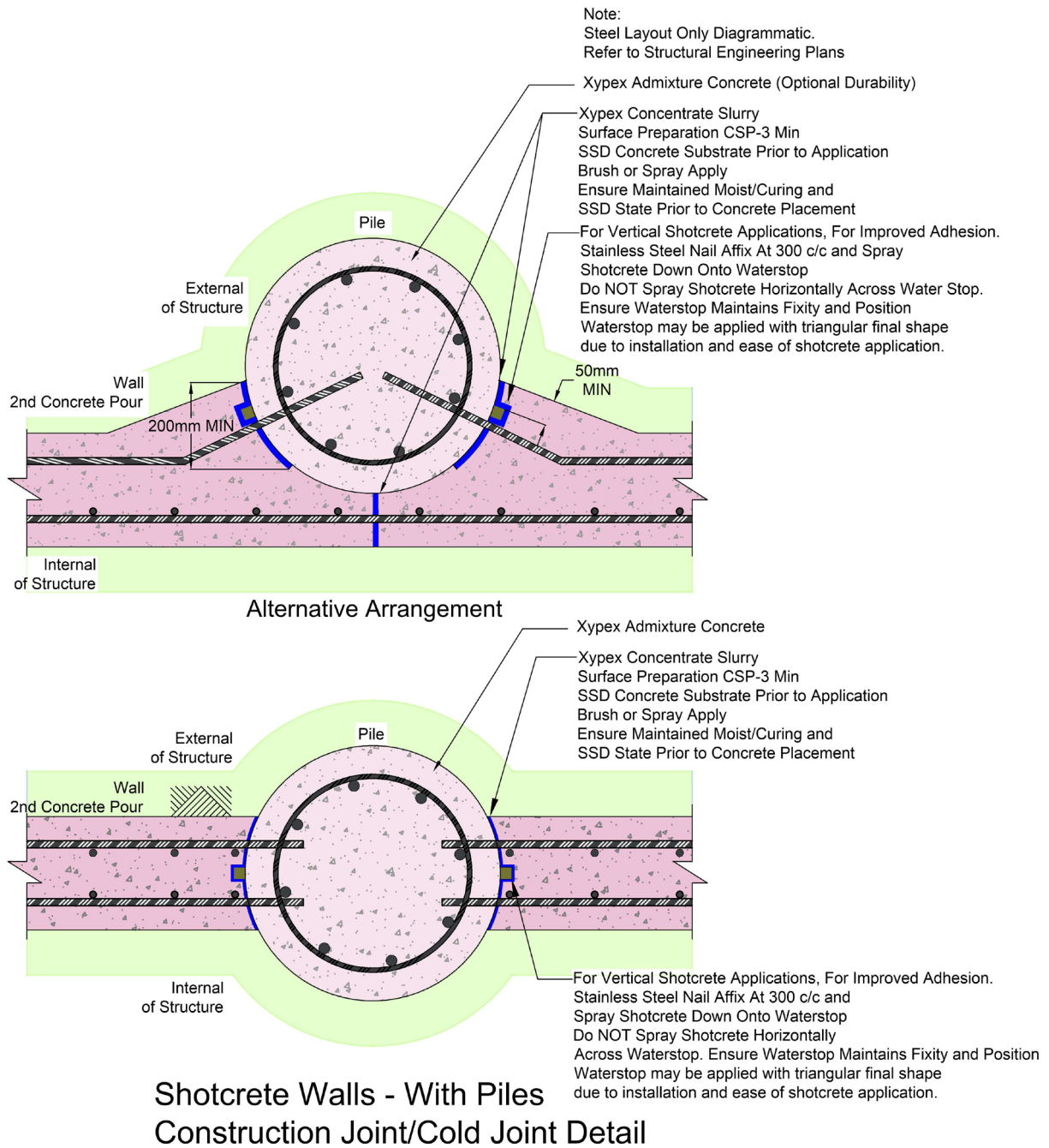


XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint

2023-07

The information presented is in addition to Xypex product data sheets and is not meant to replace these or any other installation guides but rather is meant to give a general description of the installation practices and procedures surrounding the use of Xypex products for waterproofing and protecting concrete and while normally provide an acceptable final appearance they are not meant as aesthetic finishes. Refer to Safety Data Sheets for safety information, applicators need to use all products and equipment in line with manufacturers and industry requirements.



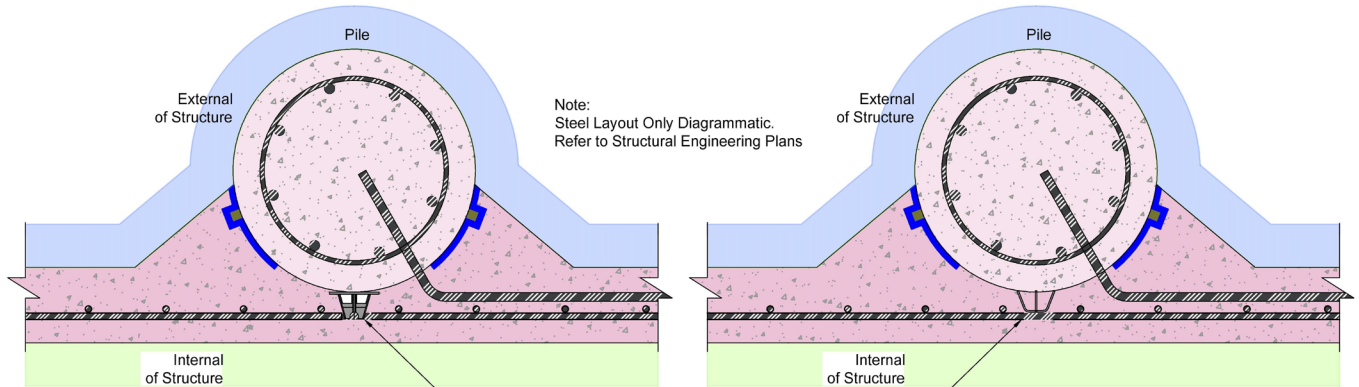
New Concrete 1st Pour Containing Xypex Admix C Series or BioSan C500	New Concrete 2nd Pour Containing Xypex Admix C Series or BioSan C500	Xypex Concentrate Slurry	Waterstop (Kuniseal C-31 DS)
Infrequent Hydrostatic Pressures	Constant Hydrostatic Pressure		

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XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint

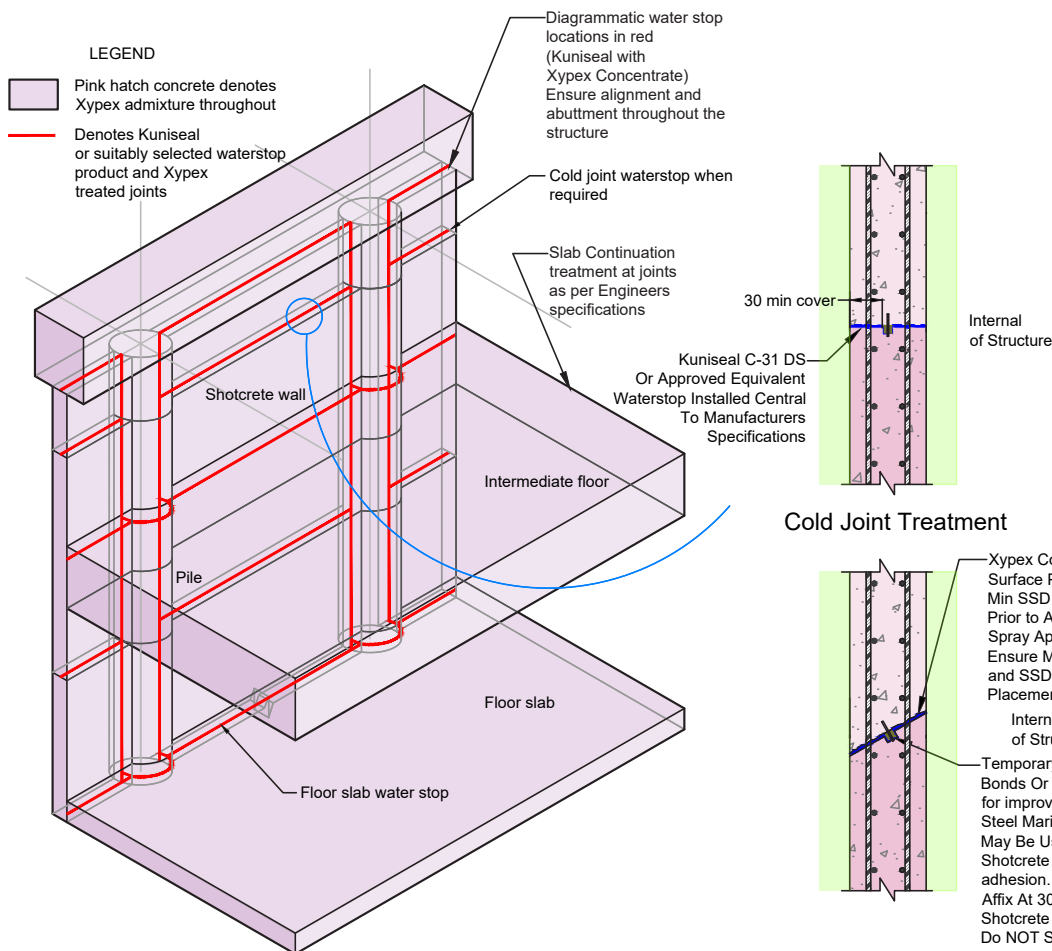
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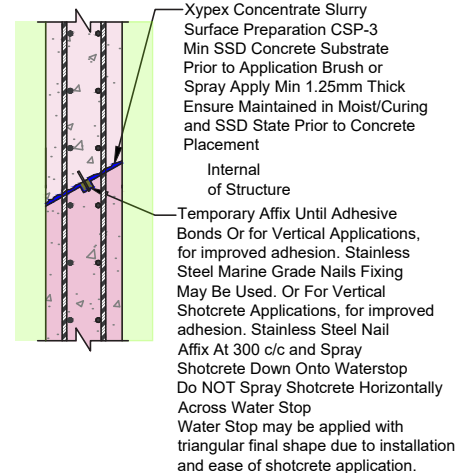
Note:
Steel Layout Only Diagrammatic.
Refer to Structural Engineering Plans



For vertical shotcrete, Xypex requires to **NOT** use plastic chairs for reinforcement constraint and compaction of concrete. Xypex requires using steel bar chairs only or other open chairs with wire ties to steel reinforcement to allow adequate compaction of concrete and spraying of shotcrete or alternatively, tie reinforcement to bars which are embedded in the piles.



Cold Joint Treatment



Shotcrete Walls - With Piles and Slab Waterstop Diagrammatic Locations

Cold Joint Treatment - Alternative

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XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint

2023-07

Xypex Joint Treatment

General

This method statement details the products and procedures for the treatment of construction joints/cold joints in new concrete structures. **This method statement is not applicable for the movement joints, slip joints or expansion joints.**

This method statement is to be used in addition to Xypex additives or coatings for waterproofing the structure.

This method statement uses two elements in addition to additives and coatings to waterproof the joints of the structure. The two protection measures used are *Xypex Concentrate* to ensure the joint can self-heal cracks/shrinkage movement up to 0.4mm static width, and Kuniseal C-31 DS as a high swelling moisture barrier/water stop.

This method statement must be used in conjunction with the product datasheet.

Products

Xypex Concentrate
Kuniseal C-31 DS (Kuniseal)

Surface Preparation

- Concrete surfaces, which are to be treated, must be clean and free of laitance, dirt, film, paint, coating or other foreign material. A surface texture of CSP-3 as per the International Concrete Repair Institute Guidelines, refer to Surface Profile Chips, must be achieved via a brush finish to the construction joint, roughened formwork, hydro-demolition/jetting or mechanical means.
- Repairs to cracks, honeycombing, air pockets, and defects are to be repaired as per Xypex Methodologies, refer separate method statements.

Application Of Kuniseal

- Clean the exposed face of the concrete joint by water blasting, hosing, wet sponge or the like. Ensure that sufficient moisture is present to activate the self-adhesive sheath and re-wet with fine mist spray as required during application. Wet Kuniseal C-31 DS prior to installation. DO NOT peel off the covering hydro-bag, Kuniseal is covered with an adhesive sheath/hydro-bag.

- Install Kuniseal on the joint alignment, preferably central to the wall as per details. Ensure a minimum clear concrete cover of 30mm will be achieved. Press Kuniseal firmly in place and into the concrete substrate to promote adhesion. **Ensure Kuniseal will align with other joints and applications of Kuniseal.**
- Ensure ends of Kuniseal fully abut and are sealed by firmly pressing together.
- Temporarily support Kuniseal in place until adhesive has affixed. Alternatively for vertical joints the contractor may install stainless steel marine grade nails vertically.
- Xypex recommends Kuniseal laterals be installed to allow local identification of any installation failures post construction and limiting any required repair works

Mixing For Xypex Concentrate Slurry

- Mix *Xypex Concentrate* powder with clean water to a creamy consistency in the following proportions:

Brush single coat application

0.65 - 0.8 Kg/m² Mix 5 parts powder to 2 parts water

Spray single coat application

0.65 - 0.8 Kg/m² Mix 5 parts powder to 3 parts water

Do not mix more dry powder than can be applied in 20 minutes. Allow mixture to stand and start to harden, then re-agitate. If the mix starts to harden, stir briefly to maintain fluid. Do not add extra water.

Xypex Concentrate Coating Application

- The concrete surface must be wetted down with water to place the concrete substrate in a Saturated Surface Dry (SSD) condition immediately prior to the application of *Xypex Concentrate*. If the surface dries out after initial water application, it must be re-wetted using a fine mist spray of clean water. Remove excess water before application such that there is no glistening water on the surface.
- For fresh concrete, the period between 24 hours and 72 hours is the optimum time to apply *Xypex Concentrate* as the concrete is still 'green' and requires very little pre wetting.

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XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint

2023-07

3. Apply *Xypex Concentrate* slurry coat over the Kuniseal and concrete construction/cold joint using a semi-stiff nylon bristle brush or specialised spray equipment. Slurry coating must be uniformly applied with an nominal thickness of 1.25 mm. When applying *Xypex Concentrate* to concrete, ensure the slurry penetrates and fills any minor defects such as cracks/pores/voids. Application by stiff bristle brush must use a circular or 'figure 8' brush stroke motion to create a non-uniformed pattern. The application and this required method is to ensure no weak plane in the coating is developed, creates a consistent/uniform application of the slurry and achieves an appropriate slurry thickness and roughness.
4. If applicable, cure *Xypex Concentrate* coating as soon as the coating has set to the point where it will not be damaged by a fine mist spray of clean water (about 2-4 hours after application depending on the weather conditions). Cure the applied coating with a fine mist spray of clean water at least 3 times a day for 2-3 days if required. Alternatively conduct second pour of concrete prior to coat drying.
5. Where internal/surface coating is indicated refer to *Xypex Concentrate* coating method statement and data sheet for application procedures.
4. The use of Xypex products promote self-healing of static cracks up to 0.4mm width. Pending the design of the structure, designed allowable crack width, concrete selection, concrete placement, curing procedures and quality of workmanship undertaken. Cracking may occur or present post construction. The client/contractor or the like, should be aware that cracking may occur post construction which is due to the factors as indicated above. These factors are not in the control of Xypex. Post construction cracking should be monitored and repairs conducted, where required, in accordance with Xypex methodologies.
5. Kuniseal must not be installed in standing water or allowed to absorb water and swell. Kuniseal should not be left exposed for prolonged period prior to concrete placement above.
6. For severe chemical or aggressive environments consult Xypex Australia representatives for compatibility information and approval. Kuniseal bentonite waterstop should be substituted for hydrophilic rubber/acrylic waterstop or similar when subject to severe chemical attack. All products are to be selected to the manufacturers conditions and used in accordance with manufacturers documentation.

Note:

1. The *Xypex Concentrate* must not be applied under rainy conditions or when ambient temperature is below 4°C. Avoid application of the Xypex coating in hot and windy conditions as the coating may dry out prematurely. Recommended to not install in temperatures > 30°C.
2. Where formwork prevents the application of *Xypex Concentrate* by brush or spray, moisten the concrete surface. Mix *Xypex Concentrate*, 6 parts powder to 1 part clean water, as a dry pac, mix for 10 to 15 seconds. Lumps should be present in the mixture. Refer to data sheet, and sprinkle from top of formwork onto the concrete approximately 1.5 to 2mm thickness.
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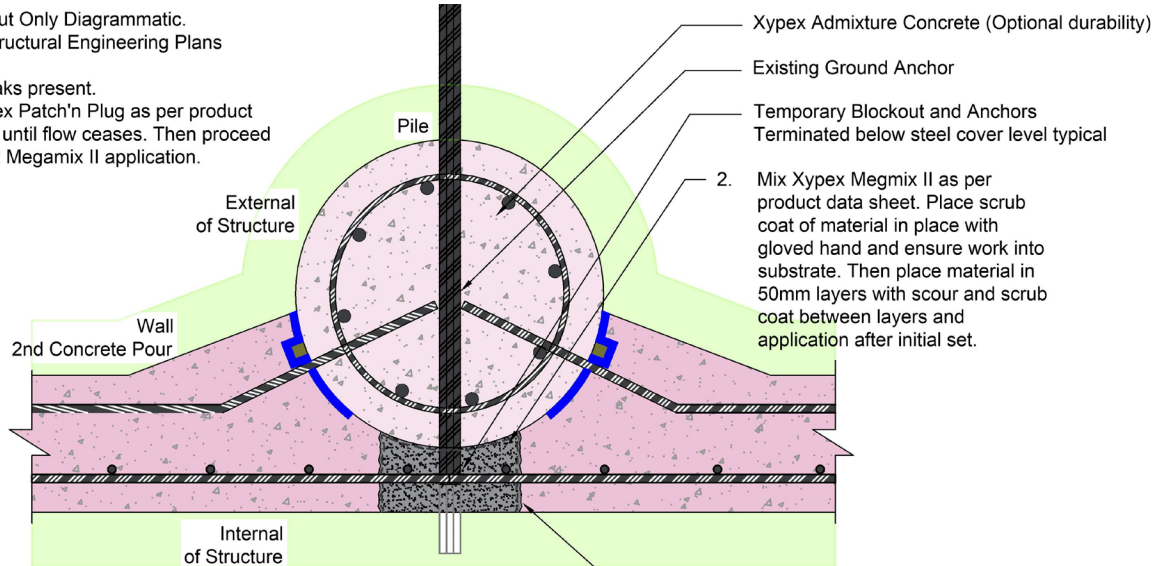
XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint - Ground Anchor Penetrations

2023-07

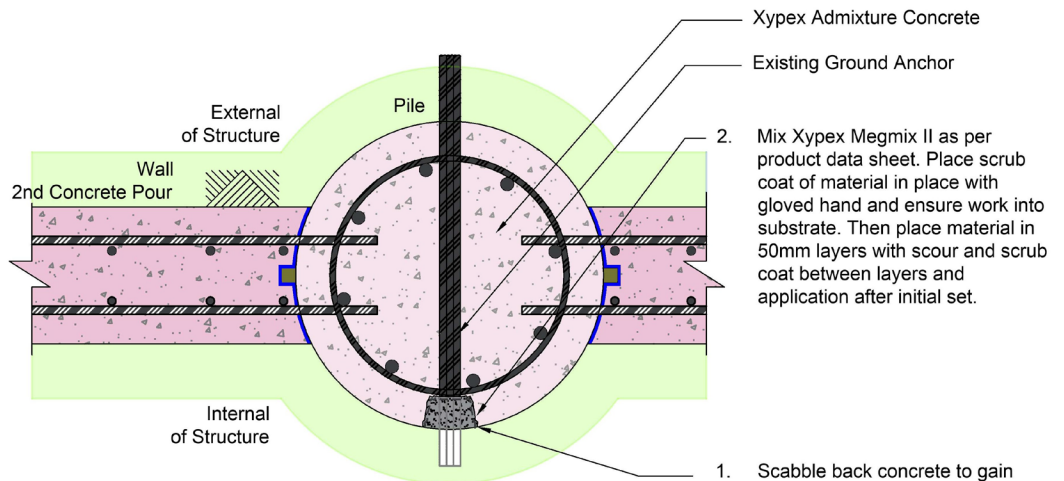
Steel Layout Only Diagrammatic.
Refer to Structural Engineering Plans

If active leaks present.
Place Xypex Patch'n Plug as per product
data sheet until flow ceases. Then proceed
with Xypex Megamix II application.



Alternative Arrangement

1. Scabble back concrete to gain CSP-5 finish. Ensure Dovetail angle in top 20mm surface. Clean and moisture condition to Saturated Surface Dry (SSD) state. Use mist spray immediately prior to material placement to maintain SSD state.



Shotcrete Walls - With Piles Ground Anchor Penetration Sealing

- | | | | |
|--|--|--------------------------------|--|
| New Concrete 1st Pour
Containing Xypex Admix
C Series or BioSan C500 | New Concrete 2nd Pour
Containing Xypex Admix
C Series or BioSan C500 | Xypex Concentrate Slurry | Waterstop (Kuniseal C-31 DS) |
| Infrequent Hydrostatic
Pressures | Constant Hydrostatic Pressure | Xypex Megamix II
Scubb Coat | Xypex Megamix II or
Xypex Megamix II with Bio-San |

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XYPEX CRYSTALLINE COATING SYSTEM

Xypex Construction Joint - Shotcrete Wall and Pile Joint - Ground Anchor Penetration

2023-07

Xypex Ground Anchor Penetration Surface Preparation

1. Roughen blockout surface to a CSP-5 profile. Ensure surface has a dovetail/angle joint min 10 mm, preferably 20 mm deep. Remove all loose and unsound concrete preferably using hydro demolition. Blast to remove dirt, debris, loose particles and to provide an open capillary surface. Conduct test wash prior to full application. Alternatively use jack-hammer (pneumatic, electro-mechanical or hydraulic). (Note: repair depth and area for reinstatement is to be approved prior to works by the supervising officer/client, should depth exceed the officer's direction or additional cracking/defects occur. Consult supervisor). Care is to be taken to avoid damage to the sound concrete adjacent/below the repair area. The substrate and materials should have a temperature between 3-30 degrees and >5 deg dew point at wind speeds <5 m/s at the time of application.
2. Ensure concrete is saturated and water absorbed by concrete then remove excess surface water before application to achieve Saturated Surface Dry (SSD) condition. No glistening water should be present on the surface. If concrete dries out before application, it must be re-wetted with fine mist spray.

Xypex Megamix II Mixing Procedure

1. A mechanical mortar mixer and paddle with a capacity for low speed continuous blending can be used. Ensure mixing equipment is clean and does not remove fibers from the mix. *Xypex Megamix II* typically requires 2.4 to 2.8 litres of clean potable water (8°C to 25°C Water Temp Recommended) for every 20kg pail.
2. DO NOT exceed maximum water content of 2.8 litres.
3. 2.4 litres of water per 20kg should be suitable for vertical wall applications but for applications requiring higher workability or due to project conditions, additional water up to a maximum 2.8 litres may be applied. Xypex recommends conducting a test mix and application to check the water content to produce a suitable material workability and bond strength under the project conditions.
4. Add approx. 90% of the required amount of water to a mixer/pail and then add the *Xypex Megamix II* powder. Mix briefly and add the remaining water to the mix to achieve the required consistency (2.4 to 2.8 litres total).

Note: It is a requirement the mixing is carried out for 3-5 minutes to emulsify all polymers, blend fiber's and provide a uniform consistency. Over mixing or delivery delays may result in product stiffening. DO NOT over water.

Application Procedure

1. Apply *Xypex Megamix II* scrub coat and place to the profile as per *Xypex Megamix II* data sheet instructions. Ensure the repair is well packed and fill the space behind the reinforcing bars taking care to eliminate air-pockets between layers. *Xypex Megamix II* thickness should be 10mm min thickness and applied in layers to a maximum 50mm layer. Roughen and score the surface before applying successive layers and apply immediately following initial set while layer is still "green". Apply scrub coat between layers. Finish to nominated surface profile and texture. For multiple lift layers contact the Xypex Technical Department.
2. Cure under normal conditions by maintaining moisture by applying mist spray of clean water 3 times a day for 3 days. In hot or arid conditions spraying may be required more frequently. Refer to *Megamix II* data sheet. DO NOT use *Xypex Gamma Cure* to cure above *Xypex Megamix II*.

Note:

- Prior to installation it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate appropriate bond strength.
- Refer to *Xypex Megamix II* data sheet for spray and overhead applications.
- Additional wire mesh, attached to the substrate, may be considered for multiple lift repairs.
- Repairs should not be mixed and placed at temperatures below 4°C or above 30°C. Protect from rapid evaporation (hot and/or cold and windy conditions).
- Repairs are to be protected from direct sunlight, rain, frost, wind and temperature below 3°C for a period of not less than 48h. After application, if plastic sheet is used as a protection, it must be raised off the Xypex to allow the coating to breathe.
- Refer to safety data sheets for safe handling procedures.