3.0 XYPEX SPECIFICATIONS

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This section of the Xypex Specification and Application Manual utilizes the Section Format™ of the Construction Specifications Institute (CSI) Manual of Practice®. Section Format provides a uniform approach to organizing specification text by establishing a structure consisting of three primary parts: General, Products, and Execution. Text within each of the three parts is divided into articles and subordinate paragraphs and subparagraphs. The article titles serve as a checklist for consideration by the specifier. These titles are optional and selections should be based on appropriateness for the specific situation being addressed. CSI is a USA based professional society for the specifications community. Xypex Chemical Corporation is aware that other organizations with different but equally valid specification formats are available and utilized by specifiers in different parts of the world.

Contact Xypex representatives for alternative formats that incorporate local requirements and standards.
SECTION 07160
PART 1 – GENERAL

1.01 Summary
A. **Section Includes:** Furnishing of all labor, materials, services and equipment necessary for the supply and installation of cementitious crystalline waterproofing to concrete substrates, above-grade or below-grade, on either dry or wet side of substrates, as indicated on drawings and as specified herein.

B. **Related Sections:**
1. Section 03100 - Concrete Work
2. Section 07900 - Joint Sealers
3. Section 09900 - Paints and Coatings

1.02 References
A. **Applicable Standards:** The following standards are referenced herein.

   1. American Society for Testing and Materials (ASTM)
   2. Army Corps of Engineers (CRD)
   3. NSF International (NSF)

1.03 System Description
A. **Cementitious Crystalline Waterproofing:** Blend of portland cement, fine treated silica sand and active proprietary chemicals. When mixed with water and applied as a cementitious coating, the active chemicals cause a catalytic reaction which generates a non-soluble crystalline formation of dendritic fibers within the pores and capillary tracts of concrete. This process causes concrete to become permanently sealed against the penetration of liquids from any direction.

1.04 System Performance Requirements
A. **Testing Requirements:** Crystalline waterproofing system shall be tested in accordance with the following standards and conditions, and the testing results shall meet or exceed the performance requirements as specified herein.

B. **Independent Laboratory:** Testing shall be performed by an independent laboratory meeting the requirements of ASTM E 329-95 and certified by the United States Bureau of Standards. Testing laboratory shall obtain all concrete samples and waterproofing product samples.

C. **Crystalline Penetration:** Crystallizing capability of waterproofing material shall be evidenced by independent SEM (Scanning Electron Microscope) photographs documenting penetration of crystal-forming waterproofing material to a depth of 2 inches (50 mm).

D. **Permeability:** Independent testing shall be performed according to U.S. Army Corps of Engineers CRD C48-73 “Permeability of Concrete”.

1.04 System Performance Requirements (continued)

1. Concrete samples (treated and untreated) to have design strength of 2000 psi (13.8 MPa) and thickness of 2 inches (50 mm). No admixtures permitted.

2. Coatings to have maximum thickness of 0.05 inches (1 mm) per coat with up to two coats permitted.

3. Samples to be pressure tested to 175 psi (405 foot head of water) or 1.2 MPa (123.4 m head of water).

4. Treated samples, after crystalline growth has occurred, shall exhibit no measurable leakage.

E. Chemical Resistance: Independent testing shall be performed according to ASTM C 267-77 “Chemical Resistance of Mortars” and ASTM C 39-86 “Compressive Strength of Cylindrical Concrete Specimens”.

1. Concrete samples (treated and untreated) to have design strength of 4000 psi (27.6 MPa). No admixtures permitted.

2. Coatings to have maximum thickness of 0.05 inches (1 mm) per coat with up to two coats permitted.

3. Untreated and treated specimens to be immersed for a minimum of 84 days in following chemical solutions: hydrochloric acid (3.5 pH), brake fluid, transformer oil, ethylene glycol, toluene, caustic soda.

4. Treated specimens shall exhibit no detrimental effects after exposure, and shall have a minimum of 14% increase in compressive strength versus untreated control specimens.

F. Potable Water Approval: Independent testing shall be performed according to NSF Standard 61 and approval for use of waterproofing material on structures holding potable water shall be evidenced by NSF certification.

1.05 Submittals

A. General: Submit listed submittals in accordance with conditions of the Contract and with Division 1 Submittal Procedures Section.

B. Product Data: Submit product data, including manufacturer’s specifications, installation instructions, and general recommendations for waterproofing applications. Also include manufacturer’s certification or other data substantiating that products comply with requirements of Contract Documents.

C. Test Reports: Submit for acceptance, complete test reports from approved independent testing laboratories certifying that waterproofing system conforms to performance characteristics and testing requirements specified herein.

D. Manufacturer’s Certification: Provide certificates signed by manufacturer or manufacturer’s representative certifying that the materials to be installed comply in all respects with the requirements of this specification, and that the applicator is qualified and approved to install the materials in accordance with manufacturer’s product data.

E. Manufacturer’s Field Report: Provide copy of report from manufacturer’s representative confirming that the surfaces to which waterproofing material is to be applied are in a condition suitable to receive same.
1.06 Quality Assurance
A. **Manufacturer Qualifications:** Manufacturer shall be ISO 9001 registered, and shall have no less than 10 years experience in manufacturing the cementitious crystalline waterproofing materials for the required work. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project.

B. **Applicator:** Waterproofing applicator shall be experienced in the installation of cementitious crystalline waterproofing materials as demonstrated by previous successful installations, and shall be approved by the manufacturer in writing.

C. **Pre-Installation Conference:** Prior to installation of waterproofing, conduct meeting with waterproofing applicator, installers of work adjacent to or which penetrates waterproofing, Architect/Engineer, owner’s representative, and waterproofing manufacturer’s representative to verify and review the following:

2. Manufacturer’s product data including application instructions.
3. Substrate conditions, and procedures for substrate preparation and waterproofing installation.

D. **Technical Consultation:** The waterproofing manufacturer’s representative shall provide technical consultation on waterproofing application.

1.07 Delivery, Storage and Handling
A. **Delivery:** Deliver packaged waterproofing materials to project site in original undamaged containers, with manufacturer’s labels and seals intact.

1.08 Project Conditions
A. **Compliance:** Comply with manufacturer’s product data regarding condition of substrate to receive waterproofing, weather conditions before and during installation, and protection of the installed waterproofing system.

1.09 Warranty
A. **Manufacturer’s Warranty:** Manufacturer shall provide standard product warranty executed by authorized company official. Term of warranty shall be [specify term] years from Date of Substantial Completion.

B. **Applicator’s Warranty:** Applicator shall warrant the waterproofing installation against defects caused by faulty workmanship or materials for a period of [specify term] years from Date of Substantial Completion. The warranty will cover the surfaces treated and will bind the applicator to repair, at his expense, any and all leaks through the treated surfaces which are not due to structural weaknesses or other causes beyond applicator’s control such as fire, earthquake, tornado and hurricane. The warranty shall read as follows:

1. **Warranty:** The applicator warrants that, upon completion of the work, surfaces treated with cementitious crystalline waterproofing will be and will remain free from water leakage resulting from defective workmanship or materials for a period of [specify term] years from Date of Substantial Completion. In the event that water leakage occurs within the warranty period from such causes, the applicator
1.09 **Warranty** *(continued)*

shall, at his sole expense, repair, replace or otherwise correct such defective workmanship or materials. Applicator shall not be liable for consequential damages and applicator’s liability shall be limited to repair, replacement or correcting of defective workmanship or materials. Applicator shall have no responsibility with respect to water leakage or other defects caused by structural failure or movement of the structure, or any other causes beyond Applicator’s control.

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**PART 2 – PRODUCTS**

**2.01 Materials**

A. **Acceptable Manufacturer:**

Xypex Chemical Corporation  
13731 Mayfield Place, Richmond, B.C., Canada V6V 2G9  
Tel: 800.961.4477 or 604.273.5265  Fax: 604.270.0451

B. **Proprietary Products:** Xypex crystalline waterproofing materials as follows:

1. Xypex Concentrate  
2. Xypex Modified  
3. Xypex Patch’n Plug

**NOTE:** Supplemental specifications are available for the Xypex Admix C-series C-500, C-1000, C-2000 (admixture), and Xypex Concentrate DS-1/DS-2 (dry shake).

C. **Substitutions:** No substitutions permitted.

D. **Source Quality:** Obtain proprietary crystalline waterproofing products from a single manufacturer.

**2.02 Mixes**

A. **General:** Mix waterproofing material by volume with clean water which is free from salt and deleterious materials. Mix waterproofing material in quantities that can be applied within 20 to 30 minutes from time of mixing. As mixture thickens, stir frequently, but do not add additional water. Do not mix bonding agents or admixtures with crystalline waterproofing materials.

B. **Brush Application Mix:** Measure dry powder and place in mixing container. Measure water and mix into the dry powder with a paddle on a slow speed electric drill (250 RPM) or other type mixer which is acceptable to manufacturer. Mixing proportions shall be as follows:

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Proportions (by Volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 lb./sq. yd. (0.8 kg/m²)</td>
<td>5 powder to 2 water</td>
</tr>
<tr>
<td>2.0 lb./sq. yd. (1.0 kg/m²)</td>
<td>3 powder to 1 water</td>
</tr>
</tbody>
</table>
2.02 Mixes (continued)

C. Spray Application Mix: Mixing shall be same as specified for brush application except that mixture shall be thinner. Use following proportions as a guide only. Adjust proportions to match type of spray equipment and pressures used. Mixing proportions shall be as follows:

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Proportions (by Volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 lb./sq. yd.</td>
<td>5 powder to 3 water</td>
</tr>
</tbody>
</table>

D. Dry-Pac Mix: Using a trowel, mix 1 part clean water with 6 parts Xypex Concentrate powder for 10 to 15 seconds. It is acceptable that lumps may be present in mixture. Mix only as much as can be applied in 15 minutes.

PART 3 – EXECUTION

3.01 Examination

A. Site Visit: Prior to waterproofing installation, arrange visit to project site with waterproofing manufacturer’s representative. Representative shall inspect and certify that concrete surfaces are in acceptable condition to receive waterproofing treatment.

B. Verification of Substrates: Verify that concrete surfaces are sound and clean, and that form release agents and materials used to cure the concrete are compatible with waterproofing treatment.

C. Examination for Defects: Examine surfaces to be waterproofed for form tie holes and structural defects such as honeycombing, rock pockets, faulty construction joints and cracks. Such defects to be repaired in accordance to manufacturer’s product data and 3.02 below.

3.02 Preparation

A. Concrete Finish: Concrete surfaces to receive waterproofing treatment shall have an open capillary system to provide tooth and suction, and shall be free from scale, excess form oil, laitance, curing compounds and foreign matter. Horizontal surfaces shall have a rough wood float or broom finish. Where a smooth trowel finish is required on horizontal surface, crystalline waterproofing material shall be applied by dry shake method at time of concrete finishing in accordance with manufacturer’s product data.

B. Surface Preparation: Smooth surfaces (e.g. where steel forms are used) or surfaces covered with excess form oil or other contaminants shall be washed, lightly sand-blasted, water-blasted, or acid etched with muriatic acid as necessary to provide a clean absorbent surface. Surfaces to be acid-etched shall be saturated with water prior to application of acid.

C. Repair of Defects: Surface defects shall be repaired in accordance with manufacturer’s instructions as follows:

1. Form Tie Holes, Construction Joints, Cracks: Chip out defective areas in a “U” shaped slot one inch (25 mm) wide and a minimum of one inch (25 mm) deep. Clean slot of debris and dust. Soak area with water and remove excess surface water. Apply a slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²) to the slot. Allow slurry to reach an initial set, then fill cavity with Dry-Pac. Compress tightly into cavity using pneumatic packer or block and hammer.
3.02 Preparation (continued)

2. **Rock Pockets, Honeycombing or Other Defective Concrete:** Rout out defective areas to sound concrete. Remove loose materials and saturate with water. Remove excess surface water and apply a slurry coat of Xypex Concentrate to area. After slurry has set, but while still "green", fill cavity to surface level with non-shrink grout.

D. **Wetting Concrete:** Prior to application of waterproofing treatment, thoroughly saturate concrete surfaces with clean water as required to ensure migration of crystalline chemicals into voids and capillary tracts of the concrete. Remove free surface water before application.

3.03 Application

A. **Construction Joints:** Apply Xypex Concentrate in slurry form at a rate of 2.0 lb./sq. yd. (1.08 kg/m²) to joint surfaces between concrete pours. Moisten surfaces prior to slurry application. Where joint surfaces are not accessible prior to pouring new concrete, consult manufacturer for application procedure.

B. **Sealing Strips and Coves:** Prepare concrete surfaces that will come into contact with sealing strips and coves by applying one coat of Xypex Concentrate in slurry form at a rate of 1.5 lb./sq. yd. (0.8 kg/m²). Then apply Xypex Concentrate in Dry-Pac form (sealing strip) or Xypex Modified in mortar consistency (cove) after slurry coat has reached an initial set but is still “green”.

1. **Sealing Strips:** Where indicated on drawings, fill preformed grooves, one inch (25 mm) wide and minimum of 1.5 inch (37 mm) deep, located at construction joints with Xypex Concentrate in Dry-Pac form. Compact Dry-Pac tightly into groove using a pneumatic packer or hammer and block.

2. **Coves:** Where indicated on drawings, trowel apply and pack Xypex Modified mortar into a cove shape.

C. **Surface Application:** After repairs, surface preparation, treatment of construction joints and sealing strip placement have been completed in accordance with manufacturer’s product data and as specified herein, apply Xypex treatment uniformly to concrete surfaces with semi-stiff bristle brush or broom, or suitable spray equipment. Application rates and locations shall be as indicated in the drawings and in accordance with manufacturer’s product data. When brushing, work slurry well into surface of the concrete, filling surface pores and hairline cracks. When spraying, hold nozzle close enough to ensure that slurry is forced into pores and hairline cracks.

1. **First Coat (of one or two coat application):** Apply Xypex Concentrate slurry coat to locations indicated on drawings in accordance with manufacturer’s product data.

2. **Second Coat (of two coat application):** Where indicated on drawings or as required by manufacturer’s product data, apply Xypex Modified slurry coat while first coat of Xypex Concentrate is still “green” but after it has reached an initial set. Use light prewatering between coats when rapid drying conditions exist.

D. **Sandwich (Topping) Application:** When treated structural slabs are to receive a concrete or other topping, place the topping while waterproofing material is still “green” but has reached an initial set. Lightly prewater when rapid drying conditions exist.
3.04 Curing

A. **General:** Begin curing as soon as Xypex coating has hardened sufficiently so as not to be damaged by a fine spray. Cure Xypex treatment with a mist fog spray of clean water three times a day for 2 to 3 days, or cover treated surfaces with damp burlap for the prescribed period. In warm climates, more than three sprayings per day may be necessary to prevent excessive drying of coating.

B. **Air Circulation:** Do not lay plastic sheeting directly on the waterproofing coating as air contact is required for proper curing. If poor circulation exists in treated areas, it may be necessary to provide fans or blown air to aid in curing of waterproofing treatment.

C. **Holding Structures:** For concrete holding structures such as swimming pools, reservoirs, water treatment tanks and wet wells, cure Xypex treatment for three days and then allow treatment to set (air cure) for 12 days before filling structure with liquid. For structures holding hot or corrosive liquids, cure waterproofing treatment for three days and allow to set for 18 days before filling.

D. **Protection:** During the curing period, protect treated surfaces from damage by wind, sun, rain and temperatures below 36ºF (2ºC). If plastic sheeting is used for protection, it must be raised off of waterproofing coating to allow sufficient air circulation.

E. **Curing Agent:** If moist curing is not possible, use a chemical curing agent that is specifically designed for or compatible with the approved crystalline waterproofing treatment. Curing agent shall have at least two years of successful field use and shall be approved by waterproofing manufacturer in writing.

3.05 Interface With Other Materials

A. **Backfilling:** Do not backfill for 36 hours after application. If backfill takes place within seven days after application, then backfill material shall be moist so as not to draw moisture from waterproof coating.

B. **Paint, Epoxy or Similar Coatings:** Do not apply paint or other coatings until waterproofing treatment has cured and set for a minimum of 21 days. Before applying paint or coating, neutralize treated surface by dampening with water and then washing waterproofed surface with 15% muriatic acid, diluted in a ratio of one part acid to four parts water by volume. Flush acid off treated concrete surfaces.

C. **Grout, Cement Parge Coat, Plaster or Stucco:** Because the waterproof coating forms a relatively smooth surface and the resulting crystalline formation fills the concrete pores thereby reducing suction characteristics of the concrete, it may be necessary to use a suitable bonding agent for proper bonding of cementitious systems. Trial applications are recommended to ensure that adhesion requirements are satisfied.

D. **Responsibility to Ensure Compatibility:** Xypex Chemical Corporation makes no representations or warranties regarding compatibility of Xypex treatment with coatings, plasters, stuccos, tiles or other surface-applied materials. It shall be the responsibility of the installer of the surface-applied material that is to be applied over the Xypex waterproofing treatment, to take whatever measures are necessary, including testing, to ensure acceptance by or adhesion to the waterproofing treatment.
3.06 Field Quality Control
A. **Observation:** Do not conceal installed waterproofing system before it has been observed by Architect/Engineer, waterproofing manufacturer’s representative and other designated entities.

B. **Flood Testing:**
   1. Perform flood test on completed waterproofing installation before placement of other construction.
   2. Plug or dam drains and fill area with water to a depth of two inches (50 mm) or to within 0.5 inch (12.5 mm) of top of waterproofing treatment.
   3. Let water stand for 24 hours.
   4. If leaks are discovered, make repairs and repeat test until no leaks are observed.

3.07 Cleaning and Protection
A. **Cleaning:** Clean spillage and soiling from adjacent surfaces using appropriate cleaning agents and procedures.

B. **Protection:** Take measures to protect completed Xypex coating from damage after application. Do not permit traffic on unprotected coating.

END OF SECTION 07160
SECTION 03050
PART 1 – GENERAL

1.01 Summary
A. **Section Includes:** Furnishing of all labor, materials, services and equipment necessary for the supply and installation of crystalline waterproofing additive to concrete structures as indicated on the drawings and as specified herein. The crystalline waterproofing material shall be added to concrete during the mixing cycle, and shall be used in above or below-grade walls and slabs, including liquid retaining structures where enhanced chemical resistance is required.

B. **Related Sections:**
   1. Section 03100 - Concrete Work
   2. Section 03200 - Concrete Reinforcement
   3. Section 07900 - Joint Sealers

1.02 References
A. **Applicable Standards:** The following standards are referenced herein.
   1. American Society for Testing and Materials (ASTM)
   2. Army Corps of Engineers (CRD)
   3. American Concrete Institute (ACI)
   4. NSF International (NSF)

1.03 System Description
A. **Crystalline Waterproofing Additive:** Concrete waterproofing system shall be of the crystalline type that chemically controls and permanently fixes a non-soluble crystalline structure throughout the capillary voids of the concrete. The system shall cause the concrete to become sealed against the penetration of liquids from any direction, and shall protect the concrete from deterioration due to harsh environmental conditions.

1.04 System Performance Requirements
A. **Testing Requirements:** Crystalline waterproofing system shall be tested in accordance with the following standards and conditions, and the testing results shall meet or exceed the performance requirements as specified herein.

B. **Independent Laboratory:** Testing shall be performed by an independent laboratory meeting the requirements of ASTM E 329-90 and certified by the United States Bureau of Standards. Testing laboratory shall obtain all concrete samples and waterproofing product samples.

C. **Crystalline Formation:** Crystallizing capability of waterproofing system shall be evidenced by independent SEM (Scanning Electron Microscope) photographs showing crystalline formations within the concrete matrix.
1.04 System Performance Requirements (continued)

D. **Permeability:** Independent testing shall be performed according to U.S. Army Corps of Engineers CRD-C48-73 “Permeability of Concrete”. Treated concrete samples shall be pressure tested to 150 psi (350 foot head of water) or 1.05 MPa (106 m head of water). The treated samples shall exhibit no measurable leakage.

E. **Chemical Resistance:** Independent testing shall be performed to determine “Sulfuric Acid Resistance of Concrete Specimens”. Treated concrete samples (dosage rates of 3%, 5% and 7%) shall be tested against untreated control samples. All samples shall be immersed in sulfuric acid and weighed daily until a control sample reaches a weight loss of 50% or over. On final weighing the percentage weight loss of the treated samples shall test significantly lower than the control samples.

F. **Compressive Strength:** Independent testing shall be performed according to ASTM C39 “Compressive Strength of Cylindrical Concrete Specimens”. Concrete samples containing the crystalline waterproofing additive shall be tested against untreated control sample. At 28 days, the treated samples shall exhibit the same or better compressive strength over the control.

G. **Potable Water Approval:** Independent testing shall be performed according to NSF Standard 61, and approval for use of waterproofing material on structures holding potable water shall be evidenced by NSF certification.

1.05 Submittals

A. **General:** Submit listed submittals in accordance with conditions of the Contract and with Division 1 Submittal Procedures Section.

B. **Product Data:** Submit product data, including manufacturer’s specifications, installation instructions, and general recommendations for waterproofing applications. Also include manufacturer’s certification or other data substantiating that products comply with requirements of Contract Documents.

C. **Test Reports:** Submit, for acceptance, complete test reports from approved independent testing laboratories certifying that waterproofing system conforms to performance characteristics and testing requirements specified herein.

D. **Manufacturer’s Certification:** Provide certificate signed by manufacturer or manufacturer’s representative certifying that the materials to be installed comply in all respects with the requirements of this specification.

1.06 Quality Assurance

A. **Manufacturer Qualifications:** Manufacturer to be ISO 9001 registered, and to have no less than 10 years experience in manufacturing the crystalline waterproofing additive for the required work. Manufacturer must be capable of providing field service representation during construction phase. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project.

B. **Applicator:** Installer of crystalline waterproofing additive shall be approved by the manufacturer or manufacturer’s representative in writing.

C. **Pre-Installation Conference:** Prior to installation of waterproofing, conduct meeting with Architect/Engineer, owner’s representative, applicator (concrete supplier), concrete placer and waterproofing manufacturer’s representative to verify and review the following:
1.06 Quality Assurance (continued)
   2. Manufacturer’s product data including application instructions.

D. **Technical Consultation:** The waterproofing manufacturer’s representative shall provide technical consultation on waterproofing application.

1.07 Delivery, Storage and Handling
A. **Ordering:** Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

B. **Delivery:** Deliver packaged waterproofing materials to project site in original undamaged containers, with manufacturer’s labels and seals intact.

C. **Storage:** Store waterproofing materials in dry, enclosed location, at temperature and humidity conditions recommended by manufacturer.

1.08 Warranty
A. **Project Warranty:** Refer to conditions of the Contract for project warranty provisions.

B. **Manufacturer’s Warranty:** Manufacturer shall provide standard product warranty executed by authorized company official. Term of warranty shall be [specify term] years from Date of Substantial Completion.

PART 2 – PRODUCTS

2.01 Materials
A. **Acceptable Manufacturer:**

   Xypex Chemical Corporation
   13731 Mayfield Place, Richmond, B.C., Canada V6V 2G9
   Tel: 800.961.4477 or 604.273.5265  Fax: 604.270.0451
   E-mail: info@xypex.com  Website: www.xypex.com

B. **Proprietary Products:** Xypex crystalline waterproofing materials as follows:

   1. Xypex Admix C-500
   2. Xypex Admix C-1000
   3. Xypex Admix C-2000

   **NOTE:** Supplemental specifications (including dosage rates) are available for Xypex Admix C-500 NF (no fines grade), Xypex Admix C-1000 NF (no fines grade) and Xypex Admix C-2000 NF (no fines grade).

C. **Substitutions:** No substitutions permitted.

D. **Source Quality:** Obtain proprietary crystalline waterproofing products from a single manufacturer.
2.02 Dosage

A. **General:** Xypex Admix must be added to concrete mix at time of batching.

B. **Dosage Rate:** Under normal conditions, the crystalline waterproofing powder shall be added to the concrete mix at the following rates:

- Xypex Admix C-500: 2 - 3% by weight of portland cement content
- Xypex Admix C-1000: 2 - 3% by weight of portland cement content
- Xypex Admix C-2000: 2% by weight of portland cement content
- Xypex Admix NF (no fines grade): 1 - 1.5% by weight of Portland cement content

For enhanced chemical protection or meeting specific project requirements, or where the concrete mix design contains higher than 20% fly ash content or includes a portland cement/slag cement blend, consult with manufacturer or its authorized representative to determine appropriate dosage rates.

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PART 3 – EXECUTION

3.01 Manufacturer’s Instructions

A. **Compliance:** Comply with manufacturer’s product data regarding installation, including technical bulletins, product catalogue, installation instructions and product packaging labels.

3.02 Project Conditions

A. **Reinforcement:** All reinforcement shall be rib deformed bar in accordance with applicable standards. Exposed concrete decks (joint free) shall contain sufficient reinforcement to minimize thermal movement and control cracking.

B. **Setting Time and Strength:** Some retardation of set may occur when using Xypex Admix products. The amount of retardation will depend upon the concrete mix design, the particular Admix product used, dosage rate of the Admix, temperature of the concrete and climatic conditions. Concrete containing a Xypex Admix product may develop higher ultimate strengths than plain concrete. Conduct trial mixes under project conditions to determine setting time and strength of the concrete. Consult with manufacturer or manufacturer’s representative regarding concrete mix design, project conditions and proper dosage rate.

C. **Weather Conditions:** For mixing, transporting and placing concrete under conditions of high temperature or low temperature, follow concrete practices as referred to in ACI 305R-77 (Hot Weather Concreting) and ACI 306R-78 (Cold Weather Concreting). For flatwork being placed in either hot, dry or windy conditions use of monomolecular film (evaporation retardant) is recommended to control loss of bleed water.

3.03 Application

A. **General:** Xypex Admix shall be added to the concrete mix at time of batching. Thorough blending of the Xypex Admix throughout the concrete mix is essential for correct performance of the product and, therefore, care should be taken to ensure that a homogeneous mixture is obtained.
3.03 Application (continued)
B. Concrete Batching & Mixing: Procedures for mixing will vary according to type of batch plant operation and equipment.

1. Ready Mix Plant - Dry Batching Operation: Add Xypex Admix powder to drum of ready-mix truck, then add 60% - 70% of required water along with 300 - 500 lb. (136 - 227 kg) of aggregate. Mix the materials for 2 - 3 minutes to ensure that the Admix is distributed evenly throughout the mix water. Add balance of materials to the ready-mix truck and mix in accordance with standard batch practices.

2. Ready Mix Plant - Central Mix Operation: Mix Xypex Admix with water to form a very thin slurry (e.g. 15 - 20 lb. or 6.75 - 9 kg of powder mixed with 3 gallons or 13.6 litres of water). Pour the required amount of material into the drum of ready-mix truck. The aggregate, cement and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck). Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of the Xypex Admix throughout the concrete.

3. Precast Batch Plant - Pan Type Mixer: Add Xypex Admix to the rock and sand, then mix thoroughly for 2 - 3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices.

3.04 Curing
A. General: Concrete containing Xypex Admix shall be moist cured in accordance with ACI Reference 308, “Standard Practice for Curing Concrete”.

B. Curing Compounds: Curing compounds may be used in the event that project requirements or conditions prevent moist curing. Curing compounds shall comply with ASTM C-309.

3.05 Protection
A. Protection: Protect installed product and finished surfaces from damage during construction.

3.06 Field Quality Control
A. Examination for Defects: Do not conceal Xypex treated concrete before it has been observed by Architect/Engineer, waterproofing manufacturer’s representative and other designated entities. Concrete shall be examined for structural defects such as faulty construction joints, cold joints and cracks. Such defects to be repaired in accordance with manufacturer’s repair procedures.

B. Flood Testing for Suspended Slabs:
   1. Perform flood test on completed waterproofing installation before placement of other construction.
   2. Plug or dam drains and fill area with water to a depth of two inches (50 mm) or to within 0.5 inch (12.5 mm) of top of waterproofing treatment.
   3. Let water stand for 24 hours.
   4. If leaks are discovered, make repairs and repeat test until no leaks are observed.
3.07 Interaction With Other Materials

A. Backfilling: Normal backfilling procedures may be used after concrete has been cured for at least seven days. If backfill takes place within seven days after concrete placement, then backfill material shall be moist so as not to draw moisture from the concrete. In no event shall backfilling take place before concrete has gained sufficient strength to withstand the applied load.

B. Grout, Cement Parge Coat, Plaster or Stucco: Because concrete containing Xypex Admix forms a relatively smooth surface and the resulting crystalline formation fills the concrete pores thereby reducing suction characteristics of the concrete, it may be necessary to use a suitable bonding agent for proper bonding of cementitious systems.

C. Responsibility to Ensure Compatibility: Xypex Admix products are compatible with most admixtures used in the production of quality concrete. However, Xypex Chemical Corporation makes no representations or warranties regarding such compatibility of Xypex Admix products with other additives or admixtures, nor regarding compatibility of the Xypex treated concrete with coatings, plasters, stuccos, tiles or other surface-applied materials. It shall be the responsibility of the concrete contractor to take whatever measures are necessary, including testing, to ensure compatibility of the Xypex Admix with other additives or admixtures being used in the concrete mix, and it shall be the responsibility of the installer of the surface-applied material that is to be applied over the Xypex treated concrete to take whatever measures are necessary, including testing, to ensure acceptance by or adhesion to the Xypex treated concrete.

END OF SECTION 03050
SECTION 07160
PART 1 – GENERAL

1.01 Summary
A. **Section Includes:** Furnishing of all labor, materials, services and equipment necessary for the supply and installation of cementitious crystalline waterproofing (dry shake) to horizontal concrete surfaces as indicated on drawings and as specified herein.

B. **Related Sections:**
   1. Section 03100 - Concrete Work
   2. Section 03300 - Cast-In-Place Concrete
   3. Section 03360 - Concrete Finishing

1.02 References
A. **Applicable Standards:** The following standards are referenced herein.
   1. American Society for Testing and Materials (ASTM)
   2. Army Corps of Engineers (CRD)
   3. American Concrete Institute (ACI)

1.03 System Description
A. **Cementitious Crystalline Waterproofing (Dry Shake):** Blend of portland cement, active proprietary chemicals and aggregate that has been graded and crushed to particle sizes suitable for concrete floors. When applied as a dry shake to freshly poured concrete slabs, the active chemicals cause a catalytic reaction which generates a non-soluble crystalline formation of dendritic fibers within the pores and capillary tracts of concrete. This process causes concrete to become permanently sealed against the penetration of liquids from any direction. For areas where increased abrasion resistance is required, the dry shake waterproofing shall contain a proprietary aggregate hardener.

1.04 System Performance Requirements
A. **Testing Requirements:** Crystalline waterproofing system shall be tested in accordance with the following standards and conditions, and the testing results shall meet or exceed the performance requirements as specified herein.

B. **Independent Laboratory:** Testing shall be performed by an independent laboratory meeting the requirements of ASTM E 329-90 and certified by the United States Bureau of Standards. Testing laboratory shall obtain all concrete samples and waterproofing product samples.

C. **Crystalline Penetration:** Crystallizing capability of waterproofing material shall be evidenced by independent SEM (Scanning Electron Microscope) photographs documenting penetration of crystal-forming waterproofing material to a depth of 2 inches (50 mm).
1.04 System Performance Requirements (continued)

D. **Permeability:** Independent testing shall be performed according to U.S. Army Corps of Engineers CRD C48-73 “Permeability of Concrete”.

1. Concrete samples (treated and untreated) to have design strength of 2000 psi (13.8 MPa) and thickness of 2 inches (50 mm). No admixtures permitted.

2. Samples to be pressure tested to 175 psi (405 foot head of water) or 1.2 MPa (123.4 m head of water).

3. Treated samples, after crystalline growth has occurred, shall exhibit no measurable leakage.

E. **Chemical Resistance:** Independent testing shall be performed according to ASTM C267-82 (1990) and ASTM C39-86 “Chemical Resistance of Mortars”.

1. Concrete samples (treated and untreated) to have design strength of 4000 psi (27.6 MPa). No admixtures permitted.

2. Untreated and treated specimens to be immersed for a minimum of 84 days in the following chemical solutions: hydrochloric acid (3.5 pH), brake fluid, transformer oil, ethylene glycol, toluene, caustic soda.

3. Treated specimens shall exhibit no detrimental effects after exposure, and shall have a minimum of 14% increase in compressive strength versus untreated control specimens.

1.05 Submittals

A. **General:** Submit listed submittals in accordance with conditions of the Contract and with Division 1 Submittal Procedures Section.

B. **Product Data:** Submit product data, including manufacturer’s specifications, installation instructions, and general recommendations for waterproofing applications. Also include manufacturer’s certification or other data substantiating that products comply with requirements of Contract Documents.

C. **Test Reports:** Submit, for acceptance, complete test reports from approved independent testing laboratories certifying that waterproofing system conforms to performance characteristics and testing requirements specified herein.

D. **Manufacturer’s Certification:** Provide certificates signed by manufacturer or manufacturer’s representative certifying that the materials to be installed comply in all respects with the requirements of this specification, and that the applicator is qualified and approved to install the materials in accordance with manufacturer’s product data.

1.06 Quality Assurance

A. **Manufacturer Qualifications:** Manufacturer should be ISO 9001 registered, and shall have no less than 10 years experience in manufacturing the cementitious crystalline waterproofing materials (dry shake) for the required work. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project.
1.06 Quality Assurance (continued)

B. **Applicator:** Waterproofing applicator shall be experienced in the installation of dry shake cementitious materials as demonstrated by previous successful installations, and shall be approved by the manufacturer in writing.

C. **Pre-Installation Conference:** Prior to installation of waterproofing, conduct meeting with waterproofing applicator, concrete placer, concrete finisher, Architect/Engineer, owner’s representative, and waterproofing manufacturer’s representative to verify and review the following:

2. Manufacturer’s product data including application instructions.

D. **Technical Consultation:** The waterproofing manufacturer’s representative shall provide technical consultation on waterproofing application.

1.07 Delivery, Storage and Handling

A. **Ordering:** Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

B. **Delivery:** Deliver packaged waterproofing materials to project site in original undamaged containers, with manufacturer’s labels and seals intact.

C. **Storage:** Store waterproofing materials in dry, enclosed location.

1.08 Warranty

A. **Manufacturer’s Warranty:** Manufacturer shall provide standard product warranty executed by authorized company official. Term of warranty shall be [specify term] years from Date of Substantial Completion.

B. **Applicator’s Warranty:** Applicator shall warrant the waterproofing installation against defects caused by faulty workmanship or materials for a period of [specify term] years from Date of Substantial Completion. The warranty will cover the surfaces treated and will bind the applicator to repair, at his expense, any and all leaks through the treated surfaces which are not due to structural weaknesses or other causes beyond applicator’s control such as fire, earthquake, tornado and hurricane. The warranty shall read as follows:

1. **Warranty:** The applicator warrants that, upon completion of the work, surfaces treated with cementitious crystalline waterproofing will be and will remain free from water leakage resulting from defective workmanship or materials for a period of [specify term] years from Date of Substantial Completion. In the event that water leakage occurs within the warranty period from such causes, the applicator shall, at its sole expense, repair, replace or otherwise correct such defective workmanship or materials. Applicator shall not be liable for consequential damages and applicator’s liability shall be limited to repair, replacement or correcting of defective workmanship or materials. Applicator shall have no responsibility with respect to water leakage or other defects caused by structural failure or movement of the structure, or any other causes beyond Applicator’s control.
PART 2 – PRODUCTS

2.01 Materials

A. **Acceptable Manufacturer:**
   
   Xypex Chemical Corporation  
   13731 Mayfield Place, Richmond, B.C., Canada V6V 2G9  
   Tel: 800.961.4477 or 604.273.5265  Fax: 604.270.0451  
   E-mail: info@xypex.com  Website: www.xypex.com

B. **Proprietary Products:** Xypex crystalline waterproofing materials as follows:
   
   1. Xypex Concentrate DS-1 (general applications)  
   2. Xypex Concentrate DS-2 (where enhanced abrasion resistance is required)

**NOTE:** Supplemental specifications are available for Xypex Concentrate and Modified (coatings) and Xypex Admix C-500, C-1000, and C-2000 (additives).

C. **Substitutions:** No substitutions permitted.

D. **Source Quality:** Obtain proprietary crystalline waterproofing products from a single manufacturer.

2.02 Coverage

A. **Dry Shake Materials:** Coverage rate for cementitious crystalline waterproofing shall be as follows:
   
   Xypex Concentrate DS-1 1.75 lb per sq. yd. (0.95 kg/m²)  
   Xypex Concentrate DS-2 6.75 - 7.5 lb sq. yd. (3.6 - 4.0 kg/m²)

   When using Xypex Concentrate DS-2 for enhanced impact and abrasion resistance, consult with manufacturer or its authorized representative to determine appropriate coverage rate.

PART 3 – EXECUTION

3.01 Manufacturer’s Instructions

A. **Compliance:** Comply with manufacturer’s product data regarding installation, including technical bulletins, product catalogue, installation instructions and product packaging labels.

3.02 Project Conditions

A. **Air Entrainment:** For best results, air content of the concrete should not exceed 3%. If higher entrained air content is specified (e.g. for concrete that will be exposed to freeze-thaw cycle), consult with manufacturer’s technical representative for further application information.

B. **Joint Sealants:** Suitable flexible sealant shall be used for joints and chronic moving cracks.
3.02 Project Conditions (continued)
C. Weather Conditions: In hot, dry, windy conditions, or where the use of a super-plasticizer will reduce amount of bleed water available for the dry shake material, consult with manufacturer’s technical representative for additional or alternative application procedures.

3.03 Application
A. General: Apply cementitious crystalline waterproofing (dry shake) after placement, consolidation and leveling of fresh concrete.

B. Concentrate DS-1: Wait until fresh concrete can be walked on leaving an indentation of 1/4 - 3/8 in. (6.5 - 9.5 mm), then power float the surface (the concrete should be free of bleed water before power floating). Immediately after floating open the surface, apply the dry shake material evenly by hand or mechanical spreader. As soon as the dry shake material has absorbed moisture from the fresh base slab, power float the material into the surface (do not use a trowel). Thoroughly work the powder into the cement paste. When concrete has hardened sufficiently, power trowel concrete surface to the required finish.

C. Concentrate DS-2: Wait until fresh concrete can be walked on leaving an indentation of 1/4 - 3/8 in. (6.5 - 9.5 mm), then power float the surface (the concrete should be free of bleed water before power floating). Immediately after floating open the surface, apply one half of the required dry shake material evenly by hand or mechanical spreader. Then, after power floating the initial portion of the powder into the surface, apply the remaining dry shake material at right angles to the first application, and power float (do not use a trowel) the material into the surface. Thoroughly work the powder into the cement paste. When concrete has hardened sufficiently, power trowel concrete surface to the required finish.

D. Slab Edges: Where edges of concrete slab set up earlier than main body of concrete, apply dry shake material to edges and finish with hand tools prior to proceeding with the dry shake application to the main body of concrete slab.

3.04 Curing
A. General: Begin curing as soon as concrete has reached a final set but before the surface starts to dry. Conventional moist curing procedures such as water spray, wet burlap or plastic covers may be used in accordance with ACI Reference 308, “Standard Practice for Curing Concrete”.

B. Curing Compounds: Curing compounds may be used in the event that project requirements or conditions prevent moist curing. Curing compounds shall comply with ASTM C-309.

C. Protection: During the curing period, protect treated surfaces from damage by wind, sun, rain and temperatures below 32°F (0°C).

3.05 Interface With Other Materials
A. Paint, Epoxy or Similar Coatings: Do not apply paint or other coatings until waterproofing treatment has cured and set for a minimum of 21 days. Before applying paint or coating, neutralize treated surface by dampening with water and then washing waterproofed surface with 15% muriatic acid, diluted in a ratio of one part acid to four parts water by volume. Flush acid off treated concrete surfaces.
3.05 Interface With Other Materials (continued)

B. Grout, Cement Parge Coat, Concrete Topping: Because the waterproof treatment forms a relatively smooth surface and the resulting crystalline formation fills the concrete pores thereby reducing suction characteristics of the concrete, it may be necessary to use a suitable bonding agent for proper bonding of cementitious systems.

C. Responsibility to Ensure Compatibility: Xypex Chemical Corporation makes no representations or warranties regarding compatibility of Xypex treatment with coatings, plasters, stuccos, tiles or other surface-applied materials. It shall be the responsibility of the installer of the surface-applied material that is to be applied over the Xypex waterproofing treatment, to take whatever measures are necessary, including testing, to ensure acceptance by or adhesion to the waterproofing treatment.

3.06 Field Quality Control

A. Examination for Defects: Do not conceal Xypex treated concrete before it has been observed by Architect/Engineer, waterproofing manufacturer’s representative and other designated entities. Concrete shall be examined for structural defects such as faulty construction joints, cold joints and cracks. Such defects to be repaired in accordance with manufacturer’s repair procedures.

B. Flood Testing:

1. Perform flood test on completed waterproofing installation before placement of other construction.

2. Plug or dam drains and fill area with water to a depth of two inches (50 mm) or to within 0.5 inch (12.5 mm) of top of waterproofing treatment.

3. Let water stand for 24 hours.

4. If leaks are discovered, make repairs and repeat test until no leaks are observed.

3.07 Cleaning and Protection

A. Cleaning: Clean spillage and soiling from adjacent surfaces using appropriate cleaning agents and procedures.

B. Protection: Take measures to protect installed product and finished surfaces from damage after application.

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Walls & Slabs

Step 1 **Joint Waterproofing**: Clean joint thoroughly. Between pours, apply Xypex Concentrate slurry to joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2 **Sealing Strip**: Clean pre-formed groove thoroughly. Apply Xypex Concentrate slurry to groove at the rate of 1.5 lb./sq. yd. (0.8 kg/m²). Fill groove with Xypex Concentrate Dry-Pac and pack tightly. Pre-formed groove may be offset to either side of joint.

**Note 1**: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

**Note 2**: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
**Walls / Slab Interface**

**Step 1**  
*Joint Waterproofing*: Clean joint thoroughly. Between pours, apply Xypex Concentrate slurry to joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

**Step 2**  
*Sealing Strip*: Clean pre-formed groove thoroughly. Apply Xypex Concentrate slurry to groove at the rate of 1.5 lb./sq. yd. (0.8 kg/m²). Fill groove with Xypex Concentrate Dry-Pac and pack tightly. Pre-formed groove may be offset to either side of joint.

**Note 1**: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

**Note 2**: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²) then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3  Apply one coat of Xypex Concentrate to wall and slab surfaces as indicated at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

Where poor drainage conditions exist or high hydrostatic pressures are anticipated, also apply a coat of Xypex Modified to wall and slab surfaces at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3  Apply one slurry coat of Xypex Concentrate to wall and slab surfaces as indicated at the rate of 1.5 lb./sq. yd. (0.8 kg/m²). Where poor drainage conditions exist or high hydrostatic pressures are anticipated, also apply a coat of Xypex Modified to wall and slab surfaces at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3  Apply one coat of Xypex Concentrate to wall face and over sealing strip at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1
Prior to placement of the concrete wall and slab, apply one slurry coat of Xypex Concentrate to joint surfaces at the rate of 2 lb./sq. yd. (1 kg/m²).

Step 2
In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb/sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3
To exterior wall surface and footing apply one coat of Xypex Concentrate at the rate of 2.0 lb./sq. yd. (1.0 kg/m²). After the Concentrate has set but while it is still “green”, apply a coat of Xypex Megamix 1 at the rate of 11.25 lb./sq. yd. (5.5 kg/m²).

Note: Because of the variances in the quality of concrete block (e.g. cement, content, porosity, etc.), please consult your Xypex technical representative.

Schematic diagram shows Xypex coatings application only and does not depict the standard requirements for waterstops, expansion joint sealants, or pointing repairs that may be required.

Refer to Standard Specifications for further information.
Step 1: Prior to placement of the concrete wall and slab, apply one slurry coat of Xypex Concentrate to joint surfaces at the rate of 2 lb./sq. yd. (1 kg/m²).

Step 2: In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb/sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To inside wall surface apply one coat of Xypex Concentrate at the rate of 2.0 lb./sq. yd. (1.0 kg/m²). After the Concentrate has set but while it is still “green”, apply a coat of Xypex Megamix I at the rate of 11.25 lb./sq. yd. (5.5 kg/m²).

Note: Because of the variances in the quality of concrete block (e.g. cement, content, porosity, etc.), please consult your Xypex technical representative.

Schematic diagram shows Xypex coatings application only and does not depict the standard requirements for waterstops, expansion joint sealants, or pointing repairs that may be required.

Refer to Standard Specifications for further information.
Step 1  Apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²). Coating should extend to ground level. Where poor quality block is encountered, a second coat of Xypex Concentrate should be applied at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Wall sections should be defined before application and each of these sections should be completed during the same day to obtain maximum uniformity in appearance.

Because of the variances in the quality of concrete block (e.g. cement content, porosity, etc.), please consult your Xypex technical representative.

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series), Xypex Additive (Admix C-Series) or Xypex Megamix I, where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To slab, apply one coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set but while it is still "green", apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3  To slab and adjacent curb wall apply one coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set but while it is still “green”, apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Use appropriate material for protection against sudden thermal changes.

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 2  Apply one slurry coat of Xypex Concentrate to walls and floor slab at a rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set but while it is still "green", apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

For hydraulic elevators, please contact your Xypex representative for detail drawings.

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  Apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²) to all interior wall and floor surfaces.

Step 3  After slurry coat has set but while it is still “green”, apply a cove strip of Xypex Modified mortar over interior slab/wall construction joint.

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To all ceiling, wall, and floor surfaces, apply one slurry coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set but while it is still "green", apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To pool deck and all interior wall and floor surfaces, apply one slurry coat of Xypex Concentrate at a rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set but while it is still "green", apply a coat of Xypex Modified at a rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

In new construction, Xypex Concentrate DS-1 or Xypex Admix is recommended for pool deck and floor surfaces. Please refer to product data sheets.

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To all ceiling, wall, and floor surfaces, apply one slurry coat of Xypex Concentrate at the rate of 1.25 – 1.5 lb./sq. yd. (0.65 – 0.8 kg/m²). After the Concentrate has set, but while it is still "green", apply a coat of Xypex Modified at the rate of 1.25 – 1.5 lb./sq. yd. (0.65 – 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To all wall and slab surfaces, apply one slurry coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set, but while it is still "green", apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2: In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3: To interior walls, slab and exterior of roof area, apply one slurry coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set, but while it is still “green”, apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Note 1: Schematic diagram shows Xypex application details only and does not depict standard requirements for waterstops or expansion joint sealants.

Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1  Between pours, apply Xypex Concentrate slurry to all joint surfaces at the rate of 2.0 lb./sq. yd. (1.0 kg/m²).

Step 2  In sealing strip, apply one coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill slot to surface with Xypex Concentrate in Dry-Pac form.

Step 3  To interior floor areas and exterior walls and roof, apply one slurry coat of Xypex Concentrate at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²). After the Concentrate has set, but while it is still “green”, apply a coat of Xypex Modified at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

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Step 1: Place block in joints to allow 0.5 - 0.75 in. (13 - 19 mm) gap between precast sections. Fill exterior gap with Xypex Patch’n Plug grout.

Step 2: Apply one slurry coat of Xypex Concentrate to the interior gap at the rate of 1.5 lb./sq. yd. (0.8 kg/m²), then fill gap to surface with Xypex Concentrate in Dry-Pac form.

Step 3: Apply one slurry coat of Xypex Concentrate to interior of bottom ring, floor and exterior walls at the rate of 1.25 - 1.5 lb./sq. yd. (0.65 - 0.8 kg/m²).

Step 4: After placement of concrete trough, apply one slurry coat of Xypex Concentrate at the rate of 1.5 lb./sq. yd. (0.8 kg/m²) to its surface.

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Step 1: Apply Xypex Concentrate slurry to the groove at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

Step 2: Fill groove to surface with Xypex Concentrate in Dry-Pac form and pack tightly. Brush Dry-Pac liberally with water and apply a Xypex Concentrate slurry over the Dry-Pac at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

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Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Apply one slurry coat of Xypex Concentrate to hull exterior, gunwhales, and all exterior decks at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

Step 2: Apply one coat of Xypex Modified to interior surface of hull at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

In the case of sealed, hollow-core caissons, step 2 is eliminated and the Concentrate slurry coat in step 1 should extend over entire exterior of unit.

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Note 2: Schematic drawing shows Xypex Coating application. Specifier may consider the alternative use of Xypex Dry Shake (DS-Series) or Xypex Additive (Admix C-Series), where applicable. Refer to Standard Specifications for more information.
Step 1: Apply one slurry coat of Xypex Concentrate to structural slab at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

Step 2: Apply one slurry coat of Xypex Concentrate to joint surface between parapet wall and bridge deck at the rate of 2.0 lb./sq. yd. (1.0 kg/m²). Xypex must be applied no more than 24 hours prior to concrete placement.

Step 3: Apply a cove strip of Xypex Modified mortar over slab/wall construction joint so that the cove extends 1 in. (25 mm) up the wall and 1 in. (25 mm) out on to the deck surface.

Step 4: Apply one slurry coat of Xypex Concentrate to wall surfaces at the rate of 1.5 lb./sq. yd. (0.8 kg/m²).

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