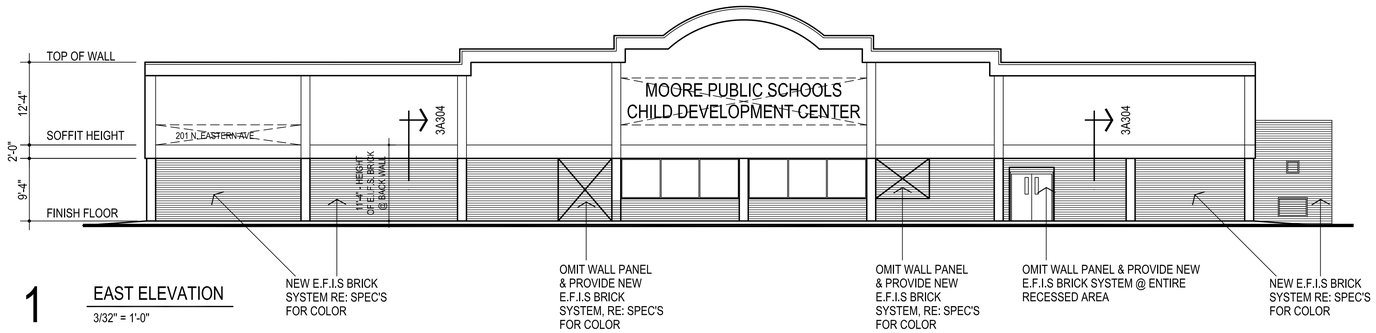
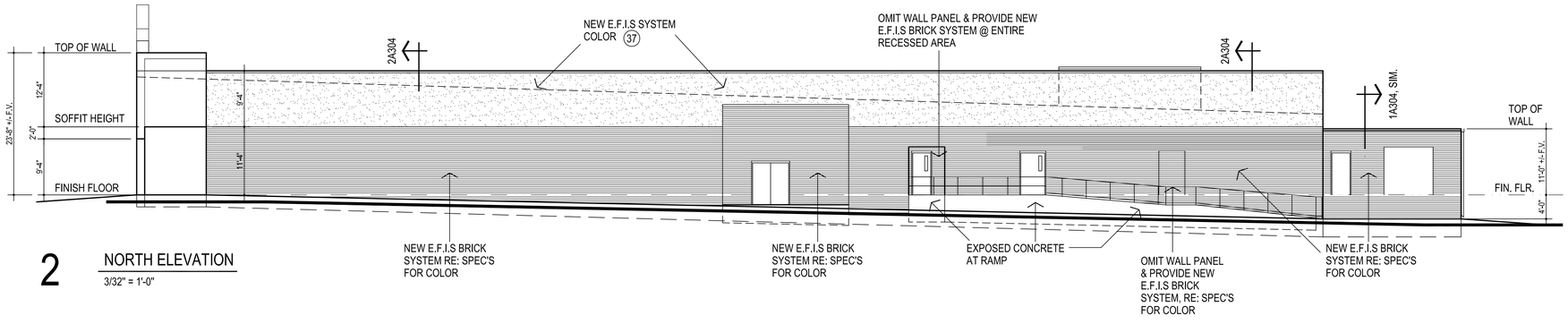


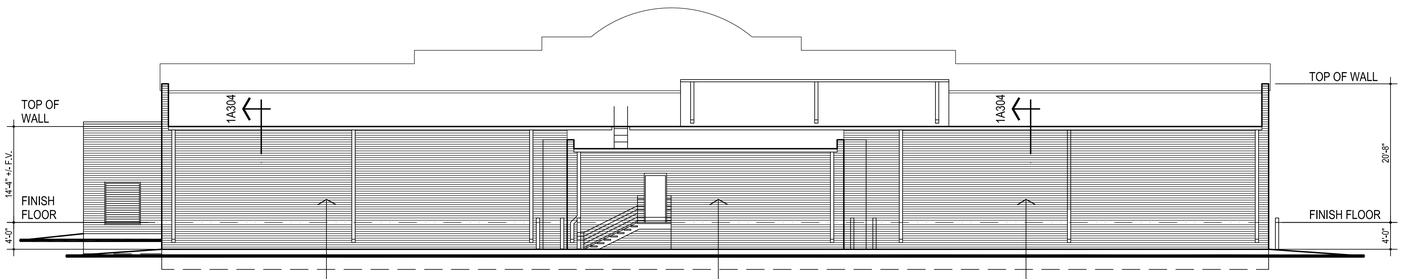
1 EAST ELEVATION

3/32" = 1'-0"



2 NORTH ELEVATION

3/32" = 1'-0"



3 WEST ELEVATION

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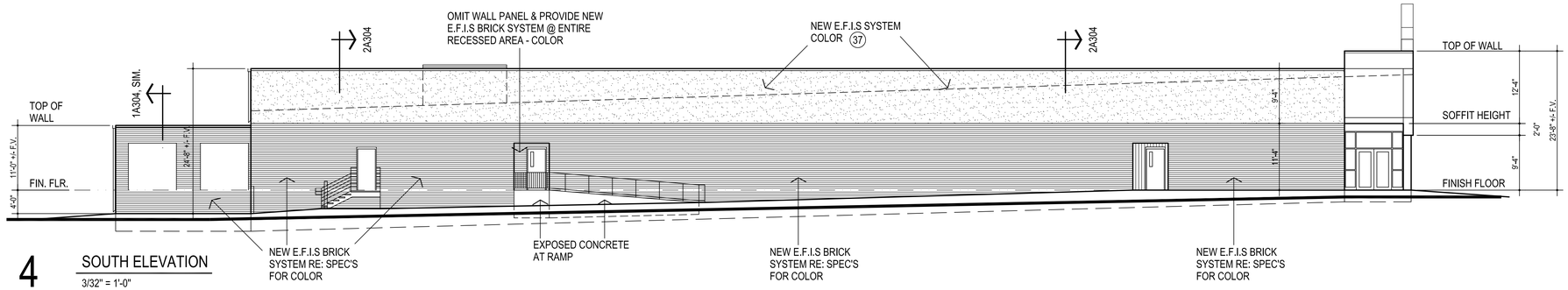


4 SOUTH ELEVATION

3/32" = 1'-0"

ENTIRE SHEET 6

REFER SHEET A201 FOR ADDITIONAL WORK

AGP
the Abla Griffin Partnership L.L.C.

313 S. E. 5th Street
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

CEDAR CREEK
CIVIL

KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL

STATE OF OKLAHOMA
MICHAEL L. ABLA
2639
REGISTERED ARCHITECT

10/22/24

CG
drawn by

MA
checked by

OCTOBER 2024
date

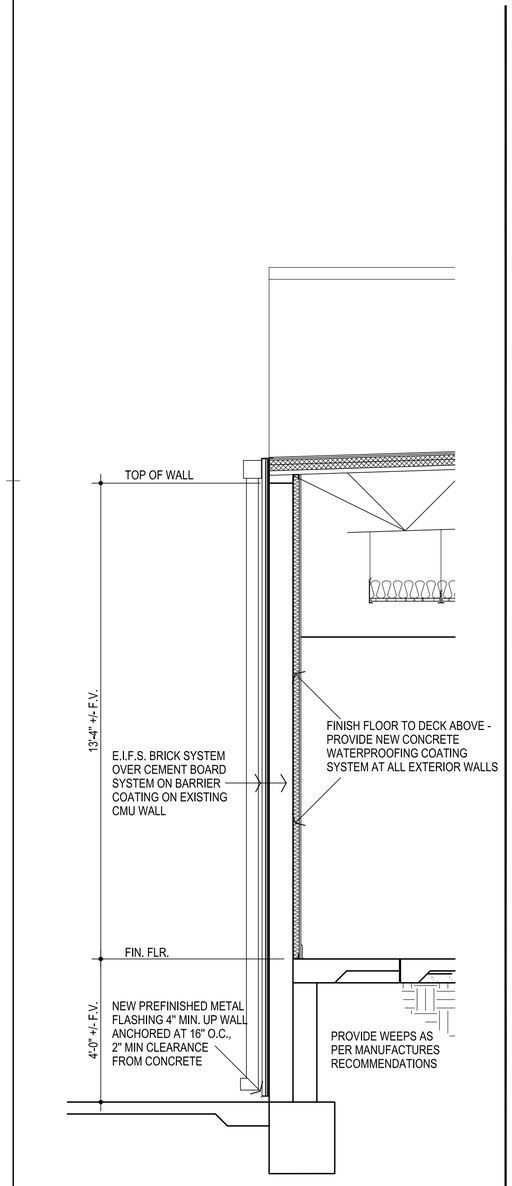
revisions
1 ADDENDUM #1
2 ADDENDUM #2
3 ADDENDUM #3
4 CB-1
5 CB-4
6 CB-6

MOORE PUBLIC SCHOOLS

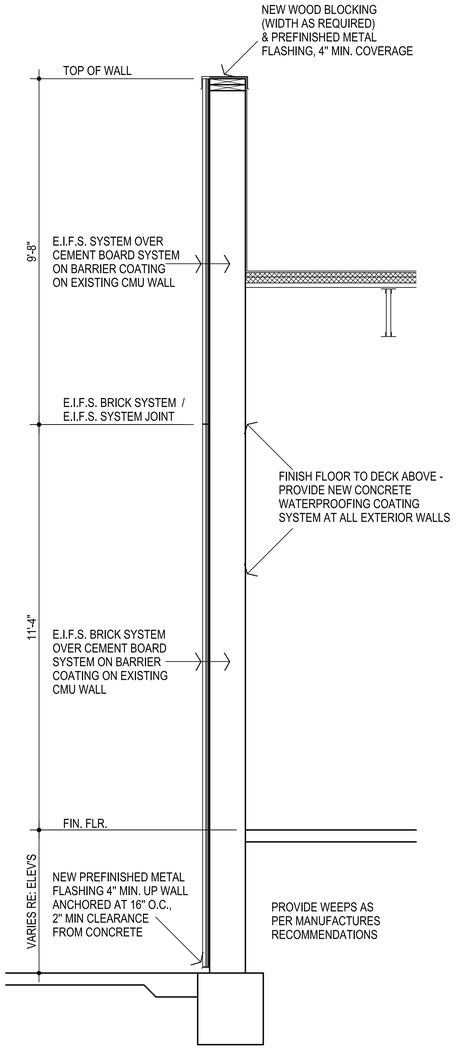
CHILD CARE FACILITY
201 N. EASTERN AVE.

sheet no:

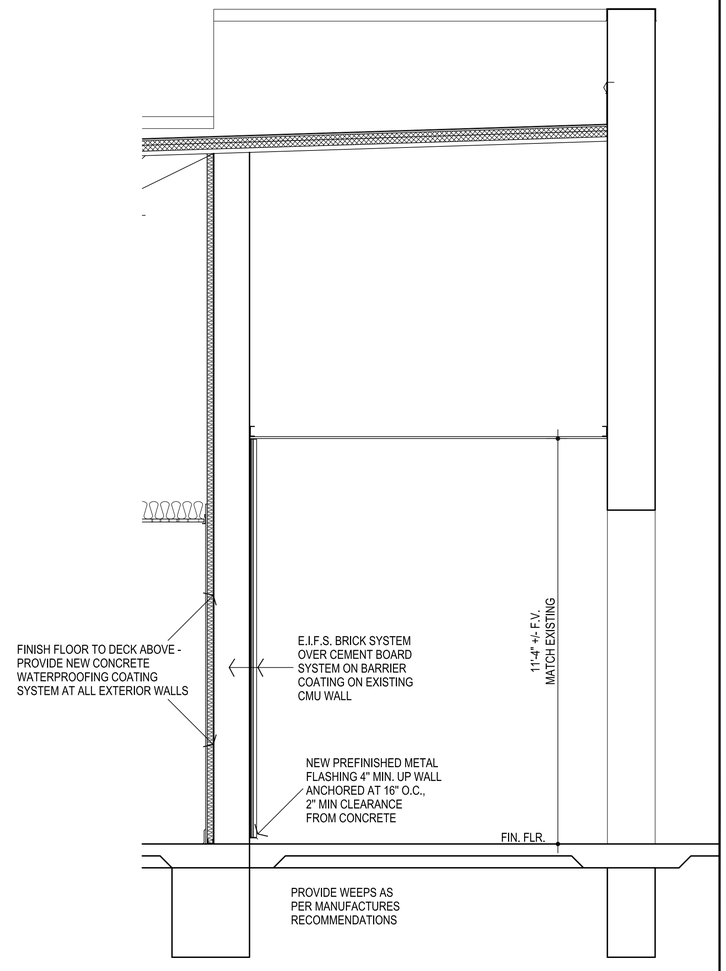
A201a



1 SECTION
1/2" = 1'-0"



2 SECTION
1/2" = 1'-0"



3 SECTION
1/2" = 1'-0"

ENTIRE SHEET 6

REFER SHEET A302 & A303 FOR ADDITIONAL WORK

AGP
the Abla Griffin Partnership L.L.C.

313 S. E. 5th Street
MOORE, OK. 73160
405.735.3477
AGP@theAGP.net
www.theAGP.net

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MICHAEL L. ABLA
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1 ADDENDUM #1
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4 CB-1
5 CB-4
6 CB-6

MOORE PUBLIC SCHOOLS

CHILD CARE FACILITY
201 N. EASTERN AVE.

sheet no:

A304

DIVISION 4 – MASONRY

SECTION 04700 – SIMULATED MASONRY - EIFS BRICK VENEER

PART 1 - GENERAL

1.01 SCOPE

A. Provide all labor, materials and equipment necessary to apply the NewBrick veneer over exterior vertical walls of Dryvit Exterior Insulation and Finish Systems (EIFS) and other acceptable substrates.

B. Related Sections
1. Exterior Insulation and Finish Systems
2. Concrete
3. Masonry
4. Sealants
5. Flashing

1.02 REFERENCES

A. Section Includes:
1. ASTM B 117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
2. ASTM C 150 Standard Specification for Portland Cement
3. ASTM C 270 Standard Specification for Mortar for Unit Masonry
4. ASTM C 297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
5. ASTM C 578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
6. ASTM D 968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
7. ASTM D 2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
8. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
9. ASTM D 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
10. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
11. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
12. ASTM E 2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
13. ASTM G 155 (Federal Test Standard 141A Method 6151) Standard Practice for Operating-Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials
14. DS152, Dryvit Cleaning and Recoating
15. DS181, Backstop® NT™ Application Instructions

16. DS870, NewBrick Data Sheet
17. DS871, NewBrick Application Instructions
18. DS873, NewBrick Installation Details

1.03 DEFINITIONS

A. Contractor: The contractor that applies materials to the substrate.
B. Dryvit: Dryvit Systems, Inc., the manufacturer of the NewBrick units and adhesive.
C. NewBrick: A lightweight insulated brick manufactured by Dryvit Systems, Inc.
D. Mortar: ASTM C 270 Type N or S mortar modified with Dryvit NewBrick Mortar Admix.
E. Substrate: The material to which the NewBrick units are attached.

1.04 DESCRIPTION

A. NewBrick is a lightweight, insulated brick veneer that is applied over approved substrates.
B. Design Requirements
  1. Acceptable substrates for Dryvit NewBrick shall be:
    a. The base coat of any of the Dryvit Outsulation® systems.
    b. The base coat of the Dryvit Cement Board MD Finish System™.
    c. Poured-in-place concrete and precast concrete.
    d. Unglazed brick and masonry units.
    e. Portland cement plaster.
    f. Dryvit Backstop NT air/water resistive barrier applied over acceptable substrate as noted in Section 1.04.B.1.c through e.
    g. Tremco ExoAir 230 air/water resistive barrier applied over acceptable substrate as noted in Section 1.04.B.1.c through e.
  2. Deflection of the substrate system shall not exceed 1/360 times the span (when installed over substrates other than Dryvit Outsulation systems).
  3. Substrate systems shall meet all local building code requirements and shall be approved for use of this project.
  4. Vapor Retarders – The use and location of vapor retarders within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements. The type and location shall be noted on the project drawings and specifications.
    NOTE: Vapor retarders may be inappropriate in certain climates and can result in condensation within the wall assembly. Refer to Dryvit Publication, DS159 for additional information.
  5. NewBrick units are designed for use on exterior vertical wall applications.

6. The substrate shall be clean, smooth, planar and free of surface imperfections that would interfere with application of the NewBrick units.
7. Sealants
   a. Shall be manufactured and supplied by others.
   b. Shall be compatible with Dryvit materials. Refer to current Dryvit publication, DS153 for listing of sealants tested by sealant manufacturers for compatibility.
   c. The sealant backer rod shall be closed cell.
8. The maximum service temperature of the polystyrene core is 165 °F (74°C). Uses near hot surfaces such as combustion exhaust vents should be evaluated by the designer to ensure the product's maximum service temperature is not exceeded.

C. Performance Requirements: Shall be tested as follows:
1. Extruded Polystyrene Insulation

XPS Insulation Physical Properties			
Property	**Test Method**	**Results**	
		XPS	**Type II EPS**
Density	ASTM D 1622	1.5 lb/ft^3 (24 kg/m^3)	1.35 lb/ft^3 (21.6 kg/m^3)
Thermal Resistance	ASTM C 518	5.0 °F·ft^2·h/Btu·in (0.88 m^2·°C/W) @ 75 °F (23.9 °C)	4 °F·ft^2·h/Btu·in (0.70 m^2·°C/W) @ 75 °F (23.9 °C)
Water Absorption	ASTM C 272	0.5 % by volume	<3%
Compressive Strength	ASTM D 1621	20 psi (140 kPa) min.	>15 psi
Shear Strength	ASTM C 273	25 psi (170 kPa)	
Shear Modulus	ASTM C 273	300 psi (2068 kPa)	
Tensile Strength	ASTM D 1623	50 psi (340 kPa) min.	
Flexural Strength	ASTM C 203	40 psi (276 kPa) min.	>35 psi
Flexural Modulus	ASTM C 203	1500 psi (10342 kPa)	
Flame Spread Index	ASTM E 84	15	<10
Smoke Developed Index	ASTM E 84	165	<450
Oxygen Index	ASTM D 2863	Min. 24%	Min 24%

Water Vapor Permeance	ASTM E 96	Max. 1.5 Perm for 1 in (25.4 mm) thickness	2.1 Perm Perm for 1 in (25.4 mm) thickness

2. Brick Testing

NewBrick Testing			
Test	**Test Method**	**Criteria**	**Results**
Accelerated Weathering	ASTM G 155 Cycle 1	No deleterious effects[1] after 2000 hrs.	Passed
Freeze-Thaw	ASTM E 2485	No deleterious effects[1] after 10 cycles	Passed
Water Resistance	ASTM D 2247	No deleterious effects[1] after 14 days exposure	Passed
Salt Spray Resistance	ASTM B 117	No deleterious effects[1] after 300 hrs. exposure	Passed
Tensile Bond – adhesive to underlying substrate	ASTM C 297	Minimum 15 psi	Passed
Surface Burning Characteristics	ASTM E 84	ICC and ANSI/EIMA 99-A-2001 Flame Spread <25 Smoke Developed <450	Passed
Water Vapor Transmission	ASTM E 96 Procedure B	ICC: Vapor Permeable No ANSI/EIMA Criteria	40 Perms
Mildew Resistance	ASTM D 3273	ANSI/EIMA 99-A-2001 28 days: No growth	60 days: No growth
Abrasion Resistance	ASTM D 968 Method A Falling Sand	ANSI/EIMA 99-A-2001 528 quarts (500 liters): No deleterious effects[1]	1057 quarts (1000 liters): No deleterious effects[1]
	ASTM D 4060 Taber Abrasion (1 kg load)	No ICC or ANSI/EIMA Criteria	1000 cycles: .83 mg mass loss
Ignitability	NFPA 268	No ignition at 12.5 kW/m2 at 20 minutes	Passed
Intermediate Multi-Story Fire Test	NFPA 285	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame within combustible core/component of	Passed[2]

		panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	
1. No cracking, checking, rusting, crazing, erosion, blistering, peeling, or delamination when viewed under 5x magnification. 2. NFPA 285 test with 4" EPS. 3. Contact Dryvit for fire-rated assemblies			

1.05 SUBMITTALS

A. Product Data:
1. The contractor shall submit to the owner/architect, manufacturer's product data sheets describing products, which will be used on the project.

B. Samples
1. The contractor shall prepare and submit two (2) 2 ft x 2 ft (.61 m x .61 m) samples of the proposed bricks to the architect and/or owner for approval.

C. Mock-Up
1. A minimum 8 ft x 8 ft (2.4 m x 2.4 m) mock-up wall shall be prepared by the applicator/contractor with the NewBrick materials, with mortar installed, to establish a standard of acceptance by the owner, architect or project manager. **The mock-up may be part of the building or a separate structure.**

1.06 QUALITY ASSURANCE

A. Qualifications
1. Manufacturer shall be Dryvit Systems, Inc.
a. All NewBrick materials shall be manufactured or sold by Dryvit and shall be purchased from Dryvit or its authorized distributors.

1.07 DELIVERY, STORAGE AND HANDLING

A. All Dryvit materials shall be delivered to the job site in the original, unopened packages with labels intact.

B. Upon arrival, materials shall be inspected for physical damage, freezing or overheating. Questionable materials shall not be used.

1. Materials shall be stored at the job site, and at all times, in a cool, dry location, out of direct sunlight, protected from weather and other sources of damage. Storage temperature for liquid products shall be between 40 °F (4°C) - 100 °F (38°C).

C. Protect all products from inclement weather and direct sunlight.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

1. Application of wet materials shall not take place during inclement weather unless appropriate protection is provided. Protect materials from inclement weather until they are completely dry.
2. At the time of NewBrick product application, the air and wall surface temperatures shall be from 40 °F (4 °C) minimum to 100 °F (38 °C) maximum.
3. These temperatures shall be maintained with adequate air ventilation and circulation for a minimum of 24 hours thereafter, or until the products are completely dry. Refer to published product data sheets for more specific information.

B. Existing Conditions: The contractor shall have access to electric power, clean water and a clean work area at the location where the Dryvit materials are to be applied.

1.09 SEQUENCING AND SCHEDULING:

1. Application of the bricks shall be coordinated with other construction trades.
2. Sufficient labor and equipment shall be employed to ensure a continuous operation.

1.10 LIMITED MATERIALS WARRANTY

A. Dryvit Systems, Inc. shall offer a written limited materials warranty against defective materials upon written request. Dryvit shall make no other warranties, expressed or implied. Dryvit is not liable for incidental or consequential damages. Dryvit does not warrant workmanship. Contact Dryvit’s Warranty Services Department for complete details.

B. The applicator shall warrant workmanship separately. Dryvit shall not be responsible for workmanship associated with installation of the NewBrick materials.

SECTION 04700 – SIMULATED MASONRY - EIFS BRICK VENEER

1.11 DESIGN RESPONSIBILITY

A. It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings etc. Dryvit has prepared guidelines in the form of specifications, installation details and product data sheets to facilitate the design process only. Dryvit is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings, or the like, whether based upon the information prepared by Dryvit or otherwise, or for any changes which purchasers, specifiers, designers, or their appointed representatives may make to Dryvit's published comments.

1.12 MAINTENANCE

A. Maintenance and repair procedures shall be followed in accordance with the Dryvit application instructions for the specific Dryvit system utilized.

B. All Dryvit products are designed to minimize maintenance. However, as with all building products, depending on location, some cleaning may be required. See Dryvit publication DS152, Cleaning and Recoating, for proper procedures.

C. Mortar, sealants, flashings and other building envelope components shall be inspected on a regular basis and repairs made as necessary to maintain in a serviceable condition.

PART 2 – PRODUCTS

2.01 GENERAL

A. All NewBrick products shall be supplied by Dryvit Systems, Inc. or its authorized distributors. Substitutions or additions of other materials will void the warranty.

2.02 MATERIALS

A. Portland Cement: Shall be Type I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.

B. Water: Shall be clean and potable.

C. Mortar:

1. Shall meet ASTM C 270 Type N or S mortar modified with minimum 20% Dryvit NewBrick Mortar Admix.
2. Spec Mix PMAVM (does not require NewBrick Mortar Admix).

2.03 Components

A. Air/Water-Resistive Barrier: Shall be Dryvit Backstop NT or Tremco ExoAir 230.

B. Base Coat (if applicable): Genesis® or Genesis® DM
C. Adhesive: Used to adhere the bricks to an acceptable substrate, shall be one of the following:
  1. Cementitious: A liquid polymer-based material, which is field mixed with Portland cement.
    a. Shall be Primus® or Genesis
  2. Ready mixed: A dry blend cementitious, copolymer-based product, field mixed with water.
    a. Shall be Primus® DM or Genesis DM
  3. One-part adhesives.
    a. Shall be Dryvit AP Adhesive™ or TREMGrip®
D. NewBrick: A pre-finished insulated brick product available as follows:
  1. Sizes:
    a. Modular Mosaic
  2. Colors:
    a. Standard blend: Rockland
  3. Effects:
    Not applicable.
  4. Textures:
    a. Velour
  5. Configurations:
    a) Flat Bricks: designed with an integral horizontal mortar spacing feature. Flat Bricks are used in field-of-wall applications.
    b) End Bricks: Used at expansion joints and terminations without returns
    c) Corner Bricks: "L"-shaped bricks designed for use at outside corners, sills and other areas.
    d) 1.5 Flat Brick: Used for Corbel detailing.
    e) 135° Corner Bricks: not applicable.
    f) Edge Cap Bricks: Used at sill, jambs and other areas.
    g) Edge Cap End Brick: Used at sill, jambs and other areas.
    h) Modular mosaic: 12-unit Flat brick panel.
  6. Specials: Contact NewBrick at 1.833.639.2745.
E. Liquid admixture: Shall be Dryvit NewBrick Mortar Admix, a 100% acrylic additive for type N or S mortar.
F. Cement Board MD and Dryvit MD Spacers: provide cement board as approved by manufacturer and fasten into place with spacers into existing concrete masonry substrate with approved fasteners as required by system manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to application of the bricks, the contractor shall ensure that the substrate is of a type listed in Section 1.04.B.1.

B. The architect or general contractor shall ensure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the application of NewBrick materials.

C. The contractor shall notify the general contractor and/or architect and/or owner of all discrepancies. Work shall not proceed until discrepancies have been corrected.

3.02 SURFACE PREPARATION

A. The substrate shall be free of foreign materials such as oil, dust, dirt, form-release agents, efflorescence, paint, wax, water repellents, moisture, frost, and any other materials that inhibit adhesion.

B. The Dryvit Outsulation system shall be installed in accordance with the current published literature up to the base coat.

1. The reinforcing mesh shall be completely embedded in the base coat.
2. The base coat shall be fully dried (a minimum of 24 hours, or longer, depending on weather conditions).
3. The base coat shall be free of any imperfections that would affect the application of the NewBrick materials.

C. Concrete

1. Shall have cured a minimum of 28 days.
2. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

D. Unglazed Brick and Masonry

1. Apply a continuous layer of Genesis or Genesis DM mixture over the entire wall surface to fill voids and provide a smooth level base. Application thickness shall not exceed 1/8 in (3 mm) in a single pass.
2. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions, DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

E. Portland Cement Plaster

1. Shall be dry and cured a minimum of 7 days prior to application of the NewBrick units.
2. When specified, a layer of reinforcing mesh is embedded into the wet Dryvit base coat mixture and troweled smooth.

3. Allow the base coat mixture to cure a minimum of 24 hours until completely dry. Cool, humid conditions may require longer cure times.
4. Air/Water-Resistive Barrier (when specified): Shall be Dryvit Backstop NT applied in accordance with Backstop NT Application Instructions, DS181 or DS300 or Tremco ExoAir 230 applied in accordance with ExoAir 230 Application Instructions.

3.03 INSTALLATION

A. Dryvit NewBrick materials shall be applied in accordance with current NewBrick Application Instructions, DS871.
B. Mortar shall be installed per the mortar manufacturer's requirements.

3.04 Field Quality Control

A. The Contractor shall be responsible for the proper application of the Dryvit materials.
B. Dryvit assumes no responsibility for on-site inspections or application of its products.
C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.

3.05 Cleaning

A. All excess NewBrick materials shall be removed from the job site by the contractor in accordance with contract provisions and as required by applicable law.
B. All surrounding areas, where the Dryvit NewBrick materials have been installed, shall be left free of debris and foreign substances resulting from the contractor's work.

3.06 Protection

A. The Dryvit NewBrick materials shall be protected from weather and other sources of damage until permanent protection in the form of flashings, sealants, etc. are installed. Contractor shall take precautions to prevent condensation and/or heat build-up when using a tarp or plastic as protection.

End of Section

Coatings CSI Format

Section 071616

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 031000 - Concrete Forming and Accessories
2. Section 079000 - Joint Protection
3. Section 099000 - 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. American National Standards Institute (ANSI)
4. NSF International
5. European Standards (EN)
6. RILEM
7. Drinking Water Inspectorate (DWI)

1.03 SYSTEM DESCRIPTION

A. ***Cementitious Crystalline Waterproofing:*** Concrete waterproofing and protection system shall be of the crystalline type that is a 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 diffuse into the concrete and cause a catalytic reaction which generates a non-soluble crystalline structure within the pores and capillary tracts of concrete. This crystalline system causes the concrete to become sealed against the penetration of liquids from any direction and protects the concrete from deterioration due to harsh environmental conditions. The system is used for above or below-grade walls and slabs, including liquid retaining structures and where enhanced chemical resistance is required.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

A. ***Testing Requirements:*** Crystalline waterproofing system shall have been tested in accordance with the following standards and conditions and at the dosage rate specified by the manufacturer, and the testing results shall meet or exceed the performance requirements as specified herein.

B. ***Independent Laboratory:*** Testing shall have been performed by an accredited independent laboratory meeting the requirements of ASTM E 329 or other applicable international standard for certification of testing laboratories. Testing laboratory shall have obtained all control and treated concrete samples.

C. ***Crystalline Penetration:*** Crystallizing capability of waterproofing material shall be evidenced by independent SEM (Scanning Electron Microscope) photographs. Crystal growth 12 inches (30 cm) from the surface of the coating shall be evident with 1000X magnification 1 year after application of the coating and exposure of the sample to normal weathering.

D. ***Permeability:*** Independent testing shall be performed according to U.S. Army Corps of Engineers CRD C48 “Permeability of Concrete”. Concrete samples shall have design strength of 2000 psi (14 MPa) and thickness of 2 inches (50 mm). Treated samples shall have two coats of crystalline waterproofing applied per manufacturer’s directions. Samples to be pressure tested to 175 psi (405 foot head of water) or 1.2 MPa (123.4 m head of water). Control samples shall leak and treated samples, after crystalline growth has occurred, shall exhibit no measurable leakage.

E. ***Permeability - Negative Side Application:*** Independent testing shall be performed according to EN 12390–8 or other recognized direct pressure test. Concrete samples shall have a design strength of 25 MPa (3600 psi). Treated samples shall be exposed to water pressure on the side opposite to the crystalline coating. Coated samples shall exhibit a greater than 90% reduction in depth of water penetration as compared to the control samples.

F. ***Chemical Resistance:*** Independent testing shall be performed according to ASTM C 267 “Chemical Resistance of Mortars” and ASTM C 39 “Compressive Strength of Cylindrical Concrete Specimens”. Concrete samples (treated and untreated) shall have design strength of 4000 psi (27.6 MPa). Treated samples shall have two coats of crystalline waterproofing applied per manufacturer’s directions. Untreated and treated specimens must 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. Treated specimens shall exhibit no detrimental effects after exposure and shall have an average of 17% increase in compressive strength versus untreated control specimens.

G. ***Acid Resistance:*** Independent testing shall be performed to determine “Sulfuric Acid Resistance of Concrete Specimens”. Treated concrete samples shall be tested against untreated control samples. All samples shall be immersed in 5% sulfuric acid and weighed weekly for 10 weeks. Untreated samples shall exhibit at least 8 times more mass loss than treated samples.

H. ***Carbonation Resistance Testing:*** Independent testing shall be performed according to RILEM CPC-18 or other recognized accelerated carbonation test. Concrete samples shall have a 0.5 w/cm ratio or be approximately 30 MPa (4500 psi) in strength. Coated samples shall have crystalline coating applied one day after casting and all samples to be cured for 7 days prior to carbonation. After 91 days exposure to CO_2 the coated samples shall show a 35% or greater reduction in carbonation depth as compared to the control samples.

I. ***Potable Water Approval:*** Waterproof material shall have a current, valid approval certificate from NSF (NSF 61), DWI, or other recognized certification agency.

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.

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 document signed by manufacturer or manufacturer's representative certifying that the materials to be installed comply with the requirements of this specification.

E. ***Manufacturer's Field Report:*** Provide copy of report from manufacturer's representative 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. Manufacturer must be capable of providing field service representation during construction phase. Manufacturers who cannot provide ongoing field support or 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, Architect/Engineer, owner's representative, and waterproofing manufacturer's representative to verify and review the following:

1. Project requirements for waterproofing as set out in Contract Document.
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 and provide on-site support as needed.

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 a minimum temperature of 45ºF (7ºC).

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.

B. ***Applicator's Warranty:*** Applicator shall warrant the waterproofing installation against defects caused by faulty workmanship or materials for a period of typically (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 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.

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

Note: Acceptable manufacturers include all licensed manufacturing operations of Xypex Chemical Corporation.

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 Xypex Admix series (admixture) and Xypex Concentrate DS-1/DS-2 (dry shake).

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

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

2.02 MIXES

A. ***General:*** Mix waterproofing material by volume with clean, potable water. 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:

Coverage	**Proportions (by volume)**
1.5 lb./sq. yd. (0.8 kg/m^2)	5 powder to 2 water
2.0 lb./sq. yd. (1.0 kg/m^2)	3 powder to 1 water

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:

Coverage	**Proportions (by volume)**
1.5 lb./sq. yd. (0.8 kg/m^2)	5 powder to 3 water

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 complete a field review, confirming that the sample areas observed, are considered to be in acceptable condition to receive Xypex Coating.

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 fully removed.

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

3.02 PREPARATION

A. ***Surface Preparation:*** Smooth surfaces (e.g. where steel forms are used) or surfaces covered with form oil or other contaminants shall be cleaned, water-blasted, lightly sand-blasted, or acid etched as necessary to provide a clean absorbent surface. The surface must also have an open capillary system to provide "tooth and suction" for the Xypex treatment. A minimum of CSP-3 per the International Concrete Repair Institute Concrete Surface Profile Chips or other equivalent standard is required. Surfaces to be acid-etched shall be should be saturated with water before application of the acid. After acid etching flush concrete thoroughly with clean water. 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. ***Repair of Defects:*** Concrete defects shall be repaired in accordance with manufacturer's technical literature including relevant Method Statements (www.xypex.com/technical-resources/specifications). Procedures are generally as follows:

1. Cracks and Faulty Construction Joints:
    a. Chip out cracks, faulty construction joints and other defects to a depth of 1.5 inches (37 mm) and a width of one inch (25 mm). A “V” shaped slot is not acceptable. The slot may be saw cut instead of chipped but ensure that the slot is dovetailed or otherwise shaped such that there will be mechanical interlock of materials placed into the slot at a later stage.
    b. 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/m^2) to the slot.
    c. While slurry coat is still tacky, fill cavity with Dry-Pac. Compress tightly into cavity using pneumatic packer or block and hammer.
    d. This step may be omitted if the area filled with Dry-Pac will be subsequently covered with Xypex coating. Wet Dry-Pac surface lightly with water, then apply a slurry coat of Xypex Concentrate at a coverage rate of 1.5 - 2 lb./sq. yd. (0.8 - 1 kg/m^2) over the repaired area to 6” (150 mm) on either side of slot.

2. ~~Rock Pockets, Honeycombing or other defective concrete: All areas of poor concrete consolidation (honeycomb or rock pockets) shall be repaired.~~

Note: Where there is active water-flow see Method Statements or contact Xypex Technical Services Representative for assistance.

C. ***Wetting Concrete:*** Xypex requires a saturated surface dry (SSD) substrate. Concrete surfaces must be thoroughly saturated with clean water prior to the application so as to aid the proper diffusion of the Xypex chemistry and to ensure the growth of the crystalline formation deep within the pores of the concrete. Remove excess water before the application such that there is no glistening water on the surface. If concrete dries out before application, it must be re-wetted.

3.03 APPLICATION

A. ***Construction Joints:*** In addition to specified waterstops, apply one coat of Xypex Concentrate slurry at a rate of 2 lb./sq. yd. (1 kg/m^2) to joint surfaces between concrete pours. Moisten surfaces prior to slurry application. Apply slurry and keep moist for 12 hours then allow slurry to set or dry. Where joint surfaces are not accessible prior to pouring new concrete, contact Xypex Technical Services Representative for assistance.

Note: Inclusion, type and position of waterstops are at the discretion of the designer. Expanding waterstops may be placed on Xypex after it has dried or before Xypex slurry application. Xypex slurry may only be applied over waterstop if approved by waterstop manufacturer.

B. ***Sealing Strips:*** Where hydrostatic conditions exist, sealing strips shall also be applied at construction joints by filling grooves that are created along the joints. Dimensions of the grooves shall be 1 inch (25 mm) wide and 1.5 inches (37 mm) deep. If grooves are not pre-formed then chip grooves to those dimensions. Fill the groves as follows:

1. Apply slurry coat of Xypex Concentrate slurry to slot in accordance with manufacturer’s instructions or recommendations.

2. While slurry coat is still tacky, fill slot with Xypex Concentrate Dry-Pac.
3. Compact tightly using pneumatic packer or hammer and block.
4. This step may be omitted if the area filled with Dry-Pac will be subsequently covered with Xypex coating. Wet Dry-Pac surface lightly with water, then apply a slurry coat of Xypex Concentrate at a coverage rate of 1.5 - 2 lb./sq. yd. (0.8 - 1 kg/m^2) over sealing strip and extending to 6" (150 mm) on either side.

Note: For further information, see Xypex Schematic Drawings for standard construction joint details.

C. ***Form Tie Holes:*** Form tie holes shall be waterproofed in accordance with manufacturer's technical literature including relevant Method Statements (www.xypex.com/technical/statements). Procedures are generally as follows:

1. Prepare the tie hole to create a straight sided void with a profile of at least ICRI CSP-3. For through element ties holes such as those created by taper ties the prepared void is to be at least 5" (125 mm) deep. For cone ties the void is to be to the bottom of the cone.
2. Clean and profile the area to a 12 inch (300 mm) diameter around the tie hole to an ICRI CSP-3 profile.
3. For through-element tie holes create a solid plug of material at the bottom of the profiled hole using Xypex Patch'n Plug leaving at least 4" (100 mm) of empty tie hole from the top of the plug to the surface of the concrete element.
4. Apply a coat of Xypex Concentrate slurry at a rate of 1.5 lb./sq. yd. (0.8 kg/m^2) to the inside of the tie hole and to a 12" (300 mm) diameter area around the hole.
5. Fill and compact the tie hole with Xypex Concentrate Dry-Pac.
6. This step may be omitted if the area filled with Dry-Pac will be subsequently covered with Xypex coating. Wet Dry-Pac surface lightly with water, then apply a slurry coat of Xypex Concentrate at a coverage rate of 1.5 - 2 lb./sq. yd. (0.8 - 1 kg/m^2) over the repaired area to a 12" (300 mm) diameter area around the filled void.

D. ***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 to concrete surfaces with semi-stiff bristle brush, push broom (for large horizontal surfaces), or suitable spray equipment. The Xypex coating must be uniformly applied and should be just under 1/16" (1.25 mm) thick.

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 or Xypex Concentrate slurry coat after the first coat of Xypex Concentrate has reached an initial set but while it is still "green" (less than 48 hours). Curing by misting the coating with water should be

done between coats. Ensure first coat is in SSD condition before application of the second coat.

Note: Prior to the installation, it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate acceptable bond

E. ***Sandwich (Topping) Application:*** When treated structural slabs are to receive a concrete or other topping, place the topping while waterproofing material is still "green" (less than 48 hours) but after it has reached an initial set. The preferred time frame is 12 to 24 hours after the installation of Xypex coating. Curing by misting the coating with water should be done between application of coating and installation of concrete overlay. Ensure coating is in SSD condition prior to placement of concrete.

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. Wet burlap and some specialty curing blankets are also effective for curing during 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 air 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 water 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 for 12 days before filling. 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, puddling of water and temperatures below 36°F (2°C). If plastic sheeting is used for protection, it must be raised off of the waterproofing coating to allow sufficient air circulation.

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 proceed with surface preparation or application of paint or other coatings until waterproofing treatment has cured and set for a minimum of 21 days. Light abrasive blasting or washing the Xypex surface with a 3 - 5% acid solution followed by a rigorous rinse with clean water is recommended before applying the coating. Be sure to flush all acid off the surface. Alternately, removal of the Xypex coating by high pressure washing or abrasive blasting following full curing is acceptable. Consult epoxy and paint manufacturer for additional coating instructions and restrictions.

C. ***Grout, Cement Parge Coat, Plaster or Stucco:*** It is recommended that any other cementitious system be applied over the Xypex coating after the Xypex has completely set but while it is still “green” (12 to 48 hours). The 12-to-24-hour window is considered ideal. Contact your Xypex Technical Services Representative regarding surface preparation and other procedures for installations of other materials onto Xypex coatings older than 48 hours. Alternately, removal of the Xypex coating by high pressure washing or abrasive blasting following the full 21 day curing is acceptable. Use of a polymer additive to help improve bond in the over coating mortar mix should be considered.

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.

Note: Prior to the installation, it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate acceptable bond.

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. ***Testing for Tanks and Foundation Works***

1. Testing: Fill tanks or, for foundation works, shut off dewatering system as soon as practical so that the structure shall be exposed to its normal service conditions. Examine for leaks. For structures that will be dry until a specific event (e.g. interior located containment basin) the concrete elements should be fully saturated several times over a period of several weeks to encourage crystal development to occur.

    1. Monitoring:
        a. Actively leaking cracks and joints shall be left to self-heal for as long as practical. Depending on job site and ambient conditions crack healing can be expected to take several days to weeks.
        b. Any crack or joints that do not heal in the allowable time frame shall be repaired by the general contractor.
        c. Moving cracks shall be repaired using polyurethane injection or other appropriate method.
    2. Repair: Use Xypex repair procedures to seal any static crack or joint that does not self-heal. See Method Statements (www.xypex.com/technical/statements) or contact Xypex Technical Services Representative for appropriate repair procedures.

    Note: Lower temperatures will extend the times for crystalline development.

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 until the coating is hard enough to not be damaged. In normal conditions protect from pedestrian traffic for 3 days and vehicular traffic for 7 days. If coatings will be exposed to ongoing vehicular traffic or other abrasive environments consult Xypex Technical Services.

End of Section 071616

XYPEX® Method Statement

WATERPROOFING OF CMU / CONCRETE BLOCK WALLS

Xypex Recommended Procedure for the Waterproofing of CMU or Concrete Block Structures from Either the Positive or Negative Side

2016-01

CMU or concrete block is a common building material. However, the pore structure and thus the permeability of these blocks vary greatly from region to region depending on the raw materials used, mix design, manufacturing process and many other factors. As such, the waterproofing of these materials is often difficult. This said, the following procedure has been used to successfully waterproof CMU / concrete block structures against water ingress. While the procedure outlined below is best installed on the positive side, it is used successfully on either the positive or negative side with most applications having been done on the negative side. Due to the high variability in block and the many different scenarios in which block is used the following procedure is not guaranteed to provide a waterproof structure but, Xypex's experience is that this assembly has a very high success rate in most installations.

If the block structure is in an application with high hydrostatic pressures Xypex Megamix II at a thickness of ½" - 1" (12 - 25 mm) may be considered as a replacement for the Xypex Megamix I recommended below. In this scenario a reinforcing mesh mechanically affixed to the substrate may be considered.

STEP 1: Thoroughly clean and profile all concrete surfaces to be treated to remove any overcoating materials or contaminants and to achieve an open pore, "tooth and suction" (ICRI CSP-3) profile.

STEP 2: Repair all cracked, defective, deteriorated mortar or construction joints by removing all mortar in area to 1½" (37 mm) deep or until all unsound mortar is removed. Remove all loose materials within the slot and to 6" (150 mm) on either side of the slot. Clean, profile and saturate this area with water. Allow water to soak into concrete and then remove all surface water. If defective area is actively leaking, apply Xypex Patch'n Plug to the bottom half of the slot to stop active water flow. Coat slot with Xypex Concentrate slurry and fill the remainder of the slot to original level with Xypex Concentrate in Dry-Pac form. If slot is not actively leaking coat slot with Xypex Concentrate slurry and fill entire slot to the original level with Xypex Concentrate Dry-Pac.

STEP 3: If blocks are cracked and leaking or where there is evidence of previous leaking use one of the following procedures

If block voids are filled with concrete or cement based grout – cut a dove tailed slot over the crack 1" (25 mm) wide by 1½" (37 mm) deep and treat per the directions for treatment of mortar or construction joints.

If block voids are not filled they should not be cut into to any significant depth – rout out a shallow slot in the block, following the crack and leaving a depression to receive repair material. Use hammer and chisel, diamond blade or other means appropriate so as not to damage the block. Clean and saturate the slot and the area to 6" (150 mm) on either side of the slot. Fill the slot to the surface and mound over the top of slot and to several inches (cm) on either side of slot to a depth of approximately ¼" - ½" (6 - 12 mm) with Xypex Patch'n Plug to stop water flow and block the crack. If crack has no indication of active or previous leaking and is less than 1/64" (0.04 mm) wide it may be left untreated.

STEP 4: Wet the surface of the CMU / block until a saturated surface dry (SSD) condition is obtained. Saturated surface dry CMU / block will not absorb any further water but has no glistening water on its surface. Maintain the CMU / block in an SSD condition until Xypex material is applied.

STEP 5: Coat surface of designated area with one coat of Xypex Concentrate at the rate of 2 lb./sq.yd. (1 kg/m^2) as per manufacturer's standard specifications.

STEP 6: Allow Xypex Concentrate coating to set and harden for between 12 hours and 24 hours. During this time, moist cure coating per Xypex product data sheet.

STEP 7: Mix Xypex Megamix I with Xycrylic Admix as per product data sheet instructions.

STEP 8: Apply one coat of Megamix I over top of Xypex Concentrate coating at a thickness of 1/8" (3 mm) or 11.25 lb./sq.yd. (5.6 kg/m^2). The thickness of the top coating may be varied from 1/16" - 3/8" (1.5 - 10 mm) per job conditions and requirements. Dampen Xypex Concentrate surface ahead of application of Megamix I as required to maintain a damp but not glistening substrate (saturated surface dry condition).

STEP 9: In most situations, no moist curing of Xypex Megamix I is required but in rapid drying conditions, Megamix I should be allowed to fully set and then be misted periodically to keep moist for 24 hours.

XYPEX® Method Statement

WATERPROOFING OF CMU / CONCRETE BLOCK WALLS

Xypex Recommended Procedure for the Waterproofing of CMU or Concrete Block Structures from Either the Positive or Negative Side

Prior to the installation, it is recommended that a test section be completed under anticipated ambient and project conditions to demonstrate acceptable bond.

This procedure will usually provide a waterproof block wall for the life of the structure.

It is necessary to allow at least 30 days or longer at normal room temperatures for crystalline growth to form to a level that will indicate the expected level of performance of the above treatment. Lower temperatures will extend the times for crystalline development.

Re-application of Xypex Megamix I (or Xypex Megamix II – high strength structural mortar repair) may be required for reinforcement at the most severe points of leakage or weakened areas of wall. Be sure to lightly acid wash and thoroughly rinse the existing coating of Xypex Megamix I prior to subsequent applications. In locations of ongoing active leaking Xypex Patch'n Plug may be required to stop active water flow.

As previously discussed, the waterproofing effectiveness of the above procedures and recommendations is very dependent on the quality and porosity of the CMU or concrete block installed. Further, installation of Xypex products by a qualified installer, especially for CMU / concrete block waterproofing applications, is highly recommended.

Contact Xypex's Technical Services Department for assistance.