

**Crosstech Construction Products
Ultimate 'Direct': [Unit Masonry and Masonry Block]
Synthetic Stucco Wall Coating System
CSI Section 09772**

Impact Resistant Wall System for Masonry Walls

SPECIFICATION

INTRODUCTION

This Specification has been assembled to enable the design professional to select or delete sections to suit the project requirements.

Air Seals at any joints/gaps between adjoining components (penetrations, etc.) are of primary importance to maintain continuity of the air barrier system and must be considered by the design professional in the overall wall assembly design.

**This specification is intended for applications on the following substrates:
Masonry Block and Unit Masonry**

PART 1 - GENERAL

1.01 SECTION INCLUDES

Ultimate 'Direct': [Unit Masonry and Masonry Block] Wall Coating System: Basecoat, Reinforcing mesh, and Finish coat.

1.02 RELATED SECTIONS

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| A. | Section 05400 | Cold-Formed Metal Framing |
| B. | Section 06001 | Plywood substrate |
| C. | Section 06110 | Wood framing |
| D. | Section 07195 | Air Barriers |
| E. | Section 07620 | Sheet Metal Flashing and Trim: Perimeter flashings |
| F. | Section 07650 | Flexible Flashing |
| G. | Section 07900 | Sealants |

1.03 REFERENCES

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| A. | ASTM C150 | Standard Specification for Portland Cement |
| B. | ASTM E84 | Standard Test Method for Surface Burning Characteristics of Building Materials. |
| C. | ASTM C578 | Standard Specification for Rigid, Preformed Cellular Polystyrene Thermal Insulation. |
| D. | ASTM G23 | Standard Practice for Operating Light Exposure |

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E.	ASTM C67	Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Non-metallic Materials. Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
F.	ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
G.	ASTM D 3273	Standard Test Method for Resistance to Growth of Mold on the surface of Interior Coatings in an Environmental Chamber.
H.	ASTM E331	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
I.	EIMA 101.86	Standard Test Method for Resistance of EIFS to Effects of Rapid Deformation (Impact).
J.	ASTM E 96	Standard Test Methods for Water Vapor Transmission of Materials.
K.	ASTM D 2247	Standard Method for Testing Water Resistance of Coatings in 100% Relative Humidity.
L.	ASTM E331	Modified Test for Determining the Drainage Performance and Drying potential of Class PB EIFS.
M.	ASTM C1177	Standard Specification for Glass Mat Gypsum Substrate for use as sheathing.
N.	ASTM C79	Standard Specification for Treated Core and Non-treated Core Gypsum sheathing board.
O.	ASTM D1784	Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds.
P.	ASTM C297	Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.
Q.	ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
R.	ASTM C1325	Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cement Interior Substrate Sheets

1.04 DEFINITIONS

- A. Crosstech **Ultimate 'Direct': [Unit Masonry and Masonry Block] System** is an impact resistant system designed to be applied over masonry walls.

1.05 SYSTEM DESCRIPTION

Performance Requirements: System shall meet or exceed the following performance standards when tested in accordance with the following methods:

- A. Accelerated Weathering ASTM G23: testing period of 1000 hours; No disintegration, crazing, cracking, flaking, or adverse

B.	Moisture Resistance	effects. ASTM D2247: 14 day exposure; No adverse effects.		
C.	Salt Spray Resistance	ASTM B117: 14 day exposure; No adverse effects.		
D.	Mold Resistance	ASTM D3273: 28 day exposure; No mold growth supported after 28 days.		
E.	Surface Burning Characteristics	ASTM E84: Test specimen consists of Insulation board, basecoat, reinforcing mesh and finish coat; Flame spread less than 25 and smoke developed less than 450.		
F.	Freeze-Thaw Resistance	ASTM C67: No visible damage and negligible weight gain after 50 cycles.		
G.	Impact Resistance	EIMA Impact Standard 101.86:		
	Standard Impact	Medium Impact	High Impact	Ultra High Impact
	2.83-5.54 J	5.65-10.1 J	10.2-17.0 J	over 17.0 J
	25-49 in-lbs	50-89 in-lbs	90-150 in-lbs	over 150 in-lbs
H.	Tensile Strength of Sandwich Constructions	ASTM C297: Average strength using a textured finish was 156 psi.		
I.	Water Vapor Transmission	ASTM E96: Average perms of 1.92.		
J.	Abrasion Resistance	ASTM D968: Passed, no deleterious effects.		

1.06 SUBMITTALS

- A. Product Data: Provide data on Ultimate 'Direct': [Unit Masonry and Masonry Block] System materials, product characteristics, performance criteria, limitations and durability.
- B. Shop Drawings: Indicate wall joint pattern and joint details, thickness, and installation details.
- C. Samples: Submit [] samples of [" x "] minimum size samples of Ultimate 'Direct': [Unit Masonry and Masonry Block] System illustrating Finish Coat [custom] color and [select] texture.
- D. Certificate: System manufacturer's approval of applicator.
- E. Letter: System manufacturer's letter that materials meet or exceed specified requirements.
- F. System manufacturer's installation instructions: Indicate preparation required, installation techniques, jointing requirements and finishing techniques.
- G. Manufacturer's standard warranty.

1.07 QUALITY ASSURANCE

- A. Applicator: Approved by Crosstech Construction Products in performing work of this Section.
- B. Regulatory Requirements: Conform to applicable code requirements for finish system.
- C. Field Samples:
 - 1. Construct one field sample panel for each color and texture, [" x "] in size of system materials illustrating method of attachment, surface finish, color and texture.
 - 2. Prepare each sample panel using the same tools and techniques to be used for the actual application.
 - 3. Locate sample panel where directed.
 - 4. Accepted sample panel [may] [may not] remain as part of the work.
 - 5. Field sample approval must be documented by signing (Owner, GC, Architects or owner's designated representative) the completed 'Field Sample Approval Form'.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver Ultimate 'Direct': [Unit Masonry and Masonry Block] System materials in original unopened packages with manufacturer's labels intact.
- B. Protect Ultimate 'Direct': [Unit Masonry and Masonry Block] System materials during transportation and installation to avoid physical damage.
- C. Store Ultimate 'Direct': [Unit Masonry and Masonry Block] System materials in cool, dry place protected from freezing. Do not store at less than 4°C/40°F
- D. Do not apply Crosstech Finish Coat or Crosstech Basecoat in direct sunlight.
- E. Store Ultimate 'Direct': [Unit Masonry and Masonry Block] System; reinforcing mesh, accessories, and Crosstech flexible flashing in cool, dry place protected from exposure to moisture and sun exposure.

1.09 PROJECT/SITE CONDITIONS

- A. Do not apply Ultimate 'Direct': [Unit Masonry and Masonry Block] System in ambient temperatures below 4°C/40°F. Provide supplementary heat during installation and drying period when temperature is less than 4°C/40°F.
- B. Do not apply Ultimate 'Direct': [Unit Masonry and Masonry Block] System materials to frozen surfaces.
- C. Maintain ambient temperature at or above 4°C/40°F during and at least 24 hours after Ultimate 'Direct': [Unit Masonry and Masonry Block] System installation and until dry.
- D. Protect wet finish from blowing or settling dust and debris.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate and schedule installation of Ultimate 'Direct': [Unit Masonry and Masonry Block] System with related work of other sections.
- B. Coordinate and schedule installation of trim, flashing, and joint sealers to prevent water infiltration behind the system.
- C. Coordinate and schedule installation of secondary moisture barrier, windows, doors, A/C units, air seals, etc.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Ultimate 'Direct': [Unit Masonry and Masonry Block] System (Impact Finish System) manufactured by Crosstech Construction Products, 4436 W. Manufacturers Street, Springfield, MO 65803, (417) 862-9511.

2.02 MATERIALS

- A. Crosstech Construction Products: Basecoats
 - 1. Crosstech 500, Polymer Modified Bagged Base Mix: Dry-mix basecoat containing Portland cement; manufactured by Crosstech Construction Products.
 - 2. Crosstech 600, Polymer Modified Bucket Base Mix: Liquid basecoat, field-mixed with Portland cement; manufactured by Crosstech Construction Products.
- B. Portland cement: Conform to ASTM C150, Type I, II, or I/II, grey or white; fresh and free of lumps.
- C. Water: Clean and potable without foreign matter.
- D. EPS insulation board: expanded polystyrene; ASTM C578, Type I; 1" thickness minimum as indicated on drawings, $\frac{3}{4}$ " thickness minimum at aesthetic grooves, meeting the following:
 - 1. Air-dried (aged) six weeks prior to installation.
 - 2. Edges: Square within $\frac{1}{32}$ " (using diagonal measurement comparison).
 - 3. Thickness: Tolerance of plus or minus $\frac{1}{16}$ ".
 - 4. Size: 2' x 4'.
 - 5. Length and width: Tolerance of plus or minus $\frac{1}{16}$ ".
 - 6. Flame spread less than 25; smoke developed less than 450 per ASTM E84.
 - 7. Nominal density 1.0 lb / cubic ft. Minimum density of .90 lb / cubic ft.
 - 8. Minimum thickness of 1", maximum thickness of 4".
 - 9. Material must be manufactured from 100% virgin materials.
- E. Reinforcing Meshes: Balanced, open weave glass fiber reinforcing mesh; twisted multi-end strands treated for compatibility with Ultimate 'MA' components.

1. CrossFlex 4: Standard weight.
2. CrossFlex 10: Intermediate weight.
3. CrossFlex 20: Ultra High Impact weight.
4. CrossFlex [] & []: Combination.

- F. Crosstech 100, Textured Finish Coat: 100% acrylic polymer finish; air cured, compatible with Basecoat; Finish color factory-mixed; color [] as selected; Finish texture [Medium Sand] [Ozark Sand] [Natural Sand] [Clear Sand] [Medium Worm] [Big Worm] [Random].

2.03 ACCESSORIES

- A. Flexible Membrane Flashing Tape: Demand 30-mil thick, self-sealing, elf-healing rubberized asphalt membrane or equivalent.
- B. Dow Corning Series 790 or 795 sealant, - or - BASF Sonolastic 150 VLM and their associated primers as per manufacturer's specifications.

PART 3 - EXECUTION

3.01 INSPECTION OF SUBSTRATE

- A. Inspect substrate for; soundness, contamination, and moisture content.
- B. There should not be any planar irregularities greater than ¼ inch in 10 feet. Do not proceed with installation until all discrepancies or unsatisfactory conditions have been corrected.
- C. The surface shall be free of foreign materials such as oil, dust, dirt, form-release agents, paint, wax, water repellents, moisture, frost, etc.
- D. The substrate shall be sound and installed according to manufacturer's guidelines. There should be no major surface voids or projections.
- E. Reporting: Unsatisfactory conditions shall be reported to the General Contractor and/or builder and to Crosstech management. Do not proceed until all unsatisfactory conditions have been corrected.
- F. Block joints should be struck flush with the surface of the block.

3.02 PREPARATION

- A. Protect all surrounding areas and surfaces from damage and staining during application of the Crosstech Ultimate 'Direct': [Unit Masonry and Masonry Block] System.
- B. Protect finished work at the end of each day to prevent moisture penetration.
- C. Utilities – The system must be properly terminated (sealed, flashed) at all lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.
- D. Decks – Wood Decks must be properly flashed prior to system application. The system must be terminated a minimum of 1" above all decks, patios, etc.
- E. Roof – Verify that all roof flashings have been installed in accordance with the guidelines set by the Asphalt Roofing Manufacturer's Association.

Kick out flashing must be leak-proof and angled (min. 105 degrees) to allow for proper drainage and water diversion.

- F. Air Seals – Install air seals where required between the wall system and other wall components (penetrations, etc.) in order to maintain continuity of the air barrier system.
- G. Reporting – Unsatisfactory conditions shall be reported to the appropriate building site supervisor and Crosstech Construction Products management. Do not proceed until all unsatisfactory conditions have been corrected.

3.03 INSTALLATION OF MOISTURE BARRIER

- A. May, at the option of the design professional, install Crosstech Liquid Membrane Moisture Barrier.

3.04 NA

3.05 NA

3.06 INSTALLATION OF EXPANSION JOINTS

- A. The appropriate design professional must identify all required expansion/control joints.

3.07 NA

3.08 CONSTRUCTION OF INCLINED SURFACES

- A. The slope of inclined surfaces shall have a minimum slope of 6” of rise in 12” of horizontal run.
- B. Inclined surfaces shall not be used for areas defined as roofs or floors by building codes.

3.09 INSTALLATION OF REINFORCING MESH

- A. It is necessary to base and mesh the entire wall surface and then skim coat the entire wall surface a **second** time. Tooled joints, voids, and other imperfections in the wall should be filled such that a smooth layer of basecoat is achieved.
- B. Using a stainless steel trowel, apply the basecoat over the surface of the wall to an area slightly larger than the width and length of a piece of reinforcing mesh, in a uniform thickness of approximately 3/16”.
- C. Immediately place the reinforcing mesh against the wet basecoat. With the curve of the mesh against the wall, trowel from the center to the edges avoiding wrinkles, until the mesh is fully embedded and no mesh pattern is visible. The mesh should float within the basecoat and should not be in contact with the wall.
- D. The reinforcing mesh shall be continuous at corners and mesh edges lapped not less than 2 ½”. Corners and edges may require light strokes with a small brush to smooth irregularities.

- E. Optionally, additional layers of reinforcing mesh and basecoat may be applied as required.
- F. The layer(s) of mesh and basecoat should be allowed to cure for at least **4 Days** prior to applying the final required skim coat of basecoat. This final skim coat is required for added strength and smoothness and to minimize the telegraphing of block lines. The thickness of the skim coat should be 1/16" thick.
- G. Protect completed work from rain, runoff, and other water penetration. Allow the basecoat to dry a minimum of 24 hours before proceeding with application of finish coat. Longer drying times are required if the conditions are cool or damp. Finish should not be applied to a wet or damp basecoat.

3.10 INSPECTION OF BASECOAT

- A. Prior to applying the finish, the basecoat shall have dried a minimum of 24 hours and shall be dry and hard. Drying time may be longer depending on environmental conditions.
- B. Inspect the basecoat for any irregularities such as trowel marks, board lines, rough corners and edges, proper reinforcing mesh embedment and the presence of any foreign substances. Correct all irregularities prior to applying the finish coat.

3.11 APPLICATION OF FINISH COAT

- A. Mix the Finish Coat thoroughly according to the specific mixing instructions provided with the Finish Coat product.
- B. To ensure color consistency, the finish must be "boxed" prior to application. Boxing is accomplished by pouring ½ of a pail of Finish Coat into a clean container, opening another pail of Finish Coat and pouring ½ of its contents into the half filled first container. The full pail must now be mixed until a uniform, homogenous consistency is attained. Continue this process for each pail of Finish Coat.
- C. While a small amount of clean water may be added to aid workability, if water is added, measure and add the same amount to all pails of finish to assure uniform product.
- D. Finishes must be applied continuously to a natural break such as corners or expansion joints. Sufficient personnel and scaffolding must be provided to continuously finish a distinct wall area or cold joints will result. Scaffolding must be placed a minimum of 18" from the wall to prevent staging lines.
- E. On hot windy days, the wall may be fogged with clean potable water to cool the wall and facilitate finish application. Application work should precede the sun. For example, work the shady side of the building. If this is not possible, scaffolding should be shaded with tarp or nursery shade cloth. Do not introduce water to the Finish Coat once it is applied to the wall. This will cause color variations.

- F. Each mechanic must use the same type tool and hand motion to ensure a consistent texture throughout the wall. Use Finish Coat from a single production batch where possible.
- G. Finish materials shall not be applied in the rain and the basecoat must be dry prior to applying the finish.
- H. Using a clean stainless steel trowel, apply the Finish Coat in a uniform thickness tight to the wall. The Finish Coat must be leveled and textured to a uniform thickness no greater than the thickness of the largest aggregate in the Finish Coat.
- I. The texture is achieved by uniform hand motion and/or tool that produce the texture to match the approved sample.

3.12 INSTALLATION OF BACKER ROD AND SEALANT

- A. Use only an approved sealant. Clean joints of all materials and dust.
- B. For joints over 3/8" deep, insert nonabsorbent closed cell skin backer rod of the correct diameter such that an hour-glass shaped bead of sealant may be applied to the joint.

3.13 MAINTENANCE AND CLEANING

- A. To clean, prewet the soiled area with clean water and wash with a solution of 1 gallon of clean water and 8 ounces of Trisodium Phosphate (TSP).
- B. Apply the cleaning solution using a soft bristle brush or power washing equipment. Lightly scrub the area with a soft bristle brush. The finish will be damaged by hard scrubbing action or by a hard bristle brush. With power washing equipment, do not exceed 500 PSI at the spray tip and keep power washer tip 2 feet from surface being cleaned.
- C. Solvent based cleaners should never be used as they will cause severe damage to the finish.
- D. Rust stains may be removed by using a commercial rust stain remover that is approved for use on acrylic finishes. Always clean an inconspicuous area first to insure the cleaner will not stain or damage the finish.