

# DuROCK Stucco Plus

## Polymer Enhanced Stucco System

### MANUFACTURER'S SPECIFICATION 09 24 12

#### Part 1 – GENERAL

##### 1.1 RELATED SECTIONS

- .1 Specification 03 30 00 – Cast-in-Place Concrete
- .2 Specification 04 20 00 – Unit Masonry
- .3 Specification 05 40 00 – Cold-Formed Metal Framing
- .4 Specification 06 10 00 – Rough Carpentry
- .5 Specification 07 27 00 – Air Barriers
- .6 Specification 07 60 00 – Flashing & Sheet Metal
- .7 Specification 07 90 00 – Joint Protection (Sealants)

##### 1.2 SYSTEM DESCRIPTION

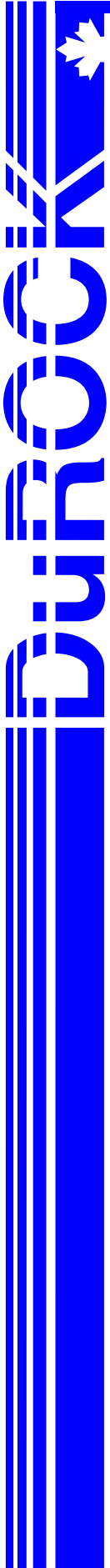
- .1 DuROCK Stucco Plus is a polymer enhanced stucco cladding system, intended for use on both combustible and non-combustible construction.

<b>SPEC NOTES</b>	<ol style="list-style-type: none"> <li>1. <i>Code compliance – the suitability of this system is subject to approval according to Municipal requirements. DuROCK Stucco Plus is intended to be used in place of a stucco system that would be compliant with Section 9.28 in the model building code. Check with all authorities having jurisdiction.</i></li> <li>2. <i>DuROCK requires that a water resistive barrier (referred to in the code as “sheathing membrane”) be incorporated into the design of any framed wall to be clad with DuROCK Stucco Plus. The appropriate specification section shall be referenced for the inclusion of the water resistive barrier as part of the wall.</i></li> <li>3. <i>DuROCK recommends that where DuROCK Stucco Plus is expected to provide more substantial rainscreen performance, it be designated DuROCK Stucco Plus RS and include the following attributes (which would have to be added to this specification):</i> <ol style="list-style-type: none"> <li>a. <i>Delta Drain MS drainage geotextile mat, by Cosella Dorken is installed between the metal lath and sheathing membrane, following the manufacturer’s recommended installation instructions, or</i></li> <li>b. <i>Borate-base pressure treated 19 x 38 mm (1 x 2 inch) wood strapping, fastened over the sheathing membrane and substrate, followed by a rigid building paper, such as Hal-tex Rainscreen Breather Board by Hal Industries.</i></li> </ol> </li> </ol>
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##### 1.3 DESIGN REQUIREMENTS

- .1 Building Substrates (shall be engineered by others where required):
  - .1 Substrate supporting DuROCK Stucco Plus must be structurally sound and continuously supported. All substrates shall be;
    - a. Continuous, flat and plumb, with surface variations less than 2 mm/m (¼ inch per 10 ft).
    - b. Designed to deflect not more than L/360 when DuROCK Stucco Plus is installed over framed walls, and not more than L/720 on concrete or masonry substrates.

<b>SPEC NOTE</b>	<ol style="list-style-type: none"> <li>4. <i>The deflection ratio of L/360 is the ratio by which a wall may be designed to move, e.g., if a wall is 3 m high, it may deflect up to 3/360 = 8.3 mm.</i> <ol style="list-style-type: none"> <li>c. Clean, dry, and free of any deleterious material that would affect the attachment of the DuROCK Stucco Plus, such as wax, oil, paint, dust and dirt.</li> </ol> </li> <li>2. Mass wall substrates include:                     <ol style="list-style-type: none"> <li>a. Cast-in-place or prefabricated concrete free of form release agents, and concrete or clay brick masonry, unpainted, and free of efflorescence.</li> <li>b. Concrete and masonry walls must be cured at least 28 days.</li> </ol> </li> <li>3. Sheathing boards shall be attached with corrosion resistant screws and supported by engineered light gauge steel stud framing. Sheathing joints must not exceed 3.2 mm (1/8 inch). Sheathing shall be minimum 12.7 mm (½ inch) thick, and;</li> </ol>
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- a. Glass-fibre faced gypsum sheathing shall be compliant with ASTM C 1177, screws driven flush and not countersunk.
- b. Cement board shall be compliant with ASTM C 1325 or ANSI A118.9.
- .4 Wood sheathing boards supported by wood framing, attached in compliance with Section 9.23 of the model building code, or engineered under Part 4 thereof. Wood sheathing must be gapped at least 2 mm and less than 3.2 mm, and;
  - a. Plywood sheathing, minimum 12.7 mm (½ inch) thick, compliant with CSA-O325.0, CSA-O121-M, CSA-O151-M, or CSA-O153-M.
  - b. Oriented strand board (OSB) sheathing minimum 11.1 mm (7/16 inch) thick, compliant with CSA-O437.
- .5 All sheathing boards must be continuously supported by framing, and;
  - a. Joints shall not occur at the corners of through-wall penetrations, such as windows or doors.
  - b. Boards shall be installed horizontally with vertical joints offset, at least one stud.
- .2 Terminations, Control and Expansion Joints
  - .1 DuROCK Stucco Plus must terminate at least:
    - a. 200 mm (8 inches) above finished grade.
    - b. 50 mm (2 inches) above roofing systems.

<b>SPEC NOTE</b>	5. <i>The Designer may devise the termination of DuROCK Stucco Plus at hard surface grades within 200 mm provided that proper drainage and maintenance are provided as part of the design requirements.</i>
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- .2 Expansion and termination joints shall have an elastomeric sealant with a closed-cell foam backer rod or bond breaker tape, as specified in [section 07 90 00] [and] [the architectural drawings].
  - a. Sealant joints shall be installed as required by either Subsection 5.6.2 or 9.27.4 of the model building code.
- .3 Control joints are required as per ASTM C 1063;
  - a. Areas not greater than 13.4 m<sup>2</sup> (144 ft<sup>2</sup>) between joints on vertical applications, not greater than 9.3 m<sup>2</sup> (100 ft<sup>2</sup>) on horizontal, curved or angled surfaces (such as soffits),
  - b. Distance between joints not greater than 5.5 m (18 ft),
  - c. Area between joints not greater than 2.5 to 1 in length-to-width ratio.
- .4 Expansion joints shall be designed by others, and are required at the following locations;
  - a. Where expansion joints in the substrate occur, including building expansion joints and where significant structural movement may be expected to occur.
  - b. At the abutment of dissimilar substrates.
  - c. At deflection tracks in steel framed construction.
  - d. At floor lines in wood framed construction.
  - e. At changes in roof lines, building shape, or structural system.

<b>SPEC NOTES</b>	6. <i>Location and size of expansion joints are the responsibility of the designer. Joint width should be designed to be four times greater than the anticipated range of joint movement.</i>
	7. <i>DuROCK recommends that expansion joints be at least 12.7 mm (½ inch) wide, and termination joints should be at least 9.5 mm (3/8 inch) wide.</i>
	8. <i>The termination of DuROCK Stucco Plus at soffits may require a drained joint between the exposed façade and the soffit. If not, then a drip edge should be provided.</i>

- .3 Sheathing Membrane and Transition Membrane:
  - .1 Sheathing membrane must conform to Article 9.27.3.2 in the model building code.

<b>SPEC NOTE</b>	9. <i>Although the model code only requires a single layer of sheathing membrane behind stucco, DuROCK recommends that at least two layers be installed.</i>
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- .4 Decorative Elements:
  - .1 Mouldings, shapes, trim, and window sills where the DuROCK Stucco Plus may be exposed are to be designed with a slope on all upward facing horizontal projections, sloped not less than:
    - a. 6:12, rise over run for slopes up to 305 mm (12 inches) wide, or
    - b. 3:12, rise over run for slopes up to 102 mm (4 inches) wide.

<b>SPEC NOTES</b>	10. <i>Horizontal projections that do not conform to the above would be acceptable for wall areas that are partially enclosed, such as where a soffit extends out above such projections. Otherwise, metal flashing with a drip edge is recommended.</i>
	11. <i>The use of EPS insulation for decorative shapes or mouldings in conjunction with DuROCK Stucco Plus may not be permitted on lot line exposures. Check with the authorities having jurisdiction.</i>

- .2 Horizontal projections shall be designed, consistent with governing codes and standards, such that these will not be configured or construed as roofing or loadbearing (pedestrian or otherwise).

- .5 Flashing:
  - .1 Corrosion resistant flashing must be installed according to the requirements of section 07 60 00 in general conformance with Part 5 or Subsection 9.27.3 in the model building code.
  - .2 Flashing must be designed and installed by others, sloping outward with drip edges to direct precipitation to the exterior, and must be provided at the top of parapet walls and other similar points of termination.

#### 1.4 PERFORMANCE REQUIREMENTS

- .1 DuROCK One Step Ready Mix or Concentrate:
  - .1 Compressive strength > 27.6 MPa (4000 psi)
  - .2 Tensile strength > 2.1 MPa (315 psi)
  - .3 Flexural strength > 6.1 MPa (890 psi)
  - .4 Non-Combustible: CAN/ULC-S114
- .2 DuROCK Finish Coat tested according to:
  - .1 MIL.STD.810E – surpass 28 day mildew and fungus resistance
  - .2 ASTM B117 – surpass 300 hour salt spray resistance
  - .3 ASTM D822B – surpass 2500 hour accelerated weathering, and
  - .4 ASTM D1623C – bond strength exceeds 0.1 MPa.

<b>SPEC NOTE</b>	12. <i>Wind load resistance of DuROCK Stucco Plus is achieved via attachment to the substrate, hence, the substrate must be designed withstand the anticipated wind loads.</i>
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#### 1.5 SUBMITTALS

- .1 Upon request, DuROCK will supply finish coat samples, approximately 200 x 200 mm (8 x 8 inches), providing representation of the texture and colour.

#### 1.6 QUALITY ASSURANCE

- .1 Manufacturer shall be a member in good standing of the EIFS Council of Canada, and certified by the EIFS QAP.
- .2 Applicator shall be knowledgeable and experienced in stucco installation.

#### 1.7 DELIVERY, STORAGE & HANDLING

- .1 All materials and components shall be:
  - .1 Supplied by DuROCK Alfacing International Limited or its appointed distributors in the original, unopened packaging with labels clearly identifying each component.
  - .2 Inspected upon delivery, and any defective materials and/or components are not to be used.
  - .3 Stored off the ground, under protective cover, away from direct sunlight and kept dry.
- .2 All water-based materials, supplied in plastic pails, are to be kept above 4°C (40°F) and below 40°C (104°F).
- .3 All dry-bagged materials shall be kept dry and protected from high humidity and moisture.

#### 1.8 SITE CONDITIONS

- .1 Surface and ambient conditions for application of wet-state-materials must be kept above 4°C (40°F).
- .2 Finish coats applied in high humidity conditions will take longer than 24 hours to dry. If such conditions occur, provide supplemental heat to reduce the humidity, or provide protection long enough for finish coats to dry completely.
- .3 Wet-state-materials shall not be applied in direct sunlight in temperatures exceeding 30°C (86°F) without protective cover.
- .4 All work shall be protected from rain, snow, hail, and wind exceeding 25 km/hr (15 mph) for not less than 24 hours after wet material application.
- .5 Do not apply materials in weather conditions that will cause adverse affects to performance.

#### 1.9 WARRANTY

- .1 DuROCK Stucco Plus is eligible for a limited manufacturer's warranty starting from the date of substantial completion. The [Owner] [Contractor] [Designer] must make a formal application at the end of the project to receive such a warranty.
- .2 DuROCK's warranty is effective when materials are paid for in full, and the workmanship complies with this specification.

## Part 2 – MATERIALS

### 2.1 GENERAL

- .1 DuROCK Alfacing International Limited, or its appointed distributors, shall supply all the materials and components for the DuROCK Stucco Plus.
- .2 Substitution of materials or components shall void the manufacturer’s warranty.

### 2.2 MATERIALS

- .1 Mechanical Fasteners:
  - .1 Corrosion resistant fasteners shall be [hot-dipped galvanized] [Climaseal] with minimum 11.1 mm (<sup>7</sup>/<sub>16</sub> inch) diameter heads, self-tapping screws for steel stud framing, or
  - .2 Nails, staples or screws for wood substrates, as permitted by code.

<b>SPEC NOTE</b>	13. <i>The Designer has the prerogative to accept fasteners with a smaller head if galvanized steel washers or anchor plates are also required, such as Lath-Lock by Wind-Lock Corp.</i>
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- .2 Metal lath shall be galvanized self-furring lath steel:
  - .1 Diamond mesh (expanded) compliant with ASTM C 847, nominal weight 1.36 kg/m<sup>2</sup> (2.5 lb/yd<sup>2</sup>) or 1.85 kg/m<sup>2</sup> (3.4 lb/yd<sup>2</sup>).
  - .2 Welded wire compliant with ASTM C 933, nominal weight 0.6 to 1 kg/m<sup>2</sup> (1.1 to 1.8 lb/yd<sup>2</sup>).
- .3 Trim & Accessories:
  - .1 Galvanized metal control joints, weeping screeds, corner beads, and plaster stops shall have a uniform minimum ground of [12.7 mm (<sup>1</sup>/<sub>2</sub> inch)] [15.9 mm (<sup>5</sup>/<sub>8</sub> inch)] [19.1 mm (<sup>3</sup>/<sub>4</sub> inch)].

<b>SPEC NOTE</b>	14. <i>The Designer shall specify the appropriate thickness of the stucco base coat and the associated accessories and trim.</i>
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- .2 Galvanized metal tie wire, not less than 1.2 mm (0.475 inch) in diameter, shall be used to tie metal lath and trim as required in ASTM C 1063.
- .4 Base Coat:
  - .1 DuROCK One-Step Ready Mix – polymer modified cement and sand dry mix, field mixed with water, applied with stainless steel trowel or mechanical spray/pumping equipment.
  - .2 DuROCK One-Step Concentrate – polymer modifier for Portland cement, silica sand and potable water mixture, applied with stainless steel trowel or mechanical spray/pumping equipment.
- .5 Primers & Paint:
  - .1 DuROCK Base Primer – water-based, color-pigmented acrylic dispersion used as a primer for DuROCK Finishes, applied by roller or brush.
  - .2 DuROCK Roll-On – water-based, color-pigmented acrylic coating with a fine sand texture, used as a finish coat on decorative trim and mouldings, applied by roller or brush.
- .6 Finish Coats:
  - .1 DuROCK Finishes – water-based, color-pigmented acrylic finish with integral texture, applied by trowel or spray. Refer to the DuROCK Finishes data sheet for the selection of colour and texture.
  - .2 DuROCK Plus Finishes – water-based, color-pigmented, elastomeric acrylic finish with integral texture, applied by trowel or spray. Refer to the DuROCK Finishes data sheet for the selection of colour and texture.
  - .3 DuROCK Specialty Finishes – water-based, exposed colored aggregate finishes with integral texture, applied by trowel or spray. Refer to the data sheet for further information.

### 2.3 MIXING

- .1 All DuROCK water-based products require mixing with a medium duty power-drill (400 – 500 RPM) and stainless steel or corrosion resistant paddle-mixing-blade. One-Step Ready Mix or Concentrate can be mixed in a mechanical mortar or stucco mixing apparatus.
- .2 DuROCK dry-based products are to be mixed with potable water in the specified ratio for the product, until a workable consistency is attained.
  - .1 Mix one bag of One-Step Ready-Mix with 4.5 L (1 gallon) of potable water.
  - .2 Mix one bag of One-Step Concentrate with 40 kg (88 lbs) of Type 10, 20, or 30 Portland Cement, 100 kg (220 lbs) of clean, dry Concentrate Sand #1, and 25 L (5 ½ gallons) of potable water.

a. Sand should have the following particle size distribution:

Tyler Sieve No.	12	16	20	30	40	50	60	70	Pan
% Retained	0.0	9.0	51.3	31.6	5.36	0.89	0.39	0.12	0.23

- .3 DuROCK non-cementitious water-based pail-packaged factory-mixed products are required to be mixed to a uniform consistency prior to application.

- .1 Up to 250 mL (8 oz) of potable water may be added to DuROCK Finishes, when being applied in hot weather, however, water shall not be added to heavily pigmented finishes, i.e., dark colours.
- .2 Water is not to be added during the mixing of DuROCK Base Primer, DuROCK Roll-On, or DuROCK Specialty Finishes.
- .4 Discard any material that has become stiff or hard.

## Part 3 – EXECUTION

### 3.1 GENERAL

- .1 Prior to commencing the work, review the substrate and report any deficiencies to the appropriate authority.
- .2 Coordinate stucco work with other trades.
- .3 Install DuROCK Stucco Plus following the general principles summarized in ASTM C 1063 and ASTM C 926.
- .4 Apply masking and temporary protection to ensure the work of this section does not result in the products staining other components of the building assembly.
- .5 Maintain a minimum ambient and surface temperatures above 4°C (40°F) for at least;
  - .1 72 hours after each base coat application,
  - .2 24 hours after the application of DuROCK Finish, Primer or Paint.

### 3.2 METAL LATH & TRIM

- .1 Installation of metal lath and trim shall be such that the finished plaster surface will be square, plumb, level and true, within 2 mm/m (1/4 inch per 10 ft).
- .2 Control joints and plaster stops shall be installed prior to the lath. Corner beads shall be installed after the reinforcing mesh. Metal lath must not run continuously through the control joints.
- .3 All trim shall be mechanically fastened to the substrate with fasteners placed within 50 mm (2 inches) of the ends and spaced at no more than 300 mm (12 inches) on centre.
- .4 Plaster stops shall be installed at all terminations and around all openings. A weep screed shall be installed at the base of all wall areas situated above roofing and grade level.
  - .1 At least 6.4 mm (1/4 inch) space is left around the perimeter of windows, doors and other penetrations.
- .5 Control joints shall be installed as delineated in the architectural drawings.
- .6 Stucco lath shall be mechanically fastened to the substrate, oriented with the long dimension horizontal and all vertical laps staggered. The lath shall slope downward toward the substrate.
  - .1 Side laps of metal lath shall be tied between supports not more than 229 mm (9 inches) apart when not located over framing members.
  - .2 Mechanical fasteners attaching the metal lath to the substrate shall be secured to framing members not greater than 178 mm (7 inches) apart.
  - .3 Fasteners shall penetrate the substrate as required by the model building code; not less than 25 mm (1 in) for wood, masonry and concrete substrates, and not less than 8 mm (5/16 inch) for steel framing.
- .7 Lath shall be overlapped not less than 25 mm (1 inch), or nested if diamond mesh is used.
  - .1 Overlaps shall not be placed within 300 mm (12 inches) of openings, corners, control joints, or termination joints.
- .8 Corner beads shall be installed at all outside corners so as to provide a consistent wall plane with the control joints, casing beads and plaster stops.
- .9 Fasteners shall be installed to secure corners beads, weeping screeds, casing beads and control joints shall be spaced a maximum of 178 mm (7 inches) apart.
  - .1 In locations where the substrate may be expected to have deflection, it may be necessary to attach the accessory to the lath only with tie wires not more than 229 mm (9 inches) apart.

<b>SPEC NOTE</b>	15. <i>DuROCK Stucco Plus can be installed over concrete masonry or concrete substrates without incorporating metal lath and trim. DuROCK requires that Jewel Stone Primer be applied as a surface conditioner on concrete/masonry substrates</i>
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### 3.3 STUCCO BASE COAT

- .1 The base coat is applied in two layers, the first being the scratch coat, then followed by the brown coat.
- .2 Apply the scratch coat at a thickness of [6.4 mm (1/4 inch)] [8.0 mm (5/16 inch)] [9.5 mm (3/8 inch)], fully embedding the metal lath.
  - .1 Rake the scratch coat to a depth not greater than 2.4 mm (3/32 inch) to create indentations that will allow the brown coat to key into the scratch coat.

- .2 A minimum of 24 hours shall be allowed for drying before applying the brown coat.
- .3 Apply the brown coat at a thickness of [6.4 mm (¼ inch)] [8.0 mm (5/16 inch)] [9.5 mm (3/8 inch)] achieving a uniformly smooth and flat surface.
- .4 Minimum base coat thickness shall be [12.7 mm (½ inch)] [15.9 mm (5/8 inch)] [19.1 mm (¾ inch)].
- .5 A minimum of 7 days shall be allowed for drying before applying Primer.

**3.4 PRIMER & FINISH COAT**

- .1 DuROCK Base Primer shall be applied to the reinforced base coat with a roller, brush or spray equipment. Primer must dry at least 4 to 6 hours prior to finish coat application.
- .2 Apply DuROCK Finish Coat in accordance with the recommendations for the specific texture (refer to the appropriate DuROCK product data sheet). Render and float the DuROCK Finish Coat to match the approved color and texture approved by the owner or designer.
  - .1 DuROCK Finish shall not be applied into control joints.
  - .2 Protect DuROCK Finish until it is fully dried, and for at least 24 hours after application.

<b>SPEC NOTE</b>	16. <i>DuROCK recommends caulking control joints with elastomeric sealant.</i>
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- .3 Clean Up:
  - .1 Remove masking and temporary protection as required.
  - .2 Ensure work of other trades is not adversely affected by the work of this section.
  - .3 Remove all leftover materials and garbage from the jobsite.

End of Specification 09 24 12

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