

SECTION 04 73 00

MECHANICALLY FASTENED MANUFACTURED STONE VENEER

BEONSTONE PANELS - MANUFACTURER MASTER SPECIFICATION

Specifier Note: IAPMO UES ER-654 identifies BeonStone under CSI Sections 04 20 00 and 04 73 00. CCMC Evaluation Report 14204-R identifies the product under MasterFormat 07 46 50. This master specification uses Section 04 73 00 for consistency with the current IAPMO report. A Canadian consultant may renumber the section to 07 46 50 to match office standards without changing the technical requirements.

Basis of Specification: This specification is based on CCMC Evaluation Report 14204-R (issued June 22, 2020), IAPMO Uniform Evaluation Service Report ER-654 (revised March 26, 2026; valid through April 30, 2027), the manufacturer-supplied BeonStone installation guide, and the manufacturer-supplied 50-Year Transferable Limited Warranty. It is not a substitute for project-specific structural design or the applicable building code. Where the evaluation report, code, project documents, and manufacturer instructions differ, comply with the most restrictive applicable requirement. For the Canadian CCMC evaluation pathway, the conditions and limitations of CCMC 14204-R remain controlling.

Project-Specific Editing Note: Before issue for construction, complete project design wind pressure and seismic criteria, select the applicable jurisdiction/evaluation pathway, select one substitution option in Article 2.1.C, and retain or delete the mockup and XPS provisions as applicable to the project.

PART 1 - GENERAL

1.1 SUMMARY

- A.** Section includes factory-manufactured precast concrete stone veneer panels with integral mechanical mounting components, starter strips, fasteners, accessories, and associated installation requirements.
- B.** Related work includes wood framing, structural wood sheathing, water-resistive or sheathing membrane, flashings, exterior insulation where applicable, sealants, and rough opening construction.
- C.** Basis-of-design product: BeonStone Panels manufactured by Deconat, Inc., Bromont, Quebec, Canada.

1.2 REFERENCES

- A.** Canadian Construction Materials Centre (CCMC): Evaluation Report 14204-R, "beonstone."
- B.** IAPMO Uniform Evaluation Service (UES): ER-654, "BeonStone Panels," including Florida Supplement where applicable.
- C.** National Building Code of Canada (NBC) 2015 provisions referenced by CCMC 14204-R, including Division B Articles and Subsections governing wood design, protection from precipitation, masonry support, cladding attachment, flashing, sheathing membranes, fire blocking, and structural design.
- D.** International Building Code (IBC): 2015, 2018, and 2021 editions, as recognized in IAPMO UES ER-654.
- E.** International Residential Code (IRC): 2015, 2018, and 2021 editions, as recognized in IAPMO UES ER-654.
- F.** ASTM International standards referenced by ER-654: ASTM C39, C140, C578, C666, C1670, D1761, E72, E84, and E330.
- G.** ICC-ES AC51, Acceptance Criteria for Precast Stone Veneer, approved June 2018, editorially revised January 2021.
- H.** For Canadian structural wood sheathing, CSA O121, CSA O151, and CSA O325 as referenced by CCMC 14204-R.
- I.** Manufacturer: "Guide technique - Panneaux de pierre vissés BeonStone," current manufacturer-supplied installation guide.
- J.** Manufacturer: "50-Year Transferable Limited Warranty," current manufacturer-supplied warranty form.

1.3 SYSTEM DESCRIPTION

- A.** Provide a nonstructural mechanically fastened precast concrete stone veneer wall covering supported by a wood-framed backup wall and solid wood-based structural sheathing.
- B.** Panel system shall create a drained and vented cavity behind the cladding where required by the applicable evaluation report and manufacturer instructions.
- C.** Do not use evaluation-report recognition outside the conditions and limitations stated in the applicable CCMC or IAPMO report.

1.4 PERFORMANCE REQUIREMENTS

- A. General:** Comply with the applicable building code, evaluation report, approved project drawings, and manufacturer's published installation instructions. If requirements conflict, use the most restrictive applicable requirement.
- B. Canadian Evaluation Pathway - CCMC 14204-R:**
- Use as exterior cladding in new construction only within the scope of CCMC 14204-R, unless a licensed professional engineer provides project-specific analysis for conditions outside that scope.
 - Within the prescriptive/pre-engineered CCMC scope, limit buildings to not more than 2 storeys, maximum 3 m floor height, maximum 24 m x 12 m building plan, and maximum 8 m clear floor-joist span.
 - Within the CCMC evaluation scope, limit 1-in-50 hourly wind pressure to $Q_{50} \leq 0.70$ kPa and spectral response acceleration $S_a(0.2)$ to 1.2 or less on Site Class C or better.
 - Provide the proprietary/pre-engineered wood backup wall and sheathing arrangement required by CCMC 14204-R and Quaile Engineering Ltd. Report No. 19-096-1 Rev 1, or provide a signed and sealed project-specific engineering analysis where outside that scope.
 - Maintain the nominal 10 mm drained and vented air space created by the panel standoffs free of obstructions.
- C. United States Evaluation Pathway - IAPMO UES ER-654:**
- Use as a nonstructural mechanically fastened wall covering on wood-framed walls within the construction types and limitations recognized by ER-654.
 - Without XPS insulation, maximum allowable transverse wind load, positive or negative: 40 psf (1.92 kPa).
 - With a single layer of 1-inch or 2-inch Type IV XPS insulation meeting ER-654, maximum allowable transverse wind load, positive or negative: 58 psf (2.78 kPa).
 - Supporting wall and horizontal members shall support the installed veneer weight and satisfy applicable code deflection criteria.
 - For Florida projects, ER-654 Florida Supplement applies. High-Velocity Hurricane Zone provisions are outside the scope of the supplement.
- D. Material performance documented by CCMC 14204-R shall include:**
- Water absorption: less than 15 percent.
 - Compressive strength: greater than 15 MPa.
 - Saturation coefficient: less than 0.80.
 - Freeze-thaw mass loss: less than 3 percent.
 - Freeze-thaw loss in flexural strength: less than 15 percent.
 - Dimensional tolerances: length within ± 4 mm; width within ± 2 mm; thickness within ± 2 mm, subject to the qualification stated in CCMC 14204-R for width measurements.
- E. Interior surface-burning performance,** where interior use is permitted under ER-654: ASTM E84 flame-spread index 0 and smoke-developed index 0, qualifying as Class A interior finish under the referenced IBC provisions.

1.5 SUBMITTALS

- A. Product Data:** Manufacturer's current technical data, installation instructions, accessories, fasteners, maintenance requirements, and applicable warranty information.
- B. Evaluation Reports:** Current copies of CCMC 14204-R and/or IAPMO UES ER-654 applicable to project jurisdiction.
- C. Shop Drawings:** Show panel layout, starter locations, corners, openings, terminations, flashings, movement joints, transitions, penetrations, top-of-wall conditions, and attachment details.
- D. Engineering Submittals:** Where project conditions exceed or differ from evaluation-report limitations, submit signed and sealed engineering analysis by a professional engineer licensed in the project jurisdiction and experienced in the applicable structural design.
- E. Samples:** Submit representative panel and accessory samples when requested by Consultant.
- F. Quality Documentation:** Submit evidence that supplied product bears required product identification, including "CCMC 14204-R" for installations relying on the CCMC evaluation and/or IAPMO UES ER-654 identification where relying on the U.S. evaluation.
- G. Warranty Submittal:** Submit sample warranty with product submittals and executed manufacturer's warranty at project closeout.

1.6 QUALITY ASSURANCE

- A. Manufacturer:** Product shall be manufactured under the quality-control provisions associated with the applicable evaluation report. ER-654 states that production is subject to periodic inspection under IAPMO UES supervision.
- B. Installer:** Use personnel familiar with mechanically fastened manufactured stone veneer systems and the manufacturer's published installation requirements.

C. Preinstallation Conference: Before installation, review substrate readiness, water-resistive barrier continuity, flashing, drainage, openings, penetrations, movement joints, insulation configuration where applicable, and sequencing with adjacent work.

Specifier Note: Retain Paragraph 1.6.D when a representative project mockup is required; otherwise delete the paragraph before issue for construction.

D. Mockup: Construct representative wall mockup including outside corner, opening, starter condition, flashing, and termination. Approved mockup may remain as part of completed Work if accepted by Consultant.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original packaging with identification intact.

B. Store panels and accessories off the ground, protected from contamination, impact, staining, and conditions that could damage integral mounting components.

C. Handle units to prevent cracking, chipping, bending of mounting elements, or other damage affecting appearance or performance.

1.8 FIELD CONDITIONS

A. Verify environmental and substrate conditions are suitable for installation in accordance with the manufacturer's published instructions.

B. Do not conceal water-resistive barrier, flashing, drainage, or substrate deficiencies with veneer installation.

1.9 WARRANTY

A. Provide Manufacturer's 50-Year Transferable Limited Warranty for manufactured stone veneer products, commencing on the date of original delivery to the original purchaser or the purchaser's contractor, whichever occurs first.

B. Warranty Scope: Veneer products are warranted to be manufactured in accordance with ASTM C1670 and to leave the manufacturing facility free from defects in workmanship and materials, subject to the terms, conditions, exclusions, and limitations of the written warranty.

C. Remedy: At Manufacturer's sole discretion, repair or replace nonconforming veneer products in the same quantity and as close to the same type and size as commercially reasonable, or refund the price paid, subject to the warranty's prorating provisions. Replacement labor is excluded and colour matching is not guaranteed.

D. Transferability: Warranty may be assigned during the first 15 years after original delivery; coverage for a subsequent owner is limited to 15 years from the original delivery date and is subject to proof-of-purchase requirements stated in the warranty.

E. Warranty Conditions: Comply with all written warranty conditions and exclusions, including required protection where veneer is installed adjacent to areas treated with deicing chemicals.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis-of-design manufacturer: Deconat, Inc., 15 rue de l'Atlantique, Bromont, Quebec, Canada.

B. Product: BeonStone Panels.

Specifier Note: Select one substitution option below and delete the other before issue for construction. Use Option 1 for a proprietary specification. Use Option 2 where BeonStone is the basis-of-design product and substitutions are administered under Division 01.

C. Substitutions: Select one of the following project options:

1. Proprietary Specification Option: Substitutions not permitted.
2. Basis-of-Design Specification Option: Substitutions in accordance with Division 01, provided proposed products demonstrate equivalent code acceptance, mechanical attachment, durability, drainage, structural performance, and project compatibility.

2.2 MANUFACTURED STONE VENEER PANELS

A. Construction: Factory-cast precast concrete veneer manufactured to resemble natural stone in texture and colour, with an integral embedded mechanical mounting element.

B. Composition: Cement, aggregate, water, admixtures/pigments/colour components as applicable to manufacturer's formulation, cast in moulds and plant cured.

C. Nominal panel dimensions documented by the evaluation reports: approximately 24 inches (609.6 to 610 mm) long by 12 inches (304.8 to 305 mm) high.

- D. Thickness: Approximately 1.5 to 2 inches (38 to 51 mm), subject to profile and evaluation-report limitations.
- E. Installed saturated average weight for ER-654 applications: not more than 15 psf (73.2 kg/m²).
- F. Integral mounting components: Plastic and No. 26 gauge galvanized steel mounting element as described in IAPMO UES ER-654.

2.3 STARTER STRIPS AND ACCESSORIES

- A. Starter Strip: Manufacturer's proprietary BeonStone starter strip, nominal 1220 mm by 25 mm (48 inches by 1 inch), compatible with BeonStone panels and project substrate.
- B. Corners, trims, sills, receptacle/light-box accessories, and other components: Manufacturer's standard compatible accessories where shown on Drawings or required for complete installation.
- C. Flashing: Corrosion-resistant flashing compatible with adjacent materials and water-resistive barrier, configured to drain water to exterior and protect exposed top edges.
- D. Sealants, elastomeric air/water membrane, backer rods, and construction tapes: Compatible with adjacent materials and suitable for exterior exposure, as required by the manufacturer installation guide and project details.

2.4 FASTENERS

- A. Canadian CCMC Pathway: Minimum No. 10 x 1 inch fully threaded stainless steel wood screws for attachment through panel clips, unless project-specific engineering or the current manufacturer instructions require a more stringent fastener.

- B. United States IAPMO ER-654 Pathway: Use wood screws complying with ER-654 Table 1:

Configuration	No XPS	1-inch XPS	2-inch XPS
Panel fastening to 7/16-inch OSB sheathing	#10 x 1.5-inch hex-head wood screw	#10 x 3-inch hex-head wood screw	#10 x 3-inch hex-head wood screw
Starter strip attachment	#10 x 1.5-inch hex-head wood screw	#10 x 3-inch hex-head wood screw	#10 x 3-inch hex-head wood screw
Last row face screwed	#10 x 3-inch hex-head wood screw	#10 x 5-inch hex-head wood screw	#10 x 5-inch hex-head wood screw

- C. Fastener Coordination: Where the manufacturer installation guide adds corrosion-resistance, head configuration, or installation requirements, comply with those requirements provided they do not reduce the fastener size, length, penetration, or configuration required by the applicable evaluation report.

2.5 STRUCTURAL WOOD SHEATHING AND BACKUP WALL

- A. Canadian CCMC Pathway:
 - Structural wood sheathing: minimum 11 mm OSB complying with CSA O325 or minimum 12.5 mm plywood complying with CSA O121 or CSA O151, installed horizontally across a minimum of three stud spaces.
 - Within the pre-engineered CCMC scope, stud wall shall use 38 mm x 140 mm SPF studs and No. 2 Grade SPF plates, with stud spacing, plate configuration, nailing, squash blocks, rim board, lintels, and other framing requirements in accordance with CCMC Appendix A and Quail Engineering Ltd. Report No. 19-096-1 Rev 1.
- B. United States IAPMO ER-654 Pathway:
 - Solid wood-based sheathing attached to wood stud framing.
 - Minimum sheathing: 7/16-inch (11.1 mm) Exposure 1 OSB complying with DOC PS-2 or 15/32-inch (12 mm) exterior-grade plywood complying with DOC PS-1.
 - Wood members: minimum specific gravity 0.42.

2.6 WATER-RESISTIVE BARRIER / SHEATHING MEMBRANE

- A. Provide continuous water-resistive barrier or sheathing membrane over structural sheathing as required by the applicable building code and evaluation report.
- B. Canadian CCMC Pathway: Minimum one layer of wall-sheathing membrane conforming to and installed in accordance with the NBC 2015 provisions cited in CCMC 14204-R.
- C. United States IAPMO Pathway: Water-resistive barrier as required by IBC Section 1404.2 or IRC Section R703.2, as applicable to the code edition adopted by the jurisdiction.

2.7 XPS CONTINUOUS INSULATION - U.S. ER-654 APPLICATIONS

Specifier Note: Retain Article 2.7 only for U.S. IAPMO ER-654 applications that include 1-inch or 2-inch Type IV XPS continuous insulation as shown on the Drawings; otherwise delete this Article before issue for construction.

- A. Provide a single layer of 1-inch or 2-inch (25.4 or 50.8 mm) Type IV extruded polystyrene insulation complying with ASTM C578 and IAPMO UES ER-654.
- B. Minimum nominal density: 1.45 pcf (23 kg/m³).
- C. Provide labeling and surface-burning characteristics required by applicable IBC/IRC provisions cited in ER-654.

D. Where required, separate foam plastic from building interior with a thermal barrier complying with applicable IBC or IRC requirements cited in ER-654.

PART 3 - EXECUTION

3.1 EXAMINATION

- A.** Examine framing, structural sheathing, water-resistive barrier, flashings, openings, penetrations, insulation, and adjacent construction before beginning veneer installation.
- B.** Verify substrate is structurally adequate, flat and true enough for installation, and built in accordance with project drawings and the applicable evaluation-report pathway.
- C.** Do not begin installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A.** Coordinate water-resistive barrier, elastomeric air/water membranes, flashings, laps, penetrations, openings, and adjacent work so incidental water is directed to the exterior. Seal wall openings before veneer installation.
- B.** Establish a level starter line and install BeonStone starter strip continuously at the base of veneer. Unless approved project details require otherwise, align the top of the starter strip 64 mm (2-1/2 inches) above the bottom limit of veneer coverage in accordance with the manufacturer installation guide.
- C.** Fasten starter strip at maximum 305 mm (12 inches) on center for wood structural sheathing applications, using the fastener required for the applicable evaluation pathway. Maintain a 6 mm (1/4 inch) gap between adjacent starter strips and at openings for thermal movement.
- D.** Tape or otherwise integrate the upper edge of the starter strip with the water-resistive barrier in accordance with the manufacturer installation guide and water-resistive barrier manufacturer requirements.
- E.** Protect adjacent finished work from cutting debris, dust, sealants, and damage.

3.3 INSTALLATION - GENERAL

- A.** Install BeonStone panels in accordance with approved shop drawings, applicable code, the applicable CCMC or IAPMO evaluation report, and manufacturer's current published installation instructions. Where these requirements conflict, comply with the most restrictive applicable requirement.
- B.** Engage the first course with the starter strip and install panels level, plumb, securely attached, and fully interlocked in accordance with the manufacturer installation guide.
- C.** Stagger vertical joints between courses. Start alternate courses with a cut half panel or equivalent layout to break joint alignment; where XPS is used under IAPMO ER-654, provide the required one-half running bond pattern.
- D.** Check level at each course. Arrange panels to avoid repetitive visual patterning and conspicuous aligned joints.
- E.** Cut panels with a continuous concrete blade using dust-control methods and personal protective equipment appropriate to the cutting method and site conditions. Do not install cracked or structurally damaged units.
- F.** Do not modify integral mounting components except where expressly permitted by the manufacturer installation guide for corners, terminations, openings, or other detailed conditions.
- G.** Maintain continuity of the drainage plane and keep the required cavity and drainage routes unobstructed.

3.4 INSTALLATION - CANADIAN CCMC PATHWAY

- A.** Use only for new construction within the prescriptive scope of CCMC 14204-R unless project-specific engineering is provided.
- B.** Install over the proprietary/pre-engineered wood backup wall construction required by CCMC 14204-R Appendix A and Quaile Engineering Ltd. Report No. 19-096-1 Rev 1.
- C.** Orient structural wood sheathing horizontally as required by CCMC 14204-R and fasten sheathing to framing in accordance with the applicable Appendix A schedule/project engineering.
- D.** Fasten veneer through the mounting system using not less than the CCMC-specified minimum No. 10 x 1 inch fully threaded stainless steel wood screws, unless project-specific engineering requires a more stringent attachment. Manufacturer installation details may supplement, but shall not reduce, CCMC requirements.
- E.** Provide a horizontal movement joint at each floor level in accordance with CCMC 14204-R Figure A-3 and approved project details.
- F.** Provide flashing to drain water from behind veneer to the exterior and protect exposed top edges.
- G.** Install fire blocks where required by the applicable building code.
- H.** At ground-floor areas subject to high impact, provide protective design measures where required by the Consultant; replace damaged units promptly.

3.5 INSTALLATION - U.S. IAPMO ER-654 PATHWAY

- A.** Install over solid wood-based sheathing attached to wood studs. Cover sheathing with code-required water-resistive barrier.
- B.** Install wood screws through holes in integral mounting elements using sizes required by ER-654 Table 1 for the project insulation configuration.
- C.** Tuck lower portion of each mounting element behind the veneer unit below in accordance with ER-654 and manufacturer instructions.
- D.** Where XPS is used, install a single layer of 1-inch or 2-inch Type IV XPS over sheathing and fasten panels through the XPS into/through sheathing using ER-654 Table 1 fasteners. Install stones in a staggered one-half running bond pattern as required by ER-654.
- E.** Fasten starter strip at maximum 12 inches (305 mm) on center for XPS applications as stated in ER-654, using fasteners required by Table 1.
- F.** Secure the topmost row by face fastening after predrilling/countersinking as required by the manufacturer guide. Use the ER-654 Table 1 last-row screw length for the applicable insulation configuration and conceal exposed fastener heads with compatible sealant. Where ER-654 and the manufacturer guide differ, the more restrictive requirement governs.

3.6 FLASHING, DRAINAGE, AND TERMINATIONS

- A.** Integrate flashings and elastomeric air/water membranes with the water-resistive barrier in shingle-lap fashion unless otherwise shown by approved project details.
- B. Exterior Corners:** Provide elastomeric air/water membrane extending a minimum 100 mm (4 inches) on each side of the corner. Where panels are straight-cut to form the corner, seal the cut joint with waterproof silicone as detailed by the manufacturer.
- C. Interior Corners:** Provide elastomeric air/water membrane extending a minimum 175 mm (7 inches) on each side of the corner with minimum 25 mm (1 inch) overlap at the corner. Seal straight-cut panel joints with waterproof silicone as detailed by the manufacturer.
- D. Windows and Doors:** Coordinate sill and head flashings, elastomeric membrane, backer rod, and sealant. Where BeonStone sills are used, maintain approximately 3 mm (1/8 inch) between the window and sill and seal the installation. Face-fasten cut panels around openings where required by the manufacturer guide.
- E. Transition Sills / Half-Wall Terminations:** Extend elastomeric air/water membrane a minimum 25 mm (1 inch) over the transition sill and a minimum 100 mm (4 inches) up the backup wall, in accordance with the manufacturer installation guide.
- F.** Provide drainage exits at base of wall, above openings, at horizontal interruptions, and at other locations required by manufacturer instructions and project details.
- G.** Do not block the CCMC-required 10 mm cavity or other drainage paths with sealant, mortar, insulation, debris, or accessory installation.
- H.** Terminate veneer at roofs, decks, paving, grade, openings, ceilings, and dissimilar materials with clearances, membranes, sealants, and flashings required by applicable code, manufacturer instructions, and approved project details.

3.7 FIELD QUALITY CONTROL

- A.** Inspect installed work for secure attachment, damaged units, blocked drainage, missing flashings, misaligned panels, and incomplete terminations.
- B.** Replace cracked, chipped, loose, or otherwise damaged panels when damage affects safety, performance, or unacceptable appearance.
- C.** Where project engineering or the authority having jurisdiction requires special inspection, testing, or documentation, provide it in accordance with approved project requirements.

3.8 CLEANING AND PROTECTION

- A.** Clean exposed surfaces using manufacturer-recommended methods that do not damage colour, texture, or adjacent materials.
- B.** Remove debris from drainage cavity and adjacent construction.
- C. Warranty Protection at Deicing-Chemical Exposure:** Where veneer is installed next to or in close proximity to an area treated with deicing chemicals, seal and protect the veneer wall area from the lowest wall elevation to a height of 4 feet using Consolideck Saltguard by PROSOCO, applied in accordance with the warranty and product manufacturer recommendations.
- D.** Protect completed veneer from impact and construction damage until Substantial Completion.

END OF SECTION