Specifier Note: The purpose of this guide specification is to assist the Specifier in correctly specifying Innovation MgOTM exterior wall sheathing and its installation. The Specifier needs to edit these guide specifications to fit the needs of specific projects. Contact US MgO Company to assist in appropriate product selections. Throughout the guide specification, there are Specifier Notes to assist in editing the file. Red text in brackets indicates a selection needs to be made by the Design Professional. It is not intended to be a stand-alone document. This guide specification will need to be carefully reviewed for appropriateness for the given project and edited accordingly to comply with project-specific requirements.

Innovation MgOTM Wall Panels can replace fire-retardant-treated plywood, OSB, and gypsum sheathing panels, amongst others. Innovation MgOTM Wall Panels can be used in fire-resistant assemblies. Wall assemblies that are required to be fire-resistant rated and/or load-bearing should be installed per the published ESL’s and ESR’s available through ICC-ES and linked below.

Visit our website for supporting documentation: [www.USMgO.co](http://www.USMgO.co).

**SECTION 06 16 00 – SHEATHING**

1. GENERAL
	1. SECTION INCLUDES
		1. Structural sheathing exterior wall panels, sheathing, manufacturer, components, and accessories.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* - Delete any paragraphs below not applicable to project manual.

* + 1. Section 05 40 00 – Cold Formed Metal Framing
		2. Section 06 11 00 – Wood Framing
		3. Section 07 21 00 – Thermal Insulation
	1. REFERENCE STANDARDS
		1. ASTM E84 - “Standard Test Method for Surface Burning Characteristics of Building Materials”.
		2. ASTM E2768 – “Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)
		3. ASTM D1037 - “Standard Test Method for Evaluating Properties of Wood based Fiber and Particle Panel Materials”, Section 15: Nail Head Pull Through.
		4. ASTM E330 – “Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference”.
		5. ASTM E72 - “Standard Test Method of Conducting Strength Tests of Panels for Building Construction”.
		6. ASTM E96 - “Test Method for Water Vapor Transmission of Materials”.
		7. ASTM G21 - “Standard Test Method for Determining Resistance of Synthetic Polymeric Materials to Fungi”.
		8. ASTM D1761 - “Standard Test Methods for Mechanical Fasteners in Wood, modified for Shear”.
		9. ASTM C1185 – “Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards”.
		10. ASTM E119 - “Standard Test Methods for Fire Tests of Building Construction and Materials”.
		11. ICC-ES Acceptance Criteria (AC) 386 – “Acceptance Criteria for Fiber-Reinforced Magnesium-Oxide-Based Sheets”.
		12. NFPA 285 – “Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components”.
	2. ACTION SUBMITTALS
		1. See Section 10 30 00 – Administrative Requirements for submittal procedures.
		2. Manufacturer’s Product Data: Submit data sheets for structural sheathing and accessories. Include instructions for handling, storage, installation, and protection.
		3. Manufacturer’s Installation Instructions: Indicate special handling criteria, installation sequence, cleaning procedures, and standard installation procedures. Include manufacturer’s standard details of joints, corners, and penetrations.
		4. Product Certifications and Reports: Provide third-party Evaluation Reports, Listings, and Approvals demonstrating compliance with specifications.
		5. Warranty: Sample unexecuted copy of manufacturer’s product warranty.
	3. CLOSEOUT SUBMITTALS
		1. Warranty: Executed copy of manufacturer’s product warranty.
	4. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\* Sheathing should be included as a component of an Integrated Enclosure Mockup. Refer to the Project Division 01 section relating to mockups.

* + 1. Manufacturer Qualifications: Manufacturer shall be a company that regularly manufactures and assembles structural sheathing in its own fabrication and owned facilities.
			1. Manufacturer shall have in place an approved Quality Control program that is validated at least annually by an independent third-party.
		2. Field Quality Control Plan:
			1. Visually inspect substrate prior to beginning installation. Ensure tolerances and conditions are acceptable prior to beginning installation.
			2. Photographically document observations and maintain record of observations.
		3. Installer Qualifications: Company specializing in performing the work of this Section with minimum [3] [4] [5] years of experience.
	1. PRE-INSTALLATION MOCK-UP ASSEMBLY

\*\* NOTE TO SPECIFIER \*\* - Delete any paragraphs below not applicable to project manual.

* + 1. See integrated mock-up as indicated on the drawings.
		2. Construct mock-up, [\_\_\_\_] feet ([\_\_\_\_] m) long by [\_\_\_\_] feet ([\_\_\_\_] m) wide, including panels, attachments to building frame, sealants and seals, and [\_\_\_\_\_\_\_\_].
		3. Demonstrate component assembly including panel materials, corners (inside and outside), window openings, weep drainage system, attachments, anchors, and perimeter sealant.
		4. Locate [where directed] [\_\_\_\_\_\_\_\_].
		5. Mock-up [may] [may not] remain as part of the Work.
		6. Participants: Authorized representatives of the Contractor, Architect, Installer, and Manufacturer.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Transport and handle items in accordance with manufacturer’s instructions.
		2. Coordinate deliveries to avoid delay in, or impediment of, progress of the work.
		3. Store packaged materials in original containers in a horizontal orientation with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer’s instructions. Do not stack beyond manufacturer’s specific requirements.
		4. Store installation system materials in a dry location and handle in a manner to prevent chipping, breakage, and contamination.
		5. Store sheathing boards off ground, under cover, and keep dry. Pallets shall sit on even gravel or concrete surface when able.
		6. Maximum pallet stack height shall be six (6) pallets.
		7. Outdoor storage prior to installation requires a waterproof tarpaulin and elevated storage above ground level a minimum of four (4) inches if removed from factory pallet shipping platform.
1. PRODUCTS

	1. BASIS OF DESIGN
		1. US MgO Company: Wilmington, NC 28401. [www.USMgO.co](http://www.USMgO.co). 1-855-MgO4YOU (646-4968). Info@USMgO.co.

\*\* NOTE TO SPECIFIER \*\* - Delete any paragraphs below not applicable to project manual.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
	1. PERFORMANCE REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* - Innovation MgO Wall Panels, as a product, are fire-resistant and can be used as a component of a tested fire-resistant or fire-rated assembly. Fire-rated assembly information is for example only. Coordinate project specific requirements and other specification sections to include each assembly component. Include graphic assembly in drawings. ICC-ES design numbers listed below are for Innovation MgO Wall Panels.

* + 1. Component of Fire-Resistant Assembly in accordance with ASTM E119.
			1. [1-hour fire-resistance-rated 100% load-bearing assembly (ICC-ES Design Numbers MOS-1610-01, MOS-1610-02)]
			2. [2-hour fire-resistance-rated 100% load-bearing assembly (ICC-ES Design Numbers MOS-1610-03, MOS-1610-04, MOS-1610-05, MOS-1610-06)]
		2. Components of Exterior Fire spread wall in accordance with NFPA 285 tables as supplied by Manufacturer.
		3. Structural Design Values

\*\* NOTE TO SPECIFIER \*\* - Sheathing and tested fasteners must be used to achieve the maximum allowable uniform shear loading. Select the appropriate combination for the specific project. Coordinate selection in Fastener article.

* + - 1. Shear wall designs are limited to designs controlled by wind or seismic design categories A, B, and C.
				1. Attach panels vertically to structural substrate per manufacturer-approved and tested requirements.
				2. All joints of the sheathing shall be blocked by framing for shear wall applications only.
				3. Maximum allowable pressure shall be 207 plf.
			2. Maximum allowable wind pressures shall reference Manufacturer’s installation tables for structural substrate type as well as design deflection limits for specified claddings.
				1. Maximum allowable deflection shall be [L/180] [L/240] [L/360] [L/600] [L/720].
	1. MAGNESIUM OXIDE STRUCTURAL SHEATHING PANELS
		1. Physical Characteristics:
			1. Type: Magnesium Oxide (MgO) Board.
			2. Thickness: Nominal 1/2” (12 mm).
			3. Panel Size: Nominal 48 inches (1220 mm) by 96 inches (2440 mm).
			4. Panel Edges: Square profile.
			5. Panels identified with stamp or label including report holder, manufacturing facility, production date, and third-party listing information.
		2. Tested in accordance with ASTM E84 and ASTM E2768 to be Class A:
			1. Flame Spread Index: 0 – 25
			2. Smoke Developed Index: 0 - 450
		3. Flexural Strength tested in accordance with ASTM C1185 to have the minimum values:
			1. Machine Direction: 2,610 psi (18 MPa) (dry); 2,610 psi (18 MPa) (wet)
			2. Cross Direction: 2,610 psi (18 MPa) (dry); 2,610 psi (18 MPa) (wet)
		4. Water Vapor Permeance:
			1. ASTM E96 – 11.5 perms.
		5. Mold Resistance: No mold growth observed in accordance with ASTM G21.
		6. Evaluated for Corrosion Resistance per AC 386 Appendix A for appropriate end use condition.
		7. Weather Exposure: Resists weathering when left exposed for up to 180 days.
	2. PANEL FASTENERS
		1. Fasteners:
			1. Shall be approved panel fasteners by manufacturer.
			2. Fasteners shall be corrosion resistant type with bugle countersunk heads.
				1. Install with head flush with board. Do not overdrive fasteners.
			3. Fasteners must be spaced a minimum of 3/8-in. from all edges and no closer than 2-in. from a corner.
		2. Nails:
			1. Nails shall be minimum 0.113 x 2-in. (50.8 mm) Ring shank nails with a maximum of 24-in. o.c. with fasteners spaced a maximum of 6-in. o.c. around the perimeter of the panel, and 12-in. o.c. at the intermediate stud locations in the field of the panel.
	3. ACCESSORIES
		1. Exterior installation requires protection by a code compliant and manufacturer-approved Water-Resistant Barrier (WRB).
1. EXECUTION
	1. EXAMINATION
		1. Verify that surfaces and conditions are ready to accept the work of this section.
		2. Do not begin installation until exterior walls have been properly prepared.
		3. Verify that all exterior wall assembly construction has been completed to the point where the sheathing may correctly be installed.
	2. PREPARATION
		1. Protect surrounding area from possible damage during installation of structural sheathing.
		2. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
		3. If deficiencies exist, consult Architect. Correct deficiencies in accordance with manufacturer’s recommendations.
		4. Beginning installation constitutes Contractor’s acceptance of existing conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer’s instructions, requirements of applicable evaluation reports and fire-resistant assemblies, and requirements of authorities having jurisdiction.
			1. If used for racking: panel edges must be backed with framing or blocking.
		2. Install without gaps or voids.
		3. Fasten structural sheathing to the structural base wall.
		4. Immediately install exterior Water-Resistant Barrier over structural panels ensuring to cover all penetrations, fasteners, panel joints, rough openings as required by the WRB manufacturer.

* 1. PROTECTION
		1. Protect installed products until completion of project.
		2. Cover the top and edges of unfinished sheathing work to protect it from the weather and to prevent accumulation of water.
		3. Wet panels shall be allowed to completely dry prior to application of WRB.
		4. Repair or replace damaged products before Substantial Completion.

END OF SECTION 06 16 13