SECTION 08 44 11

GLAZED TIMBER CURTAIN WALLS

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\*\* NOTE TO SPECIFIER \*\* H Window Company; Glazed Aluminum/Wood Composite Curtain Walls.
This section is based on the products of H Window Company, which is located at:
401 17th Ave. W.
Ashland, WI 54806
Toll Free Tel: 800-843-4929
Tel: 715-685-2793
Fax: 715-685-9441
Email: [request info ()](https://admin.arcat.com/users.pl?action=UserEmail&company=H+Window+Company&coid=32903&rep=&fax=715-685-9441&message=RE:%20Spec%20Question%20(08441hwn):%20%20&mf=)
Web: <http://www.hwindow.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos32/arc32903.html) ] for additional information.
Beautiful. Enduring. Revolutionary.
The beauty of H Windows arises from exceptional materials in the hands of skilled craftsmen. The elegant aesthetics of our windows and doors are rooted in highly intentional engineering that has made us the provider of choice for architects and building owners throughout the United States.
The robust engineering behind our windows and doors has resulted in unmatched thermal and structural performance. We believe longevity is sustainability and the material durability and ease of maintenance ensures our products will last through the harshest environments.
Each of our products contains innovative features allowing us to achieve possibilities once thought out of reach. Our team of experts is well equipped to partner with owners, architects, and builders to push the boundaries and drive new levels of design achievement.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Glazed timber curtain wall system.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Applicable Division 01 Sections.
		2. Section 05 12 00 - Structural Steel Framing.
		3. Section 08 14 23 - Aluminum/Wood Composite Out-Swing Doors.
		4. Section 08 32 19 - Aluminum/Wood Composite Lift & Slide Doors.
		5. Section 08 41 13 - Aluminum-Framed Entrances.
		6. Section 08 52 00 - Aluminum/Wood Composite Windows.
		7. Section 08 80 00 - Glazing.
		8. Section 08 71 00 - Door Hardware.
		9. Section 09 90 00 - Paints and Coatings.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
			2. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
			3. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
		2. American Architectural Manufacturers Association (AAMA):
			1. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
			2. AAMA 501.1 - Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure.
			3. AAMA 503-03 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.
			4. AAMA 611-98 - Voluntary Specification for Anodized Architectural Aluminum.
			5. AAMA 1503-98/1503.1 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.
			6. AAMA 2604/2605 - Specifications for High Performance Organic Coatings on Architectural Extrusions.
		3. Refer to the Fenestration and Glazing Industry Alliance (FGIA) Glossary Document AAMA AG-13 for industry standard terminology and definitions.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Manufacturer's installation instructions.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each finish type for exterior aluminum, mullion wood species and interior stain.
		2. Shop Drawings: Include elevation drawings with rough opening dimensions, cross section details of curtain wall members, details of materials, installation details with rough opening requirements, structural attachments, and anchorage details, including dimensions of brackets and fasteners. Include assembly component dimensions and descriptions, internal drainage details and glazing and infill.
		3. Engineering Calculations: Structural data and certified, stamped engineering calculations including load calculations at points of attachment to building structure.
		4. Test Reports: Certification by a recognized independent testing laboratory showing system complies with performance requirements for air infiltration, water resistance, uniform structural loads, and thermal performance as specified herein at AAMA gateway sizes.
		5. Warranty: Manufacturer's standard warranty issued in Owner's name.
	1. QUALITY ASSURANCE
		1. Designer Qualifications: Design structural support framing under direct supervision of a professional Structural Engineer experienced in design of this Work, licensed in the State Project is located.
		2. Manufacturer Qualifications: Company trained and specializing in manufacturing products specified in this section with a minimum of five years documented experience.
		3. Installer Qualifications: Installer specializing in installing same or similar system specified, with minimum two years documented experience with projects of similar size, scope and complexity.
			1. If Installer is not specialized, Installer must complete manufacturers installation training program.
		4. Source Limitations: Provide each type of product from a single manufacturer.
		5. Product Options: Drawings and Specifications establish requirements for aesthetic effects and assembly performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies related to sightlines, to one another, and to adjoining construction. Do not modify intended aesthetic effects, judged solely by Architect except with Architect's approval. If revisions are proposed submit comprehensive explanatory data to Architect for review.
		6. Perimeter Sealant Installer: Company or individuals specialized in installation of sealants and accessories specified in this Section.

\*\* NOTE TO SPECIFIER \*\* When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support. Include perimeter sealant on portion of installed units as directed by Architect.
			1. The intent of a mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If the mock-up is not acceptable, rebuild the mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals, and comply with Division 01 Project Management and Coordination Section.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Delivery, store, protect and handle in strict compliance with manufacturer's written instructions and recommendations, and in accordance with AAMA CW-10.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
		3. Protect materials and finishes during handling and installation.
	3. PROJECT CONDITIONS
		1. Maintain environmental temperature, humidity and ventilation conditions within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
		2. Do not install sealants when ambient temperature is less than 40 degrees F (5 degrees C). Maintain this minimum temperature during, and 48 hours after sealant installation.
	4. WARRANTY
		1. Performance Warranty: Written 1 year warranty executed by the Contractor against defects in total curtain wall installation, including sealants and flashing.
			1. Glazing: Coverage as provided by original manufacturer.
			2. Curtain Wall Material and Workmanship: Written 10-year warranty executed by Contractor against defects in material and workmanship from date of final shipment.
			3. Exterior Aluminum Finish: 10 years from date of final shipment.
			4. Interior Factory Applied Wood Finish: 2 years from date of final shipment.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: H Window Company, which is located at: 401 17th Ave. W.; Ashland, WI 54806; Toll Free Tel: 800-843-4929; Tel: 715-685-2793; Fax: 715-685-9441; Email: [request info ()](https://admin.arcat.com/users.pl?action=UserEmail&company=H+Window+Company&coid=32903&rep=&fax=715-685-9441&message=RE:%20Spec%20Question%20(08441hwn):%20%20&mf=); Web: <http://www.hwindow.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.
	1. PERFORMANCE AND DESIGN REQUIREMENTS
		1. General: Glazed aluminum and wood composite curtain walls that meet or exceed performance requirements specified:
			1. Testing: Test aluminum and wood composite curtain walls through a recognized independent testing laboratory or agency in accordance with ASTM E283 for air infiltration, and ASTM E331 for water penetration.
				1. Air Infiltration: Test in accordance with ASTM E283 at a static air pressure difference of 6.24 psf. (300 Pa).

Air infiltration must not exceed 0.06 cfm/sq ft (.31 l/s sq m) of unit.

* + - * 1. Water Resistance: Test in accordance with ASTM E331. Conduct at a pressure differential of 10.0 psf (480 Pa).

There must be no uncontrolled water leakage past interior face of framing per AAMA 501.1.

* + - * 1. Uniform Load Deflection: Test in accordance with ASTM E330.

\*\* NOTE TO SPECIFIER \*\* Delete deflection limits not required.

Deflection under design load must not exceed L/175 for spans less than 162 inches (4114 mm).

Deflection under design load must not exceed L/240 plus 1/4 inch (6 mm) for spans greater than 162 inches (4114 mm).

* + - * 1. Uniform Structural Load: Test in accordance with ASTM E330 at 1.5 times the design wind pressure listed under Project Wind Loads.

Upon testing conclusion, there must be no permanent damage to curtain wall.

* + - * 1. Condensation Resistance: Test in accordance with AAMA 1503.1.

For Frames and Glass: Not be less than 79 when using 1-5/8 inches (41.3 mm) thick sealed, insulated glass with high performance low-e coating and argon gas fill.

* + - * 1. Condensation Resistance Factor: AAMA 1503:

Glazing Composition: Two pane glass; low-e coating on No 2 surface.

CRF Minimum: 65.

* + - * 1. Thermal Transmittance: Total Unit U-Factor: Not more than 0.16 Btu/hr.sq ft.F (-0.908 W/sq m.K) when glazed, with 0.12 Btu/hr.sq ft.F (0.681 W/sq m.K), center of glass.
				2. Thermal Movement: Accommodate expansion and contraction caused by 180 degrees F (82 degrees C) surface temperature.

Deflection of structural support framing under permanent and dynamic loads as specified herein.

* + - * 1. Project Wind Loads:

Design Wind Load: 90 mph (145 km/h).

Design Wind Load: \_\_\_ mph (\_\_\_ km/h).

Importance Factor: \_\_\_\_.

Building Exposure: \_\_\_\_.

* + - * 1. Design Criteria as Specified by Architect/Structural Engineer:

\*\* NOTE TO SPECIFIER \*\* Add pressure rate design criteria in pounds per square foot and pascals and add vertical and horizontal deflection as specified by the Structural Engineer.

Positive Pressure: \_\_\_\_\_\_ psf. (\_\_\_\_\_\_ Pa) at non-corner zones.

Negative Pressure: \_\_\_\_\_\_ psf. (\_\_\_\_\_\_ Pa) at non-corner zones.

Negative Pressure: \_\_\_\_\_\_ psf. (\_\_\_\_\_\_ Pa) at corner zones.

* + - * 1. Movement of Structural Support Framing:

Maximum Vertical Deflection of Structural Support Framing at Head: \_\_\_\_ inches (\_\_\_\_ mm).

Maximum Horizontal Deflection of Structural Support Framing at Tie-Back Points: \_\_\_\_ inches (\_\_\_\_ mm).

\*\* NOTE TO SPECIFIER \*\* Delete wood Species not required. Add glue-lam quality, grade, manufacturing, and moisture criteria. Delete FSC certification if not required. Delete perimeter floor line anchor type not required.

* 1. PRODUCT TYPES
		1. Basis of Design: System H Curtain Wall Plus; as supplied by H Window.
			1. System Type:

\*\* NOTE TO SPECIFIER \*\* Delete system types not required.

* + - * 1. Conventional Captured: Retained mechanically with gaskets along entire perimeter of glazed units.
				2. Two-Sided Structural Sealant Glazed: Retained mechanically on two sides and by structural-sealant on two sides.
				3. Four-Sided Structural Sealant and Toggle Glazed: Retained mechanically by toggle system interlocking with recessed channels installed on the glazed unit edges with structural sealant along the perimeter of the glazed unit.
				4. Four-Sided Structural Sealant Glazed: Retained with structural sealant on four sides.
			1. Materials:
				1. Extruded Aluminum: Exterior: 6063-T6.

Exterior Aluminum Finish:

\*\* NOTE TO SPECIFIER \*\* Delete finishes and colors not required.

Finish exterior aluminum components with electrolytically deposited finish as follows:

Clear Anodized, Medium Matte: AAMA 611-98, AA-M10-C22-A41, Class 1.

Color Anodized, Medium Matte: AAMA 611-98, AA-M10-C22-A44, Class 1.

Color: Extra Dark Bronze.

Color: Dark Bronze.

Color: Medium Bronze.

Color: Light Bronze.

Color: Champagne.

Color: Black.

Finish exterior aluminum components with Polyvinylidene Fluoride: AAMA 2604, AA-M12-C42-R1X, Kynar based, 50 percent resin.

Custom Color \_\_\_\_\_\_\_\_.

Finish exterior aluminum components with Polyvinylidene Fluoride: AAMA 2605, AA-M12-C42-R1X, Kynar, 70 percent resin.

Custom Color \_\_\_\_\_\_\_\_.

* + - * 1. Interior Wood: Engineered, glue-laminated, in manufacturers standard thickness and depth as required to support imposed loads.

Gluelam Quality, Grade and Manufacturing Criteria: Architectural Grade.

Species Selected:

\*\* NOTE TO SPECIFIER \*\* Delete wood species not required. Delete FSC option if not required.

Southern Yellow Pine.

Douglas Fir

Red Oak

White Oak.

Bamboo.

FSC Certified Mixed Credit Southern Yellow Pine.

FSC Certified Mixed Credit Douglas Fir.

FSC Certified Mixed Credit Red Oak.

FSC Certified Mixed Credit White Oak.

FSC Certified Mixed Credit Bamboo.

Interior Wood Finish: Visible interior wood components in curtain wall, including trim must be factory prefinished with a three coat post-catalyzed conversion varnish spray finish prior to window assembly.

Paint or Stain Color: As selected by the Architect from manufacturers range.

* + - * 1. Glazing: Refer to Section 08 80 00 Glazing.
				2. Anchors:

Aluminum perimeter and floor line anchors.

Steel perimeter and floor line anchors.

Steel anchors must be insulated from the aluminum.

Refer to Division 05 Section Structural Steel, and Division 09 Section Paint Coatings for exposed steel anchor materials, fabrication, and finishes.

* + - * 1. Operable Units:

Doors: Comply with Division 08 Section Aluminum Framed Entrances.

Windows: Comply with Division 08 Section Windows.

* + - * 1. Thermal Barrier: Where required to meet performance requirements, must be of foam extrusion, used as an applied thermal isolator.
		1. Fabrication:
			1. System Depth: Engineered to meet structural performance requirements specified.
			2. Structural Aluminum Glazing Components Minimum Wall Thickness: .059 inches (1.5 mm).
			3. Interior Wood Profiles: Engineered, laminated and finger-jointed in species specified.

\*\* NOTE TO SPECIFIER \*\* Delete the system widths not required. Captured Systems use 2-1/4 and 3 inch widths. SSG and Toggle Systems use 2-1/2 and 3 inch widths.

* + - * 1. Wood System Width:

System Width: 2-1/4 inches (56 mm).

System Width: 2-1/2 inches (63.5 mm).

System Width: 3 inches (76 mm).

* + - * 1. Adhesives must be exterior grade.
			1. Fasteners: Fasteners in contact with aluminum must be stainless steel in accordance with curtain wall system requirements.
			2. Concealed Flashing: Fabricated from aluminum or galvanized steel.
			3. Exposed Aluminum Flashing: Minimum 0.060 inch (1.5 mm) thick.
				1. Finish: Match exterior aluminum finish and color.
			4. Framing:
				1. Horizontal frame components must be mechanically fastened to vertical frame components with fully concealed connector system for structural wood curtain wall supplied by manufacturer.
				2. Connectors must be designed based on wind load requirements specified.
			5. Captured Glazing: Retained mechanically with pressure plate and gaskets along the entire perimeter of glazed unit.
				1. Outside glazed curtain wall system must be dry glazed with an exterior aluminum pressure plate and snap cover with interior and exterior dense EPDM preset gaskets.
				2. Glass support brackets must be securely fastened to horizontal members with screws in accordance with curtain wall system requirements.
				3. Provide extruded aluminum snap-on cover caps in profiles indicated on Drawings.
			6. Structural Sealant and Toggle-Glazing: Retained mechanically by toggle system interlocking with channels installed on the glazed unit edges with structural sealant along the perimeter of the glazed unit.
				1. Toggles: Stainless steel with neoprene pads. Coordinate toggle receiver channel with glazing unit manufacturer as specified in Section 08 80 00 - Glazing.
				2. Structural Glazing Sealants: ASTM C1184, chemically curing silicone formulation compatible with system components it contacts, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in structural-sealant-glazed curtain wall assembly indicated.

Color: As selected by Architect from Manufacturer's full range of colors. Basis of Design Color: Black.

* + - 1. Structural Sealant Glazing: ASTM C1184, chemically curing silicone formulation compatible with system components it contacts, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in structural-sealant-glazed curtain wall assembly indicated.
				1. Confirm structural sealant and bond breaker tape are capable of withstanding tensile and shear stresses imposed by structural-sealant-glazed curtain walls without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.

Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.

Cohesive failure occurs when sealant breaks or teas within itself but does not separate from each substrate, because sealant-to-substrate bond strength exceeds sealant's internal strength.

* + - * 1. Color: As selected by Architect from manufacturer's full range of colors. Basis of Design Color: Black.
			1. Glazing Units: as specified in Section 08 80 00 - Glazing.
			2. System Drainage:
				1. Water or condensation entering on forming withing the system will be drained to the exterior with an internal weep drainage system and weep holes to the exterior.
				2. Internal vent system must be applied where required by curtain wall system requirements.
			3. Air and Vapor Seal: Continuous air barrier and vapor retarder throughout assembly.
			4. Shading Elements: Where applicable provide shading elements as indicated on the Drawings and as specified.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until the substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Rough openings must be prepared by others to the correct size in compliance with the Drawings and flashed with flexible membrane flashing prior to installation of curtain wall.
		2. Verify dimensions, tolerances, and method of attachment with related Work.
		3. Verify openings and adjoining air and vapor seals and membrane flashings are prepared to receive Work of this Section.
		4. Verify structural support of curtain wall is in place and adequate for anchoring attachment.
		5. Clean surfaces thoroughly prior to installation.
		6. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install curtain walls in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
			1. Separate timber materials from sources of corrosion or electrolytic action contact points.
			2. Align curtain wall plumb and level in a single plane for each wall plane, and erect curtain wall materials free of warp or twist. Anchor to structure to accommodate for normal thermal movement, building movement, and specified wind loads.
			3. Where applicable, adjust operable elements in curtain wall for proper operation after installation.
			4. Furnish and apply sealants where required for a weather tight installation at all joints and intersections and at opening perimeters. Wipe off excess material, leave all exposed surfaces and joints clean and smooth.
			5. Install exterior weather seals and flashings to form a watertight joint to adjacent work.
			6. Fill shim spaces at assembly perimeter with low expanding foam for continuous thermal barrier.
			7. Install interior air and vapor barrier for continuous air and moisture barrier.
	4. TOLERANCES
		1. Maximum variation from plum must not exceed 0.08 inch (2.0 mm) for every 3 feet (914 mm) non-cumulative, or 0.5 inch (13 mm) per 100 feet (30.5 m), whichever is less.
		2. Sealant space between curtain wall members and adjacent construction to be minimum 1/4 inch (6 mm), and maximum 3/4 inch (19 mm) unless wider joints are specified to allow for building deflection specified in movement of structural support framing.
	5. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
		2. Field Testing: Cost of field testing must be borne by Owner. Where required by the Architect and/or Owner, the following selection process and testing procedures apply:
			1. Air, water, and structural test unit must be selected by Architect and/or Owner the day of testing. If no test area and/or location have been identified, the persons executing the test will select an area.
			2. Area must be selected to provide representative performance data, and a minimum of 50 sq ft (4.65 sq m). The area to be tested must include perimeter caulking, typical splices, frame intersections, and where applicable, at least two entire vision lites and/or two entire spandrel lites containing an intermediate horizontal member.
			3. Operable components within the test area must be isolated and exempt from the test procedure.
		3. Test Procedures and Performance:
			1. Air Infiltration Test:
				1. Test unit in accordance with AAMA 503-03 for field testing. The unit test must be conducted at a minimum uniform static test pressure differential of at least 1.57 psf. (75 Pa), and at a pressure differential not to exceed 6.24 psf. (300 Pa).
				2. The maximum allowable rates of air leakage for field testing must not exceed 1.5 times the project specification rate, or 0.09 cfm. sf. (.45 l/s sq. m), whichever is greater.
			2. Water Resistance Test:
				1. Test unit in accordance with AAMA 503-03.
				2. Field water penetration resistance tests must be conducted at a static test pressure of two-thirds of the specified project water penetration test pressure, and not less than 6.24 psf. (300 Pa). There must be no uncontrolled water leakage past interior face of framing per AAMA 501.1.
			3. Repair or replace curtain wall components that have failed field testing.
	1. ADJUSTING, CLEANING AND PROTECTION
		1. Protect all materials and finishes from damage from construction, activities, extreme weather exposure and harmful substances.
		2. Remove protective materials and clean aluminum and wood surfaces as recommended by the manufacturer for the type of finish applied.
		3. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
		4. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION