



LHI Architectural Aluminum Division

Custom Fabricated Architectural Aluminum Products

75 Leeder Hill Drive | Hamden, CT 06517-2731 | (203) 288-8484 or (800) 243-6566

Series 200 & 250 Pressure Wall System (Curtain Wall System) Specifications

Product description: Series 200 and 250 Pressure wall is a thermally broken curtain wall system with a 2" (200) and 2 1/2" (250) face dimension and mullion depths of 3 1/2", 4 1/2", 5 1/2", and 6 3/4". These systems are designed as a stick built system, for outside glazing. Glazing can be 1/4", 3/8", 1/2", 5/8", and 1" all dry set systems. The system design includes custom entrance adapters and perimeter anchoring and structural reinforcing.

Section 08900 GLAZED ALUMINUM CURTAIN WALLS

PART 1 – GENERAL

1.01 Work Included (scope of work)

A. Furnish and install architectural aluminum curtain wall system complete with related entrance and flashing systems as shown on drawings and specified here in.

B. Storefront shall be LEED\HIMMEL Series 4500T for 1" glazing. All main extrusions are to be minimum .125" extrusions. Other manufactures substitutions must be submitted ten days prior to bid date.

1. Substitutes must provide detailed product information in compliance to this specification.
2. Test data documenting compliance with requirements of section 1.05 of this specification.

C. Glass and Glazing

Refer to glass and glazing section 08800.

1.02 Related work

Refer to section 05500, 07600, 08900, and 08700

1.03 Items furnished but not installed

Refer to scope of work 1.01 above

1.04 Items installed but not furnished

Refer to Hardware specifications 08700

1.05 Testing and System Performance Requirements

A. Provisions for thermal movement

Storefront framing system shall be designed to provide for thermal movement of all component materials resulting from surface temperature ranging from [____]

degrees F to [____] degrees F structural elements damaging loads on fasteners, reduction of performance, or other detrimental effects. Operating doors shall function normally over the temperature range.

B. Test Units

1. Air, water and structural test unit size shall be a minimum of at least 2 1/2 stories high and four lites wide.
2. Thermal test unit size shall be 6" wide by 7" high with one (1) intermediate vertical mullion and two lites of glass.

C. Test Procedures and Performance

1. Air Infiltration Test

- a. Test unit in accordance with **ASTM E 283** at static air pressure difference of 1.56 psf.
- b. Air infiltration shall not exceed .06 cfm per square foot of fixed wall area.

2. Water Resistance Test

- a. Test unit in accordance with **ASTM E 313**.
- b. There shall be no uncontrolled water leakage at a static test pressure of 6.24 psf.

3. Dynamic Water Resistance Test

- a. Test unit in accordance with **AAMA 501.1-83**
- b. There shall be no uncontrolled water leakage

at a dynamic test pressure of 6.24 psf.

4. Uniform Load Deflection Test

- a. Test in accordance with **ASTM E 330**.
- b. The system shall withstand the following design wind pressure normal to the plane of the wall [] psf. both positive and negative as determined by the architect and the governing building codes as calculated in accordance with **ANSI A58.1** or as determined by wind tunnel testing. 30 psf minimum.
- c. Deflection under design load shall not exceed **L/175** of the clear span.

5. Uniform Load Structural Test

- a. Test in accordance with **ASTM E 330** at 150% of the design wind pressure as specified in 1.05 B.4.b
- b. At the conclusion of the test, there shall be no glass breakage, permanent damage to fasteners, storefront parts, or any other damage which would deem the curtain wall to be defective.

6. Condensation Resistance Test (CRF)

- a. Test in accordance with **ASTM 1502.7**
- b. Condensation resistance factor shall not be less than 55.

7. Thermal Transmittance Test (U Value)

- a. Test in accordance with **ASTM 1503.1**
- b. Conductive thermal transmittance (U Value) shall not be more than .65 BTU/HR/degree F/SF

1.06 Quality Assurance

Provide test reports from AAMA accredited laboratories certifying the performance as required per item 1.05 above.

1.07 Reference

Provide list of completed projects, and owner information as deemed necessary by architect.

1.08 Submittals

- A. Contractor shall submit shop drawings, finish samples, test

reports, structural calculations, and warranties.

1. Samples of materials well may be requested without cost to the owner, i.e., metal, glass, fasteners, anchors, frame sections, mullion sections, corner sections, etc.
2. () copies of all shop drawings shall be submitted for architectural approval. Drawings shall show scale elevations and sections. Half size standard details and full size details when deemed necessary to clarify special design conditions. Drawings shall show construction of all parts of the work, including metal and glass thickness, method of joinery, detail of all field connections, and anchorage. Fasteners and finishes must be clearly identified along with all other pertinent information deemed necessary in order to provide for a proper installation. No work shall be fabricated until shop drawings have been approved by the architect and field dimensions have been confirmed by the installing contractor.
3. Erection tag drawings are to be provided to the installer for site installation and material coordination. Erection drawings are to be provided after final approval, field dimension verification, and prior to shipment of fabricated curtain wall system.

1.10 Delivery, Storage, and Handling

General contractor to provide adequate secured storage area adjacent to the building for storage of fabricated curtain wall components. Installer is to ensure that all stored materials are protected from damage and moisture.

1.10 Warranties

A. Total Curtain Wall System

1. The responsible contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total storefront installation. This includes the glass, glazing, anchorage, setting system, seals and flashing as they relate to the air, water, and structural requirements as stated in this specification and as noted on the approved shop drawings.

2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at his expense during the warranty period.

PART 2 – PRODUCTS

2.01 Materials

A. Aluminum

Extruded aluminum shall be 6063-T5 or T6 allow and tempered as required.

B. Glass and Glazing

The storefront system shall be available with ¼”, 3/8”, ½”, and 1” glazing thickness. Refer to section 08800.

C. Thermal Barrier

The thermal barrier shall be extruded PVC used as an applied thermal isolator.

D. Anchors

1. Perimeter and floor anchors are to be heavy gauge extruded aluminum clip angles.
2. Intermediate vertical mullion anchors are to be fabricated 3/8” minimum coated steel. With allowances for mullion expansion design system.

E. Dissimilar Metals

All dissimilar materials must be properly isolated and insulated to prevent galvanic action.

F. Fasteners

All exposed fasteners are to be 316 stainless steel.

2.02 Fabrication

A. General

All aluminum vertical and horizontal mullions shall have a minimum side wall thickness of .125” and a minimum rear wall thickness of .188”. Glazing pressure bar shall have an average thickness of .188”, snap covers shall have a minimum thickness of .063”.

B. Framing Attachment

1. Frame components shall be mechanically fastened by means .188” extruded shear blocks attached to the vertical mullions.
2. Non-90 degree connections are to be both mechanically fastened and welded heavy gauge fabricated shear blocks to the vertical

mullion. Such mullions are to be post finished after fabrication to ensure consistent finish.

C. Glazing

Glazed curtain wall system shall be dry glazed with an exterior aluminum pressure plate and snap on cover with interior and exterior dense neoprene gasket.

2.03 Finish Assurance

All finishes, whether anodic or organic, are to be factory applied by the storefront manufacturer’s in house, EPA approved finishing facilities.

2.04 Finishes

(See Separate finish specifications for further details.)

A. Anodic

Finishes all exposed areas of alum. entrance and storefront components with electrically deposited color in accordance with Alum. Assoc. Designation AA-[_____], color to be [_____]. ((Available colors are clear, champagne, light, med. and dark bronze, and black (AA-M12-C22_A31 clear anodized))

B. Organic

Finish all exposed areas of alum. entrance and storefront with [_____], color is to be [_____]. Both high performance power coat by Tiger Dry-Lac and Kynar based finishes as manufactured by PPG Industries are available (US _____XL Silver Metallic).

PART 3 – INSPECTION

3.01 Inspection

All openings shall be prepared by others to the proper size and shall be plumb, level, and in the proper location and alignment as shown on the architectural drawings. Provide a solid anchoring surface in accordance with approved shop drawings and coordinate proper anchor location with structural drawings.

3.02 Installation

- A. Use only skilled tradesman with work done in accordance with approved shop drawings and established specifications. Erect all curtain wall components to all building bench marks, established reference points and column center lines.

- B.** Plumb and align curtain wall faces in a single plane for each wall plane and erect curtain wall materials square and true adequately anchored to maintain positions permanently when subjected to normal thermal and building movement and specific wind loads.
- C.** Adjust operable windows within curtain wall for proper operation after installation of the curtain wall. (Refer to operable window specification for installation requirements).
- D.** Furnish and apply sealant to provide 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.

3.03 Protection and Cleaning

- A.** After completion of curtain wall installation, curtain wall shall be inspected, adjusted, put into working order, and left clean.
- B.** The general contractor shall protect the aluminum curtain wall material and finish against damage from construction activities and harmful substances. The general contractor

shall clean the aluminum surfaces as recommended for the type of finish applied, and shall be responsible for final cleaning.



130 Derry Court • York, PA 17402-9405
web www.testati.com • Facsimile 717-764-4129 • Telephone 717-764-7700

May 15, 1998

Mr. Rick Green
Leed Himmel
P.O. Box 4275
75 Leeder Hill Drive
Hamden, Connecticut 06514

RE: Test Results

Dear Mr. Green:

Tests have been completed by Architectural Testing, Inc. (ATI) on Leed Himmel's 250 Series four lite fixed wall unit. The test specimen measuring 8' 0" wide by 8' 0" high was tested for air infiltration, water penetration, and uniform load structural performance. Test data is reported below. A complete test report, ATI No. 01-31697.01, is forthcoming.

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
ASTM E 283	Air Infiltration @ 1.56 psf (25 mph) @ 6.24 psf (50 mph)	<0.01 cfm/ft ² <0.01 cfm/ft ²
ASTM E 331	Water Penetration WTP = 20.0 psf	No entry
ASTM E 330	Uniform Load Structural @ 110.0 psf (exterior) Deflection Perm. Set @ 110.0 psf (interior) Deflection Perm. Set	0.170" 0.005" 0.270" 0.005"

If you have any questions regarding this or any other test matter, please feel free to contact me at your convenience.

Sincerely yours,

ARCHITECTURAL TESTING, INC.

Benjamin E. Myers
Technician

BEM:cat
01-31697

**ARCHITECTURAL
TESTING INC.**

130 Derry Court • York, PA 17402-9405 • Facsimile 717-764-4129 • Telephone 717-764-7700

May 13, 1998

Rick Green
Leed Himmel Industries
75 Leeder Hill Drive
Hamden, Connecticut 06514

Dear Rick:

Your complete thermal test results are as follows:

Control Number	Specimen Type	U-value	CRF
01-31796	4500T Four-Lite Curtain Wall	0.64	53
01-30197	250 Four-Lite Pressure Wall	0.68	60

A formal thermal test report for each specimen is forthcoming. If you have any questions, please call at your convenience.

Sincerely,


Matthew J. Sindlinger

Technician
MJS

RECEIVED
MAY 20 1998
LEED/HIMMEL
INDUSTRIES, INC.