J450x Storefront

SYSTEM PERFORMANCE

TEST SUMMARY

TEST	STANDARD	RESULTS	TEST LAB
Static Air Infiltration	*ASTM E283*	0.06 cfm/ft^2 @ 6.24 psf	Lab: Quast Testing – Mosinee, WI Report #: QCT22-6859.01 Test Date: 1/31/23 – 2/20/23 Report Date: 3/13/23 Lab: Quast Testing – Mosinee, WI Report #: QCT22-6859.03 Test Date: 5/22/23 – 6/12/23 Report Date: 6/13/23
Static Air Exfiltration	*ASTM E283*	0.06 cfm/ft2 @ 6.24 psf	
Static Water Resistance	*ASTM E331*	15 psf	
Static Cyclic Water Resistance	*ASTM E547*	15 psf	
Dynamic Water Resistance	*AAMA 501.1*	15 psf	
Structural Design	*ASTM E330*	+/- 25 psf	
Structural Overload	*ASTM E330*	+/- 37.5 psf	
Vertical Interstory Movement	*AAMA 501.7*	+/- 1/2"	
Lateral Movement: Elastic	*AAMA 501.4*	+/- 1.23”	
Lateral Movement: Inelastic	*AAMA 501.4*	+/- 1.84”	
Thermal Cycling	*AAMA 501.5*	-20 ^{O}F to 180 ^{O}F	
Condensation Resistance Factor	*AAMA 1503.9*	CRF_{frame}: 68 CRF_{glass}: 70	Lab: Quast Testing – Mosinee, WI Report #: QCT-CRF-12217.01 Report Date: 3/11/23
Acoustic: 1” IGU (1/4”, 1/2” air, 1/4”)	*ASTM E90* *ASTM E1332*	STC: 31 OITC: 26	Lab: Riverbank Acoustical – Geneva, IL Report #: TL23-027 Report Date: 1/25/23
Acoustic: 1-1/16” IGU (1/4”, 7/16” air, 3/16”- 0.030 PVB – 3/16”)	*ASTM E90* *ASTM E1332*	STC: 37 OITC: 31	Lab: Riverbank Acoustical – Geneva, IL Report #: TL23-028 Report Date: 1/25/23

Refer to the test reports in the above table for complete specimen description, data, and testing sequence.

Contact a JR Butler Inc. representative for more information.

TEST STANDARDS

Static Air Infiltration / Exfiltration: ASTM E283, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*. Testing was conducted at 6.24 psf positive and negative static air pressure difference. Allowable value <= 0.06 cfm/ft^2. **PASSED**

Static Water Resistance: ASTM E331, *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, Curtain Walls by Uniform Static Air Pressure Difference*. Testing was conducted at 15 psf positive static air pressure difference for 15-minute duration. Water applied at a minimum rate of 5 gal/ft^{2}hr.

Criteria: No water penetration of water beyond a plane parallel to the glazing (vertical plane) intersecting the innermost projection of the test specimen, not including interior trim and hardware, under the specified conditions of air pressure difference across the specimen. **PASSED**

Dynamic Water Resistance: AAMA 501.1-17, *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, Curtain Walls by Uniform Static Air Pressure Difference*. Testing was conducted at 15 psf positive static air pressure difference for 15-minute duration. Water applied at a minimum rate of 5 gal/ft^{2}hr. No uncontrolled leakage allowed.

Criteria: No water penetration of water beyond a plane parallel to the glazing (vertical plane) intersecting the innermost projection of the test specimen, not including interior trim and hardware, under the specified conditions of air pressure difference across the specimen. No cumulative collection of more than ½ oz. of water on top of interior members. **PASSED**

Cyclic Water Resistance: ASTM E547, *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, Curtain Walls by Cyclic Static Air Pressure Difference*. Testing was conducted at positive static pressure differential of 15 psf. Water as applied to the specimen's exterior face for twenty-four (24) minutes at a rate of 5 gal/ft^{2}hr.

Criteria: No water penetration is allowed. **PASSED**

Structural Performance: ASTM E330, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.* Testing was conducted at +/- 25 psf design loads and +/- 37.5 psf overloads (1.5x design load). Deflection of system shall be measured and recorded at design and overload pressures for 10 seconds and evaluated using the following:

Criteria: **PASSED**
Deflection Normal to Wall Plane: L/175 for spans less than 13'-6", L/240 +1/4" for spans equal or greater than 13'-6".
Deflection Normal to Wall Plane for Cantilevers: 2L/175
The net permanent set for overload shall not exceed 0.1% of the clear span.

Vertical Interstory Movement: AAMA 501.7, *Recommended Static Test Method for Evaluating Windows, Window Wall, Curtain Wall, and Storefront Systems Subjected to Vertical Inter-Story Movements.* Three complete cycles performed in the vertical direction at the floor simulation. Three complete cycles shall be performed uniformly in the vertical direction at the supplied columns. Vertical movement will be 1/2" down, then back to zero, 1/2" up, then back to zero (one cycle).

Criteria: There shall be no failure or gross permanent distortion of anchors, frame, glass, or panels. Structural silicone shall not experience adhesive or cohesive failure along any glass, frame or panel edge. Glazing gaskets may not engage and weather seals may not fail. **PASSED**

Lateral movement (elastic): AAMA 501.4-18, *Recommend Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts.* Complete three complete cycles for the horizontal direction parallel to the main elevation at the upper intermediate simulation. Parallel horizontal movement will be 1.225" left, back to zero, 1.225" right and back to zero (one cycle).

Criteria: There shall be no visible damage to framing or trim components or assemblies. No glass breakage or glass fallout. Full disengagement of gaskets or weather seals is not allowed at any location. Air infiltration and water penetration resistance shall remain within specified allowable limits without adjustments or repair. No wall components may fall off. **PASSED**

Lateral movement (inelastic): AAMA 501.4-18, *Recommend Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts.* Complete three complete cycles for the horizontal direction parallel to the main elevation at the upper intermediate simulation. Parallel horizontal movement will be 1.8375" left, back to zero, 1.8375" right and back to zero (one cycle).

Criteria: At the conclusion of the test there shall be no glass breakage or fallout. No wall components may fall off. **PASSED**

Thermal Cycling: AAMA 501.5, *Test Method for Thermal Cycling of Exterior Walls.* The entire mockup shall be subjected to three thermal cycles. Each cycle shall be maintained for two hours after establishing the following temperature and consist of:

Thermal Cycle Requirements

a. Low exterior temperature of -20 ^{O}F for two hours after establishing temperature.
b. High exterior ambient temperature of 180 ^{O}F for two hours after establishing temperature.
c. Interior temperature shall be maintained between at 70 ^{O}F.

Criteria: Components used within the system shall withstand thermal movements without buckling, distortion, cracking, failure of glass, and failure of joint seals or undue stress on the finished surfaces, materials, or fixing assemblies. No physical damage or deterioration was visibly evident. **PASSED**

Condensation Resistance Factor (CRF): AAMA 1503.9, *Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections*.

CRF_{frame} = 68 CRF_{glass} = 70 Glass Makeup: 1" IGU (1/4" VNE-63 HS, 1/2" 90% argon VTS, 1/4" clear HS)

Acoustic (STC/OITC):

ASTM E90-09 (2016), *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*
ASTM E1332-16, *Standard Classification for Rating Outdoor-Indoor Transmission Class*

STC = 31 OITC = 26 Glass Makeup: 1" IGU (1/4" clr HS, 1/2" air VTS, 1/4" clr HS)
STC = 37 OITC = 31 Glass Makeup: 1-1/16" IGU (1/4" clr HS, 7/16" air VTS, 3/16" clr HS – 0.030 PVB – 3/16" clr HS)