TUBELITE®
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

TEST REPORT SUMMARY

AIR - WATER – STRUCTURAL – SEISMIC - THERMAL CYCLING

400TU Series Curtainwall

PRODUCT **400TU Series Curtainwall**
2-1/2" x 7-1/2"

TEST RESULTS

Air Infiltration	*ASTM E283*	**0.06 cfm/ft^2 @ 6.24 psf**
Static Pressure Water Resistance	*ASTM E331*	**15 psf**
Dynamic Pressure Water Resistance	*AAMA 501.1*	**15 psf**
Structural – Design Load	*ASTM E330*	**+/- 40 psf**
Thermal Cycling	*AAMA 501.5*	**-20 ^{O}F to 180 ^{O}F**
Interstory Horizontal Displacement	*AAMA 501.4*	**0.72"**
Live Loading Displacement	*AAMA 501.7*	**3.6"**
Structural – Overload	*ASTM E330*	**+/- 60 psf**

TEST LAB

Construction Consulting Laboratory, International (CCLI)
Carrollton, TX 75006

Report Number	Test Completion Date
CCLI-15-042	6/29/2015
CCLI-16-109	6/29/2016

Reference reports CCLI-15-042 dated 6/29/2015 and CCLI-16-109 dated 6/29/2016 for complete test specimen description and data.

Tubelite Representative:  (sign) 10/26/2016 (date)

Tim Fookes - Vice President of Engineering (title)

TEST METHODS

Air Infiltration: *ASTM E283-04, 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 static air pressure difference.

Static Pressure Water Resistance: ASTM E331-00,*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.

Dynamic Pressure Water Resistance: AAMA 501.1-05, *Standard Test Method for Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure.* Testing was conducted with a dynamic pressure equivalent of 15 psf for a 15 minute duration. Water applied at a minimum rate of 5 gal/ft^2/hr.

Structural Performance: ASTM E330-02, *Standard Test Method for Structural Performance of Exterior Windows, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.* Testing was conducted up to +/- 40 psf design loads and +/- 60 psf overloads. Allowable Criteria: L/175 deflection normal to wall plane.

Thermal Cycling: AAMA 501.5**,** *Standard Test Method for Thermal Cycling of Exterior Walls.* Testing was conducted with three thermal cycles. Each cycle maintained for two hours after establishing the following temperatures and consist of:

a. Low exterior temperature of -20 ^{o}F.
b. High exterior temperature of 180 ^{o}F.
c. Interior temperature maintained between 70 ^{o}F and 80 ^{o}F.
d. System components shall withstand thermal movements without buckling, distortion, cracking, failure or glass, and failure of joint seals or undue stress on the finished surfaces, materials, or fixing assemblies.

Interstory Horizontal Displacement: AAMA 501.4, *Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Induced Interstory Drifts*. Testing was conducted with three complete cycles in the horizontal direction parallel to the main elevation at the sill simulation. Parallel movement will be 0.72" to the left, then back to zero, 0.72" to the right then back to zero. There shall be no glass breakage or fallout. Any damage shall be readily repairable/adjustable on site with no part replacements required. Post-design displacement performance (air, water, structural, etc.) can be attained with adjustments not requiring wall system disassembly. Visible seals or gaskets may be repaired or reset. No wall components may fall off. Trim may be visibly disengaged.

Seismic Movement: AAMA 501.4. *Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjected to Seismic and Wind Inducted Interstory Drifts.* Testing conducted with three complete cycles in the horizontal direction parallel to the plane of the wall. Parallel horizontal movement will be up to 3.6" left, back to zero, 3.6" right and back to zero (one cycle). Allowable criteria: There shall be no glass breakage, permanent damage to frame members, or anchors.