



# Product Evaluation

CWSF41 | 0815

Engineering Services Program

*The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).*

*This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.*

*This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.*

*For more information, contact TDI Engineering Services Program at (800) 248-6032.*

**Evaluation ID:** CWSF-41

**Effective Date:** August 1, 2015

**Re-evaluation Date:** August 2019

**Product Name:** ForceFront Hurricane 400 Aluminum Curtain Wall System, Impact Resistant

**Manufacturer:** Tubelite, Inc.  
3056 Walker Ridge Drive NW  
Walker, MI 49544  
(800) 866-2227

## General Description:

The ForceFront Hurricane 400 is an aluminum frame curtain wall system used for commercial installations. This evaluation report includes the following curtain wall assemblies:

- Twin-Span Curtain Wall
- Single-Span Curtain Wall
- Captured Outside Corner
- Structural Sealant Glazed Outside Corner

**Doors:** Doors referenced in this product evaluation report are Tubelite, Inc. Monumental door products. The Tubelite, Inc. Monumental doors used with these assemblies must be listed in separate TDI product evaluation reports.

**Product Identification:** A Tubelite, Inc. label will be affixed to the storefront assembly.

**Products Installed in Accordance with Drawing No. TDI-400-CAP-IMP:** The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW 400 Captured Impact Curtain Wall System); that the design pressure, missile level, and size are per drawing TDI-400-CAP-IMP; and that the product complies with ASTM E 330, ASTM E 1886, ASTM E 1996.

**Products Installed in Accordance with Drawing No. TDI-400-SSG-IMP:** The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW SSG Impact Curtain Wall System); that the design pressure, missile level, and size are per drawing TDI-400-SSG-IMP; and that the product complies with ASTM E 330, ASTM E 1886, ASTM E 1996.

**Limitations:**

**Design Drawings:**

Storefront assemblies must comply and be installed in accordance with one of the following design drawings:

Drawing No. TDI-400-CAP-IMP, "Tubelite CW 400 Captured Impact Curtain Wall System," Sheets 1 thru 14 of 14, dated July 8, 2015, signed and sealed by Lucas A. Turner, P.E on July 20, 2015. This evaluation report refers to the stated drawings as the approved drawings.

Drawing No. TDI-400-SSG-IMP, "Tubelite CW 400 SSG Impact Curtain Wall System," Sheets 1 thru 14 of 14, dated July 8, 2015, signed and sealed by Lucas A. Turner, P.E on July 11, 2015. This evaluation report refers to the stated drawings as the approved drawings.

**Fabrication and Assembly:** Tubelite, Inc. aluminum curtain wall systems are fabricated in the factory. The aluminum curtain wall systems are assembled and glazed at the jobsite. The approved drawings referenced in this evaluation report indicate the options for the glazing construction.

**Design pressure (DP):**

- **Drawing No. TDI-400-CAP-IMP:** The allowable design pressure rating for the curtain wall system is specified in Tables A, B, C, D ranging from  $\pm 70$  psf to  $\pm 90$  psf. Refer to approved drawing for specific design pressure requirements.
- **Drawing No. TDI-400-SSG-IMP:** The allowable design pressure rating for the curtain wall system is specified in Tables A, B, C ranging from  $\pm 57.1$  psf to  $\pm 90$  psf. Refer to approved drawing for specific design pressure requirements.
- If the curtain wall system is used with doors, then the design pressure rating of the complete assembly will be the lesser of the allowable design pressure rating for the doors and the curtain wall system in this evaluation report.

**Impact Resistance:**

- **Drawing No. TDI-400-CAP-IMP:** The curtain wall system satisfy TDI's criteria for protection from windborne debris in both the **Inland I** and **Seaward** zones. Refer to Table F of the approved drawing. Assemblies with Glazing Types 1 and 2 installed passed the large missile impact criteria (Missile Level D) specified in ASTM E 1996. Install these assemblies at any height on the structure that does not exceed the assembly's design pressure rating. Assemblies with Glazing Type 3 installed passed the small missile impact criteria (Missile Level A) specified in ASTM E 1996. Install these assemblies at a minimum height of 30 feet above grade on the structure that does not exceed the assembly's design pressure rating. These assemblies do not require protection with an impact protective system when installed in areas that require windborne debris protection.

- **Drawing No. TDI-400-SSG-IMP:** The curtain wall system satisfy TDI's criteria for protection from windborne debris in both the **Inland I** and **Seaward** zones. Refer to Table E of the approved drawing. Assemblies with Glazing Types 1 and 2 installed passed the large missile impact criteria (Missile Level D) specified in ASTM E 1996. Install these assemblies at any height on the structure that does not exceed the assembly's design pressure rating. Assemblies with Glazing Type 3 installed passed the small missile impact criteria (Missile Level A) specified in ASTM E 1996. Install these assemblies at a minimum height of 30 feet above grade on the structure that does not exceed the assembly's design pressure rating. These assemblies do not require protection with an impact protective system when installed in areas that require windborne debris protection.

**Acceptance of Other Assemblies:**

- The approved drawings specify the limitations on overall width.
- Assemblies must not exceed the heights shown on the approved drawings.
- Doors used with these assemblies must be listed in separate TDI product evaluation reports.

**Installation Instructions:**

**General:** Prepare and install the assembly in accordance with the ForceFront Hurricane Impact & Blast Resistant CurtainWall, Monumental & Thermal Doors Fabrication and Installation Instructions and the approved drawings specified in this evaluation report. Detailed installation instructions are available from Tubelite, Inc.

**Installation:**

**Wall Framing Construction:** Mount the aluminum storefront system to several types of wall framing construction. The types of wall framing construction allowed include:

- concrete (minimum compressive strength: 3,000 psi)
- steel (minimum 1/4" thick, Fy = 33 ksi)
- aluminum (minimum 1/4" thick, 6063-T5)
- wood (Southern Yellow Pine, minimum S.G. = 0.55)

**Fastener Requirements:**

- Refer to the approved drawings for the anchor layout and notes.
- Refer to the approved drawings for the minimum embedment depths for the fasteners and the minimum edge distances (minimum distance fastener must be from the edge of the substrate material) for the fasteners.

**Note:** Keep the manufacturer's installation instructions and the approved drawings available at the job site during installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.