

Product Evaluation

CWSF41 | 0122

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 1-800-248-6032.

Evaluation ID: CWSF-41

Effective Date: January 1, 2022

Re-evaluation Date: January 2026

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

Manufacturer: Tubelite, Inc.
3056 Walker Ridge Drive N.W.
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. door products. The Tubelite, Inc. doors used with these assemblies must be listed in separate TDI product evaluation reports.

Product Identification:

Products Installed in Accordance with Drawing No. TDI-400-CAP-IMP

Assemblies with Glazing Types 1 and 2:

A Tubelite, Inc. label will be affixed to the storefront assembly. The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW 400 Captured Impact Curtain Wall System with Glazing Types 1 or 2); that the Allowable Dimensions and Design Pressures are as specified in the Referenced Drawings; the drawing number (TDI-400-CAP-IMP); the test standards: ASTM E 330-14, ASTM E 1886-13a, ASTM E 1996-14a; and the missile rating (Missile Level D).

Assemblies with Glazing Type 3:

A Tubelite, Inc. label will be affixed to the storefront assembly. The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW 400 Captured Impact Curtain Wall System with Glazing Type 3); that the Allowable Dimensions and Design Pressures are as specified in the Referenced Drawings; the drawing number (TDI-400-CAP-IMP); the test standards: ASTM E 330-14, ASTM E 1886-13a, ASTM E 1996-14a; and the missile rating (Missile Level A).

Products Installed in Accordance with Drawing No. TDI-400-SSG-IMP

Assemblies with Glazing Types 1 and 2:

A Tubelite, Inc. label will be affixed to the storefront assembly. The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW 400 SSG Impact Curtain Wall System with Glazing Types 1 or 2); that the Allowable Dimensions and Design Pressures are as specified in the Referenced Drawings; the drawing number (TDI-400-SSG-IMP); the test standards: ASTM E 330-14, ASTM E 1886-13a, ASTM E 1996-14a; and the missile rating (Missile Level D).

Assemblies with Glazing Type 3:

A Tubelite, Inc. label will be affixed to the storefront assembly. The label includes the manufacturer's name (Tubelite, Inc.); the product name (Tubelite CW 400 SSG Impact Curtain Wall System with Glazing Type 3); that the Allowable Dimensions and Design Pressures are as specified in the Referenced Drawings; the drawing number (TDI-400-SSG-IMP); the test standards: ASTM E 330-14, ASTM E 1886-13a, ASTM E 1996-14a; and the missile rating (Missile Level A).

Limitations:

Design Drawings:

Curtain wall assemblies must comply and be installed in accordance with 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, Revision A dated October 29, 2021; signed and sealed by Lucas A. Turner, P.E on October 29, 2021. 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, Revision A dated October 29, 2021, signed and sealed by Lucas A. Turner, P.E on October 29, 2021. 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 ± 65 psf to ± 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 ± 57.1 psf to ± 90 psf. Refer to approved drawing for specific design pressure requirements.

If the storefront 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 storefront system in this evaluation report.

Impact Resistance:

Drawing No. TDI-400-CAP-IMP: The curtain wall system satisfies TDI's criteria for protection from windborne debris. 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 1996-14a. Install these assemblies at any height on the structure that does not exceed the assembly's design pressure rating. These assemblies may not be installed on essential facilities below 30 feet from grade in Wind Zone 3 as defined in ASTM E 1996-14a.

Assemblies with Glazing Type 3 installed passed the small missile impact criteria (Missile Level A) specified in ASTM E 1996-14a. 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 may not be installed on essential facilities as defined in ASTM E 1996-14a.

Drawing No. TDI-400-SSG-IMP: The curtain wall system satisfies TDI's criteria for protection from windborne debris. 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 1996-14a. Install these assemblies at any height on the structure that does not exceed the assembly's design pressure rating. These assemblies may not be installed on essential facilities below 30 feet from grade in Wind Zone 3 as defined in ASTM E 1996-14a.

Assemblies with Glazing Type 3 installed passed the small missile impact criteria (Missile Level A) specified in ASTM E 1996-14a. 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 may not be installed on essential facilities as defined in ASTM E 1996-14a.

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 Tubelite, Inc. installation instructions and the approved drawings specified in this evaluation report. Detailed installation instructions are available from Tubelite, Inc.

Installation:

Wall Framing Construction: Secure the aluminum curtain wall 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, $F_y = 33$ 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 available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.