



ScratchGARD® | Structural Performance & Regulatory Approvals

BURGLAR RESISTANCE

- ASTM-1233-Level I
- German DIN 52-290 A1 Rating

PUNCTURE RESISTANCE

- ASTM D-4830

FIRE RESISTANCE

- ASTM E-84 Smoke and Flame Spread Index
- ASTM D-1929 Ignition Characteristics

TOXICITY/COMBUSTION HAZARD

- New York State Uniform Fire Building Code Article 15:

BLAST RESISTANCE

- W.B.E. 817-001 ASTM F-1642

ARCHITECTURAL SAFETY GLAZING

- CFR Title 16 CPSC Part 1201
- Category I and II
- ANSI Z 97.1 Unlimited
- British Standard 6202 A,B, and C
- Australian/New Zealand AS/NZ 2208

STORM WINDOW LOADING/PRESSURE RESISTANCE

- ASTM E-330

INSULATED GLASS TESTING

- ASTM E-773 and E-774

LABORATORY CERTIFICATION NO: 94-0323-47

TEST SPECIMEN: Eight (8) 40" wide by 40" high Fixed Lites Using Various Attaching Methods on Glass Surfaces.

TEST SPECIFICATION: ASTM E 330-93, "Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by "Uniform Static Air Pressure Difference".

TEST SPECIMEN DESCRIPTION

The specimens tested measured 40" wide by 40" high overall. Each specimen was constructed of polyvinylchloride (PVC) surround members (CertainTeed Bottom Sash Frame) with welded mitered corner construction. The specimens used 3/32" clear annealed glass that was exterior drop in glazed using an adhesive tape back bedding and a dual durometer glazing bead. The following results were obtained.

Specimen No. 1 Test Results **(no film)**

Title of Test	PSF(mph)	Results
Exterior Uniform Structural Load	30 psf (108 mph)	Pass
	40 psf (125 mph)	Pass
	50 psf (139 mph)	Pass
	60 psf (153 mph)	Pass
	70 psf (139 mph)	Pass

	80 psf (165 mph)	Pass
	90 psf (177 mph)	Pass
	100 psf	(See Note No. 1)

Note No. 1: At 98.8 psf (196 mph) the glass shattered.

Specimen No. 2 Test Results
(film over viewing area only)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
<u>Exterior Uniform Structural Load</u>	<u>50 psf (139 mph)</u>	<u>Pass</u>
	<u>90 psf (188 mph)</u>	<u>(See Note No. 2)</u>

Note No. 2: At 72.8 psf exterior pressure the glass shattered but stayed in the confines of the frame. Reapplied pressure and at approximately 60 psf the glass edge deglazed from adhesive tape back bedding. (glass surface remained bonded by the film).

Special Note: At this point in testing it was decided to take the specimens directly to failure.

Specimen No. 3 Test Results
(silicone bead at interior perimeter)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
<u>Exterior Uniform Structural Load</u>	<u>74.3 psf (170 mph)</u>	<u>(See Note No. 3)</u>

Note No. 3: At 74.3 psf exterior pressure the glass shattered. At this point 2 mil. plastic was applied over exterior surface to seal any openings and the load was reapplied.

Result: At 28.6 psf the glass deglazed from adhesive tape back bedding at the top rail..

Specimen No. 4 Test Results
(clear poly tape bridging the exterior frame perimeter)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
Exterior Uniform Structural Load	90.4 psf (188 mph)	(See Note No. 4)

Note No. 4: At 90.4 psf exterior pressure the glass shattered and deglazed from frame at the right stile.

Specimen No. 5 Test Results
(clear poly tape bridging the interior frame perimeter and capped with #1 silicone)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
Exterior Uniform Structural Load	78.0 psf (175 mph)	(See Note No. 5)

Note No. 5: At 78.0 psf exterior pressure the glass deglazed from left stile corner to midspan of the top rail.

Specimen No. 6 Test Results
(Identical to No. 5 only using #2 silicone cap)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
Exterior Uniform Structural Load	104 psf (202 mph)	(See Note No. 6)

Note No. 6: At 104 psf exterior pressure the glass shattered but remained employed in the surrounding members. Stopped test at 187 psf (270 mph) no deglazement observed.

Specimen No. 7 Test Results
(Standard OEM)

<u>Title of Test</u>	<u>PSF(mph)</u>	<u>Results</u>
Exterior Uniform Structural Load	88 psf (185 mph)	(See Note No. 7)

Note No. 7: At 88 psf exterior pressure the glass deglazed at the top rail.

Specimen No. 8 Test Results
(Standard OEM)

Title of Test	PSF(mph)	Results
Exterior Uniform Structural Load	60 psf (153 mph)	(See Note No. 8)

Note No. 8: At 60 psf exterior pressure the glass deglazed at the top rail.

Conclusion: In each case the film applied to the glass held the glazing surface intact. Each test that failed resulted in a deglazement failure from back bedding.