

# Safety & Security Film Specifications

PROFESSIONAL ANTI-FRAGMENTATION FILMS DESIGNED FOR GLASS HAZARD MITIGATION

## SECURITY SPECIFICATIONS & TESTS

FILM TYPE	FILM GAUGE	PLIES	VISIBLE LIGHT TRANSMISSION	UV LIGHT REDUCTION	ASTM D882 TENSILE AT BREAK	ASTM D3330 PEEL STRENGTH	ASTM D2582 AVG. PUNCTURE STRENGTH	ASTM D1044 % HAZE CHANGE	ANCI Z97.1 2004 TEST	IMPACT TESTS				COMBUSTION TESTS ASTM E84-98 Surface Burning Test			
										16 CFR 1201 US GOV. STANDARD TEST	BS 6206: 1981	EIV12600 PENDULUM TEST	SMOKE DENSITY	FLAME SPREAD RATINGS <sup>2</sup>	TIME TO IGNITE (seconds)	FLAME FRONT (max. feet)	RATE OF BURNING (inches/seconds)
SEC02	0.002	1	88%	98%	50 pli	> 5lbs/inch	>30 lbs	<4.4%	—	—	—	—	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC04	0.004	1	88%	98%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC07	0.007	1	87%	98%	175 pli	> 5lbs/inch	>110 lbs	<4.4%	Class B	CAT I	Class A	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC08	0.008	2	87%	99%	200 pli	> 5lbs/inch	>130 lbs	<4.4%	Class A	CAT II	Class A	Class 2B	35	NFPA Class A • UBC Class 1	92	2	0.1
SEC11	0.011	2	86%	99%	275 pli	> 5lbs/inch	>175 lbs	<4.4%	Class A	CAT II	Class A	Class 1B	35	NFPA Class A • UBC Class 1	92	2	0.1
SEC12	0.012	3	86%	99%	300 pli	> 5lbs/inch	>215 lbs	<4.4%	Class A	CAT II	Class A	Class 1B	35	NFPA Class A • UBC Class 1	92	2	0.1
S4DN35	0.005	2	37%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4DN20	0.005	2	22%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4SS35	0.005	2	37%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4SS20	0.005	2	22%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1

## SOLAR SPECIFICATIONS

FILM TYPE	SOLAR ENERGY REFLECTION	VISIBLE LIGHT REFLECTANCE (exterior)	VISIBLE LIGHT REFLECTANCE (interior)	SOLAR ABSORPTION	SOLAR REFLECTANCE	SOLAR TRANSMISSION	SHADING COEFFICIENT	SOLAR HEAT GAIN COEFFICIENT	U-FACTOR NFRC
CLEAR GLASS	18%	8%	8%	16%	7%	77%	.94	.82	1.03
S4DN35	50%	17%	15%	51%	14%	35%	.58	.50	1.04
S4DN20	62%	26%	26%	58%	22%	20%	.44	.38	1.03
S4SS35	60%	33%	33%	41%	30%	29%	.47	.40	0.97
S4SS20	72%	50%	51%	41%	43%	16%	.32	.28	0.96

### FIRE SAFETY PROPERTIES (Applies to all JWJ Trident films)

#### ASTM E84

This fire-test response standard for the comparative surface burning behavior of building materials is applicable to exposed surfaces such as coated windows. This test is conducted in a rectangular fire observation chamber, a tunnel roughly 25 feet long, which provides a linear area for fire and smoke to propagate after ignition and be analyzed. The purpose of this test method is to determine the relative burning behavior of polyester film by observing combustion characteristics that are defined, such as: Smoke Generation, Time to Ignite, Rate of Burning and Flame Front.

#### SMOKE DENSITY

Used for characterization of smoke density that may be generated by the materials upon exposure to heat and flame under fire conditions.

#### TIME TO IGNITE

Measures the time it takes for the film to catch fire depending on the temperatures it's exposed to.

#### RATE OF BURNING

The speed at which the film burns once ignited.

#### FLAME FRONT

The narrow combustion zone (only several microns thick) where the chemical reaction in certain flames occur.

### PERSONAL SAFETY GLAZING BLAST HAZARD MITIGATION

ANSI Z97.1 2004 TEST  
CPSC 16 CFR 1201  
BS 6206: 1981  
JIS A5759  
GB 9962-88 EN 12600

GSA Glazing Systems Subject to Airblast Loading

### PHYSICAL TESTING

ASTM D 1929 (Self-Ignition temp.)  
ASTM D 635 (Rate of Burning)  
ASTM E 84 (Surface Burning char.)  
ASTM E 162 (Surface Flammability)  
ASTM D 1922 / 1004 (Tear Resistance)

ASTM D 1044 / 1003 (Surface Abrasion test)  
ASTM D 882 (Tensile Strength)  
ASTM D 3330 (Peel Strength)  
ASTM D 4830 (Puncture Strength)  
ASTM E 662 (Smoke O.D.)

All Johnson Window Films Trident films conform to and have been tested to the above internationally recognized standards.

All Johnson Window Films Trident films are protected by CST™ scratch resistant hardcoat.

Physical and solar specifications represent film mounted to 1/4 inch (6mm) clear glass.

Solar specification tests, equipment and methods are in accordance with ASTM, ANSI and NFRC standards. Values expressed hereof are typical and provided for comparative purposes only.

