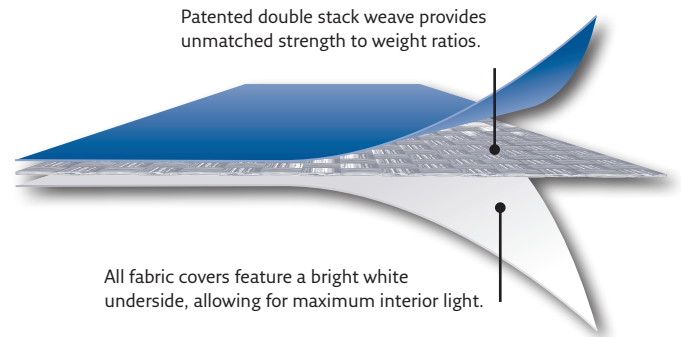


HIGH PERFORMANCE FABRIC COVERS

STANDARD, FIRE RETARDANT (FR) & PVC

Norseman Structures' high performance fabric uses unique technology giving it tremendous strength and durability.

Covers are manufactured from polyethylene fabric which is created using a layer of woven tapes (scrim). It is then coated with a specialized 4 or 6 mil thick protective layer front and back, that helps avoid scuffing and UV damage. This combination provides a cover with increased protection against abrasion during fabrication, installation and everyday use for years to come. In addition, covers have tremendous rip, tear and puncture resistance.



BRIGHT INTERIOR ATMOSPHERE

- Fabric covers provide a building with a bright atmosphere.
- The high light transmission (up to 20.9%) allows sunlight to filter through the fabric reducing or often eliminating the need for artificial lighting during the day resulting in energy savings.
- If natural light is not desired, blackout fabric is also available.
- The unique composition ensures fabric remains pliable and resistant to ultraviolet damage.
- The fabric's properties ensure buildings are warmer in the winter and cooler in the summer.

OPTIONAL COVER MATERIALS

FIRE RETARDANT (FR) FABRIC

We recognize that some building projects may require Fire Retardant fabric and have made this option available. Laboratory testing confirms Norseman Structures' high performance fabric is "self extinguishing" which often eliminates a flame instead of adding fuel as many building materials would.

- Allows replacement of fabric covers only following a fire incident - conventional buildings may be a total loss.
- Adheres to stringent building codes required for many projects.
- Reduces flame spread to other buildings.
- Increases building escape time in case of fire.
- Increases opportunity for fire and protective services to extinguish the fire.

PVC FABRIC

Depending on your specific requirements, Norseman Structures can also provide a large selection of PVC fabrics. They are available in a variety of weights, colors, translucencies and topcoats.

Your building consultant will help you determine which cover fabric is right for your application.

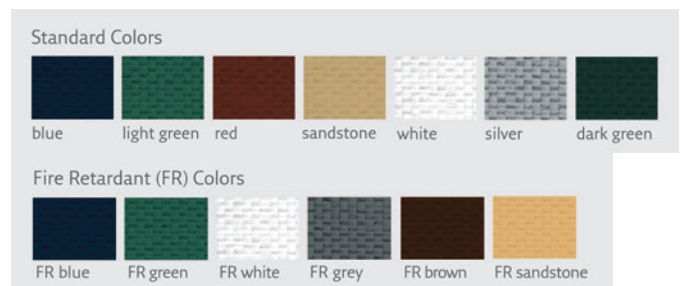
SAFE & ENVIRONMENTALLY FRIENDLY

- No toxic chemicals are used in the production of Norseman Structures' high performance fabric.

BACKED BY WARRANTY

- Standard and FR (fire retardant) covers are available with a pro-rated warranty up to 20 years. Warranty details can be found in the Norseman Structures Owners Manual shipped with your building.

WIDE COLOR SELECTION (some restrictions apply)



STANDARD & FIRE RETARDANT (FR) PROPERTIES

The following data are nominal values based on ASTM standard tests. This data should not be considered specification.

| Common Tests and Specifications: Standard and Fire Retardant (FR) Fabric | | | |
|--|--------------------------------------|---|--|
| | | 4 mil Coating Thickness (94-95 g/m ² average each side) | 6 mil Coating Thickness (142 g/m ² average each side) |
| Standard | Total Fabric Weight | 12.0 oz/yd ² (407 g/m ²) +/- 5% | 14.8 oz/yd ² (500 g/m ²) +/- 5% |
| | Thickness (ASTM D-1777) | 23 mil (0.59 mm) | 25 mil (0.64 mm) |
| | Grab Tensile (ASTM D-5034) | Warp: 370 lb (1664 N), Weft: 345 lb (1532 N) | Warp: 380 lb (1687 N), Weft: 350 lb (1554 N) |
| | Tongue Tear (ASTM D-2261) | Warp: 110 lb (488 N), Weft: 100 lb (444 N) | Warp: 80 lb (355 N), Weft: 65 lb (288 N) |
| | Strip Tensile (ASTM D-5035) | Warp: 275 lb/in (2444 N/5 cm), Weft: 245 lb/in (2178 N/5 cm) | Warp: 250 lb/in (2220 N/5 cm), Weft: 250 lb/in (2220 N/5 cm) |
| | Mullen Burst (ASTM D-3786) | 655 psi (4512 kPa) | 650 psi (4478 kPa) |
| | Trapezoidal Tear (ASTM D-4533) | Warp: 95 lb (422 N), Weft: 90 lb (400 N) | Warp: 80 lb (355 N), Weft: 75 lb (333 N) |
| Fire Retardant (FR) | Total Fabric Weight | 12.4 oz/yd ² (407 g/m ²) +/- 5% | 14.6 oz/yd ² (495 g/m ²) +/- 5% |
| | Thickness (ASTM D-1777) | 23 mil (0.59 mm) | 26 mil (0.67 mm) |
| | Grab Tensile (ASTM D-5034) | Warp: 360 lb (1598 N), Weft: 350 lb (1555 N) | Warp: 360 lb (1598 N), Weft: 350 lb (1555 N) |
| | Tongue Tear (ASTM D-2261) | Warp: 120 lb (533 N), Weft: 110 lb (489 N) | Warp: 91 lb (404 N), Weft: 70 lb (310 N) |
| | Strip Tensile (ASTM D-5035) | Warp: 275 lb/in (2444 N), Weft: 250 lb/in (2222 N) | Warp: 260 lb/in (2309 N/5 cm), Weft: 240 lb/in (2131 N/5 cm) |
| | Mullen Burst (ASTM D-3786) | 675 psi (4657 kPa) | 675 psi (4657 kPa) |
| | Trapezoidal Tear (ASTM D-4533) | Warp: 100 lb (444 N), Weft: 90 lb (400N) | Warp: 90 lb (400 N), Weft: 73 lb (324 N) |
| Both | Low Temp. Bend (ASTM D-2136) | Pass: -60° C (-76° F) | Pass: -65° C (-85° F) |
| | Light Transmission % (ASTM E-903) | White/White: Standard: 20.9%, Fire Retardant: 11.4% | Unavailable |
| | Water Vapor Transmission (ASTM E-96) | 0.038 grains/h/ft ² /inHg (perms) 2.16 ng/Pa/s/m ² | Unavailable |
| | UV & Weathering (ASTM G-151) | >90% strength retention after 2000 hrs @ 0.77 W/m ² /nm | >90% strength retention after 2000 hrs @ 0.77 W/m ² /nm |
| | UV & Weathering (ASTM G-154) | >90% strength retention after 1200 hrs @ 1.35 W/m ² /nm | >90% strength retention after 1200 hrs @ 1.35 W/m ² /nm |
| | UV & Weathering (CSA-S367) | >75% strength retention after 5000 hrs @ 0.77 W/m ² /nm | Unavailable |

| Fire Test Results: Fire Retardant (FR) Fabric | | | | | | |
|---|---|----------------------------|--------------|---|---------|---------|
| | 4 mil FR Fabric | | | 6 mil FR Fabric | | |
| Base Fabric | HDPE Scrim using FR inhibitors and UV protection | | | HDPE Scrim using FR inhibitors and UV protection | | |
| Surface Type | Modified LDPE coating using FR inhibitors and UV protection | | | Modified LDPE coating using FR inhibitors and UV protection | | |
| California Fire Marshal | FA-51405 | | | Does not meet requirements | | |
| ASTM E-84-08 | 08-002-695 | FSI: 10 | SD: 110 | 08-002-695 | FSI: 10 | SD: 110 |
| NFPA 701-2015 Test Method 1 | 11-002-50637 | Mass Loss: 1.6 Av. | Drip: 0.8 | Meets requirements | | |
| NFPA 701-2015 Test Method 2 | 11-002-637(B) | Char: 268 mm (10.6 in) Av. | | Meets requirements | | |
| CAN/ULC S109-03 (Small Flame) | 06-02-866 | Char: 98 mm Av. | | Meets requirements | | |
| CAN/ULC S109-03 (Large Flame) | 06-02-866 | Char: 104 mm Av. | Drip: No | Meets requirements | | |
| CAN/ULC S102-03 | 05-02-609 | FSCI: 5 | SD: 95 | 05-02-609 | FSCI: 5 | SD: 95 |
| UBC 31-1 | 16421-108891 | Char: 8.69 in Av. | Drip: No | Unavailable | | |
| UL | Listed-R15076 | | | Unavailable | | |
| ULC | Listed-R20040 | | | Unavailable | | |
| EN 13501-1 | Fire Behavior: B | Smoke: s1 | Droplets: d0 | Unavailable | | |

| Fire Test Results: Standard Fabric | | | |
|------------------------------------|--|----------|---------|
| Base Fabric | HDPE Scrim with UV protection | | |
| Surface Type | Modified LDPE coating with UV protection | | |
| ASTM E84-01 | 03-02-586 (A) | FSI: 10 | SD: 65 |
| CAN/ULC-S102-07 | 08-002-394 | FSCI: 15 | SD: 100 |

FIRE TESTING NOTE: Results of the fire tests demonstrate the fabrics will not support combustion nor contribute fuel to a fire. If the source of the fire is removed, the fabrics self extinguish and combustion ceases.

