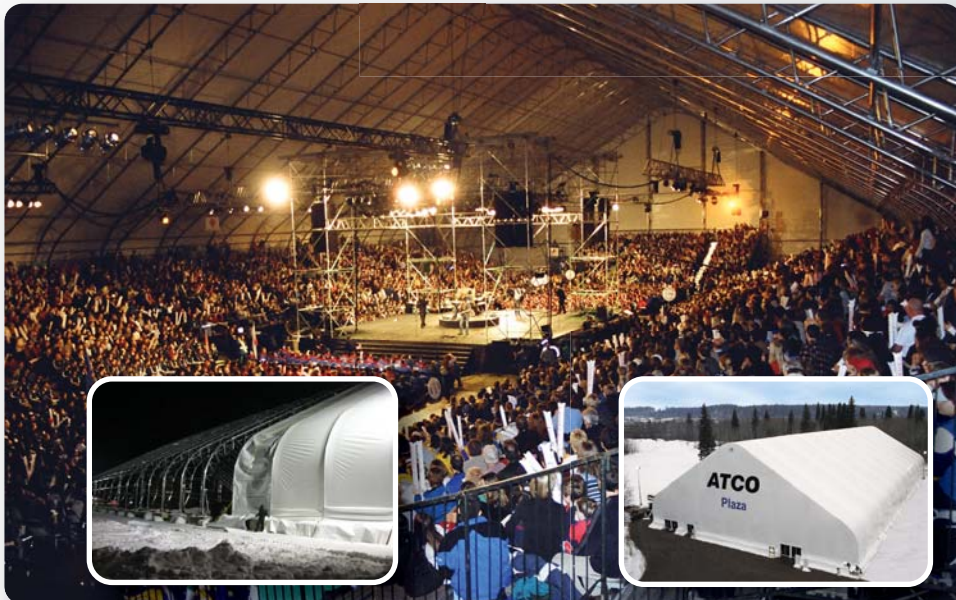


GIGA-SPAN

STRUCTURES
by **WSSL**



GIGA-SPAN

STRUCTURES
by **WSSL**

The **WSSL GIGA-SPAN** structures are designed, engineered, and manufactured in our CWB certified plant. The open web truss galvanized steel frames are assembled to satisfy the applicable building code.

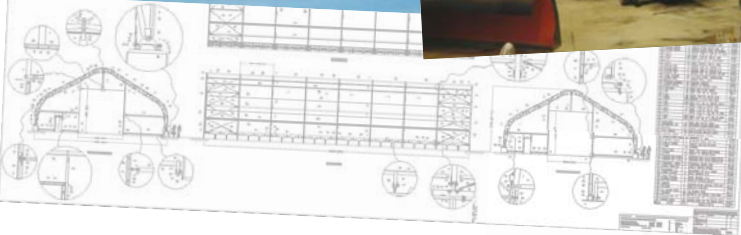
As with all WSSL tents and structures, the component parts are designed for ease of transportation, assembly, erection. WSSL has temporary or semi-permanent **GIGA-SPAN** structures to fit your needs, 30' through 160' width and bay length from 10' – 20'.



GIGA-SPAN SERIES 43 (160'X285')

Marsh Lake Tents & Events,
Canada Winter Games,
Whitehorse, Yukon.

GIGA-SPAN SERIES 18 (60' X 120')
CNRL Airport Maintenance,
Fort Mackay, Alberta.



GIGA-SPAN SERIES 43
Fort Mackay, Alberta.

Span Widths

Series 18	30' - 70'
Series 27	50' - 90'
Series 36	60' - 100'
Series 43	70' - 160'

Bay Widths 10' - 20'



GIGA-SPAN SERIES 37 (120'X120') Hangar
Marsh Lake Tents, Whitehorse, Yukon.



WHY CHOOSE A FABRIC CLAD STRUCTURE

Clear span interior

Naturally lighter for daytime work

Re-locatable

Quick installation

Lower project costs

Low maintenance



Since 1970 the excitement was INTENSE



Toll-free 1-800-661-6155
www.wssl.com
warner@wssl.com



1976 Montreal Summer Olympics



Peak Pole Tent 90' X 360'

1971 — **Hurritent**
(Telephone & construction)

1973 — **Armadillo**
(Pulp and paper industry)

1976 — **C-Series Dome Tent**
(Montreal Olympics)

1977 — **Arabesque Tents**
(Stagecovers & theatres)

1980 — **Hypup Tent**
(For German telepost)

1983 — **Centipede Tent**

1984 — **Marquee and Arabesque**
(Tents for hajj in Saudi Arabia)

1985 — **Hex Marquee Tents**
(For Niagara falls festival)

1988 Calgary Winter Olympics 1988 — **WSSL ClearMod Series**
Structures & special teepee (150' High)

1991 — **WSSL ClearMod Series**
(For 50,000sqft. factory on 10 acres)

1992 — **WSSL ClearMod Series**
(Insulated for dinosaur museum)

1994 — **WSSL Peak Pole Tent**

1998 — **Hex Marquee Tents**
(For Yukon quest dogsled races)

2000 — **WSSL ClearMod Series**
(For Korea supermarket)

2002 — **WSSL ClearMod Series**
(Corporate and security)

2004 — **WSSL Giga - Span**
(Series 43, 160'x330')

2006 — **Arabesque S-56 Array**
(Monterrey, Mexico)

2007 — **WSSL Giga - Span**
(Series 43, 160'x285')

2008 — **WSSL ClearMod Series**
(Series 37, 127'x400')

2009 — **WSSL Tent - C - Can**
(Over surplus sea containers)

2010 — **WSSL Tent - X - Span**
(For events needing clearspan)

2011 — **WSSL ClearMod Series**
(130'x225')

2012 — **WSSL Arabesque S-80 Array**
(Series 43, 160'x330' & 80'x40')

2014 — **Arabesque S-80 Array**
(Santa Monica, California)

*Tents for all Reasons...
Tents for all Seasons.*



CEMEX 100th Anniversary Events 2006 Mexico



Arabesque Stagecovers 56



The Roundhouse Theatre, Toronto



Super Bowl 2012
Victory Field, Indianapolis



Nike Training Club Tour,
Santa Monica 2014

2002 Salt Lake City Winter Olympics

2004 Arctic Winter Games

Cemex, Mexico 100th Anniversary

2007 Canada Winter Games

50 Years Celebration of the Aga Khan Leadership

WSSL 40th Year Anniversary

The Roundhouse Theatre Installed by All Shelter Sales & Rentals

Super Bowl 2012 Installed by All Shelter Sales & Rentals

Nike Training Club Tour

The excitement is still in TENTS

Series 37, 127'x400'

Warner Shelter Systems Limited

Founded in 1970 by Kurt Warner, P.Eng., Warner Shelter Systems Limited, WSSL, has been designing, engineering, manufacturing, and installing award-winning quality tents and fabric-clad portable and semi-permanent structures for over 40 years. WSSL structures are constructed of simple but strong and durable frames with smooth, graceful fire retardant covers. WSSL Structures range in size from 10 to 5,000 sqm. (100 to 50,000 sqft.)



WSSL has become the supplier of choice for the rental, oil, and gas

Giga-Span Structures

WSSL GIGA-Span Structures are built with simple-to-erect interchangeable parts, reducing complexity of inventory, transportation, and setup in the rental, construction, and other industries requiring semi-permanent structures.

Giga-Span (choosing which one)

The process of choosing a structure usually begins with developing an understanding of what is required; of where, how, when, for what, and by whom the structure is to be used. From this knowledge one can determine;

- The size and overall dimensions,
- The environmental issues: wind, rain, snow, temperature
- The internal loads to be supported
- The foundation and ground conditions
- The egress sizes and locations
- The translucency or opacity of the cladding
- The need for insulation and/or heating
- The ventilation whether natural or forced
- The portability of the structure, assembly, disassembly
- The transportation and other issues

With the above site and use specific information, WSSL will determine if an existing structure design will satisfy or if a special design is needed.



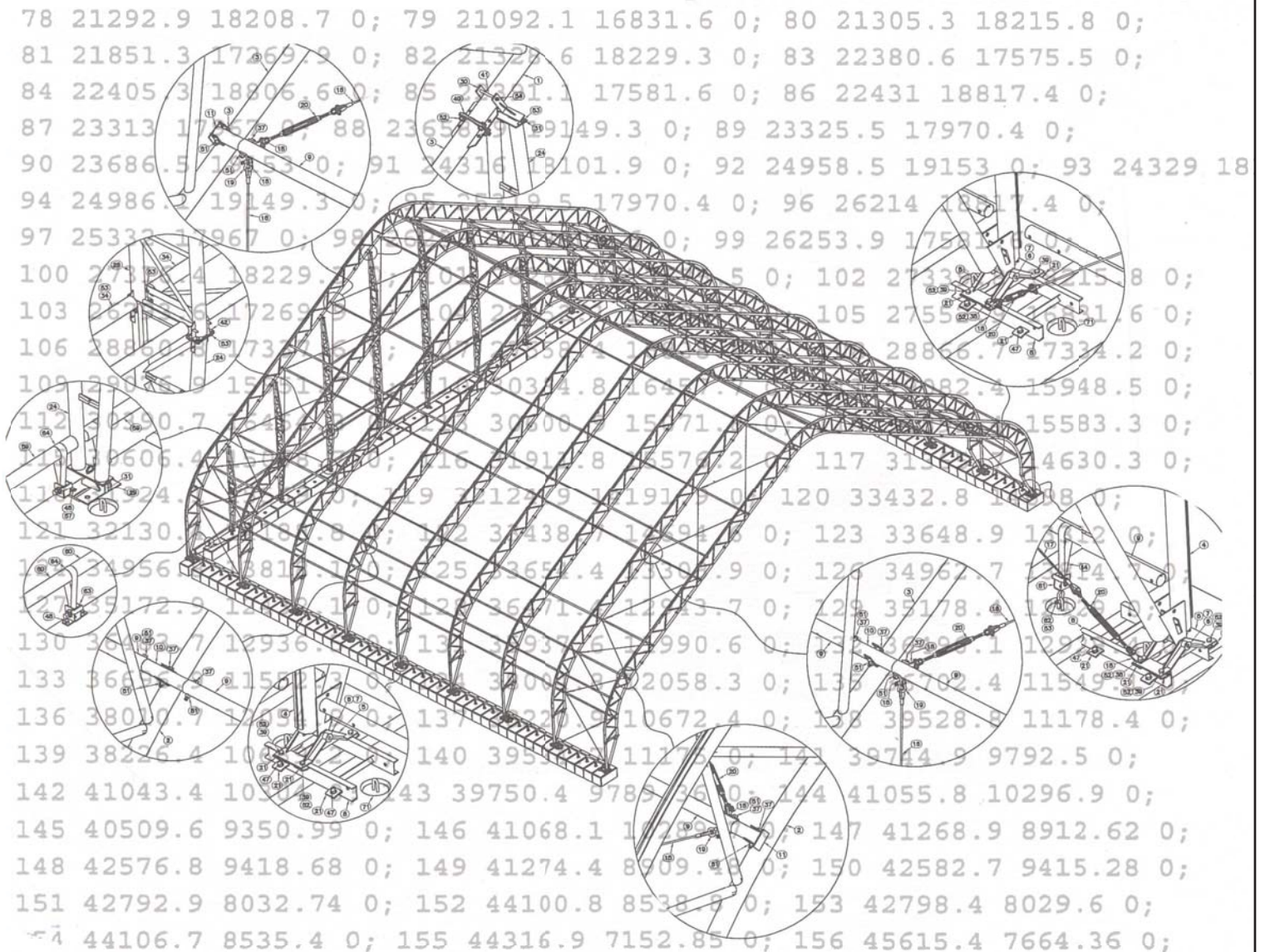
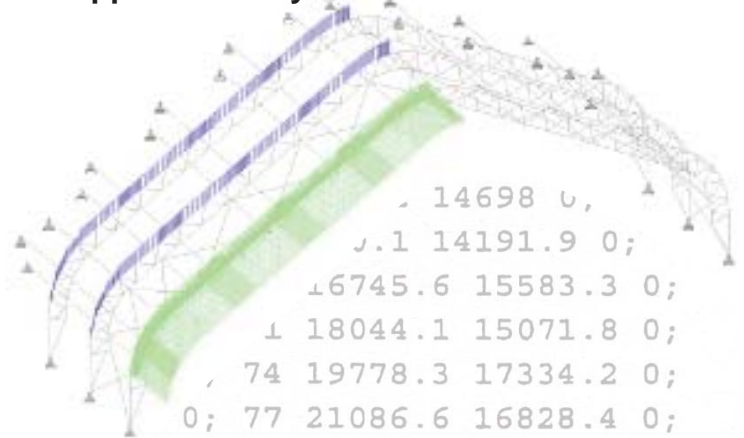
Engineering of GIGA-SPAN

Of course, design must involve engineering at various stages, for macro and micro analyses. WSSL has commissioned **AP Dynamics Inc.** to conduct structural analyses of WSSL GIGA-SPAN structures. Each analysis is performed using **Finite-Element Analysis (FEA)** method, and the loading conditions used are those specified by the **2010 Edition of the National Building Code of Canada, latest international building code, or other code applicable for your site.**

Site Specific:

The loading conditions on the structure are site specific. The analysis is performed using **STAAD Pro v8i**, an industry standard structural finite analysis program with Code checking capabilities.

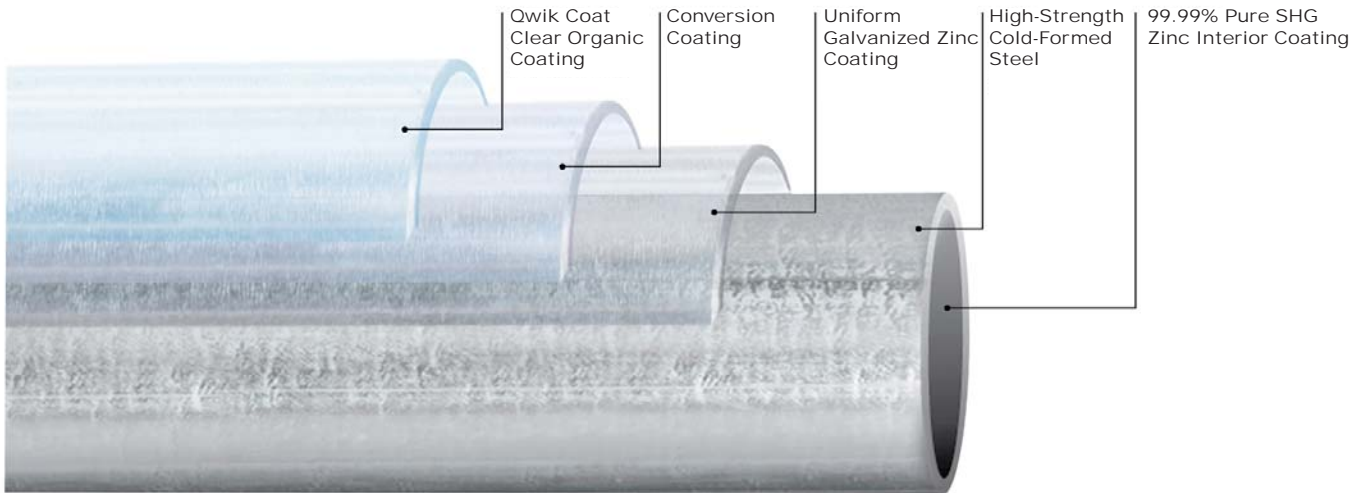
The structure for your project must meet or exceed all applicable municipal, provincial, or national codes.



WSSL uses High-Strength Structural Steel

Main Framing material:

Structural Steel tubing is supplied to WSSL by Allied Tubing & Conduit which has one of the most experienced teams of mechanical and application's engineers, technicians, and metallurgists assembled in the industry. With an in-line galvanizing process, the high-strength **50ksiy** tubing supplied directly to WSSL is manufactured to **ASTM A500**. Using Allied Tube patented **Gatorshield** galvanized tubing gives WSSL Giga-span framing superior strength and protection.

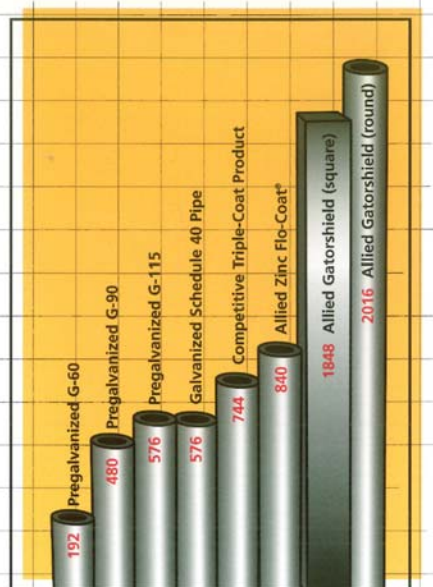


Corrosion Resistance

Allied's galvanized steel tubing receives a triple-layer of corrosion protection—first, 99.99% pure zinc bonds to the tube, and is followed by a conversion coating. The third coating is a clear organic topcoat which "seals" the surface. The result is a smooth, shiny end product that is unmatched in terms of strength and durability. Allied's tubing resisted rust and corrosion longer than any competitive product in salt spray tests conducted by Scientific Control Labs (see above). For a copy of these test results, contact your local Allied representative.

Salt Spray Tests - Galvanized Products

(Number of Hours Until First Sign of Red Rust)



Using Allied Tube patented Gatorshield galvanized tubing gives WSSL Giga-span framing superior strength and protection.

ISO 9002 REGISTRATION

The UL's ISO 9000 Registration Program is designed to evaluate and register facilities to the International Organization for Standardization standards for quality.

The objective of this program is to provide independent assurance of our facilities' capability to consistently provide products, which conform to given specifications. To date, Allied two major manufacturing facilities have been evaluated to these quality standards and registered to ISO 9002.



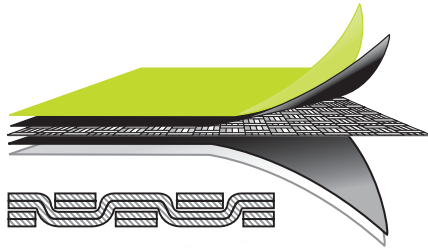
RESEARCH & DEVELOPMENT

Allied is committed to continuously improving products and processes. Between six manufacturing facilities, Allied has over 50 engineers and technicians on staff. With numerous new-product introductions and continuous product refinement, the technical development group is a vital part of Allied's success.

Fabric cladding material

Fabric used by WSSL for the roof panels, gable panels, and other fabric parts must be strong and light. All WSSL covers are fire retardant with self-extinguishing properties. Intertape Polymer Group has supplied WSSL with structure fabric for more than 10 years. Nova-shield Polyethylene Membrane Structure Fabrics with patented weave produces high strength-to-weight ratios. WSSL uses FRU88X-6, 6mil, FRU88X-6, 4 mil, and RU88X-6 fabrics.

Intertape Polymer Group Patented Weave



U.S. patent #6,367,513
Canadian patent #2,196,004

NovaShield's exclusive double-stacked scrim is a unique weave design offering strength and durability that our competitors don't have. NovaShield is woven from high-density polyethylene slit tapes and coated on both sides with low density polyethylene. In the FRU 4 mil and 6 mil, UV and FR Additives are in both coating and tapes.



FRU88X-6

4 MIL FABRIC SPECIFICATIONS*

Weave: Woven flame retardant HDPE scrim using FR/UV tapes

Coating: 4 mil average each side (95 g/m²/side)

Color: White, green, sandstone, blue or gray

PERFORMANCE

Strip Tensile ¹	Warp: 260 lbs.	Weft: 240 lbs.	ASTM D5035
Tongue Tear ²	Warp: 120 lbs.	Weft: 120 lbs.	ASTM D2261
Trap Tear	90 lbs.	85 lbs.	ASTM D4533

¹Strip Tensile – ASTM D5035, 50mm strip, 75mm gage length, 300mm/min. elongation rate.

²Tongue Tear – ASTM D2261, 38mm wings, 75mm gage length, 300mm/min. elongation rate.

*FR PERFORMANCE SPECIFICATIONS: Meets the requirements of NFPA 701 (large scale), CAN/ULC S109 (small and large scale), ASTM E84 (Class 1), UBC31-1, FAR25.853(a), Appendix F, Part 1, paragraph (a)(1)(iv), IATA Standard Specification 50/4 and FAR 25.853(a), California Fire Marshall (FA-51405) and Boston Fire Marshall (44670)

RU88X-6

4 MIL FABRIC SPECIFICATIONS*

Weave: Woven HDPE scrim using UV tapes

Coating: 4 mil average each side (95 g/m²/side)

Color: White, green, sandstone, blue, red or clear

PERFORMANCE

Strip Tensile ¹	Warp: 260 lbs.	Weft: 240 lbs.	ASTM D5035
Tongue Tear ²	Warp: 120 lbs.	Weft: 120 lbs.	ASTM D2261
Trap Tear	90 lbs.	85 lbs.	ASTM D4533

¹Strip Tensile – ASTM D5035, 50mm strip, 75mm gage length, 300mm/min. elongation rate.

²Tongue Tear – ASTM D2261, 38mm wings, 75mm gage length, 300mm/min. elongation rate.

FRU88X-6

6 MIL FABRIC SPECIFICATIONS*

Weave: Woven flame retardant HDPE scrim using FR/UV tapes

Coating: 6 mil average each side (142 g/m²/side)

Color: White, green, sandstone, blue or gray

PERFORMANCE

Strip Tensile ¹	Warp: 260 lbs.	Weft: 240 lbs.	ASTM D5035
Tongue Tear ²	Warp: 100 lbs.	Weft: 100 lbs.	ASTM D2261
Trap Tear	80 lbs.	80 lbs.	ASTM D4533

¹Strip Tensile – ASTM D5035, 50mm strip, 75mm gage length, 300mm/min. elongation rate.

²Tongue Tear – ASTM D2261, 38mm wings, 75mm gage length, 300mm/min. elongation rate.

*FR PERFORMANCE SPECIFICATIONS: This product meets the requirements of NFPA 701 (large scale), ASTM E84 (Class 1), CAN/ULC S109 (large scale) and UBC31-1. Other tests are on-going.

Exclusive Co-Extrusion Coating for Strength, Durability & Opacity

Nova-Shield II™ is the only polyethylene fabric on the market to offer co-extruded coating technology (giving you multiple coating layers) that produces rich colors, enhanced UV protection and true opacity.



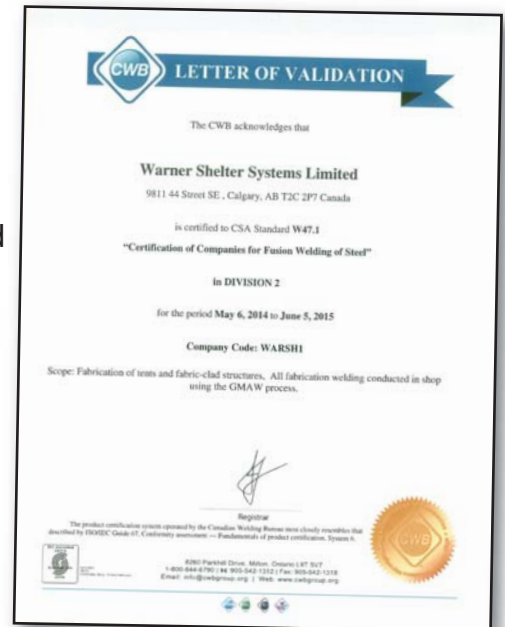
With our Co-Extrusion Technology, Intertape is able to offer blackout fabrics in many color combinations.

WSSL Fabrication

Framing fabrication:

All cutting, bending forming, metal working, welding, finishing and partial assembly proceed in our **CWB Certified** fabrication shop. WSSL is certified to **CSA Standard W47.1** in Division 2. Bases and miscellaneous frame parts are hot dip galvanized or electroplated depending upon the requirement.

Post-fabrication of the pre-galvanized tube trussing, the weld areas are cleaned, zinc rich coating is applied meeting performance required of **ASTM A-780/A780-9** and followed by a clear topcoat to seal the surface.



Fabric Cladding panel fabrication

All cutting, heat-sealing, sewing, and other processes used in fabricating the fabric clad panels are completed on our unique sheet metal floor. Sample welding seams are tested daily with adjustments made for optimum welding of the fabric seams.



Insulation and liners:

Bubble foil R5 fiberglass Batt R20 insulation packages available.

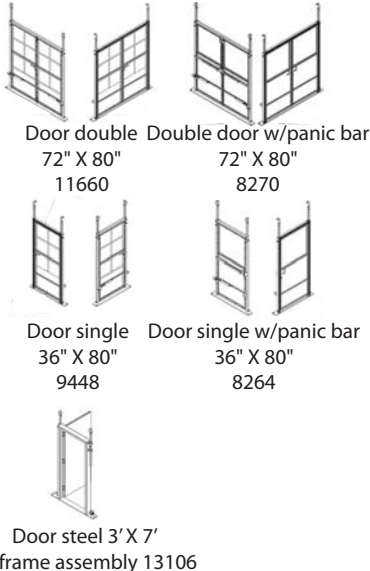
Hardware:

All fasteners, bolts, nuts, turnbuckles, cables, and other hardware are galvanized or otherwise finished to prevent corrosion.

Doors & Accessories:

Vehicle doors, personnel doors, vents and other accessories can be added to the building.

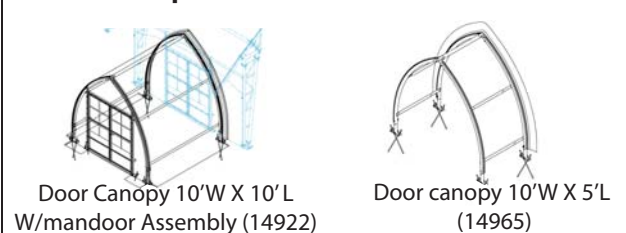
Personnel Doors:



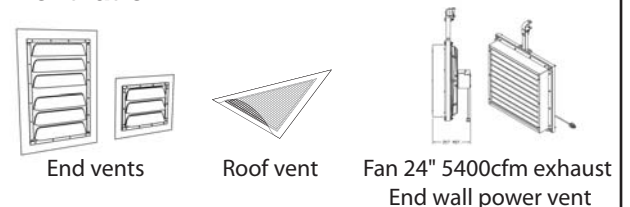
Vehicle Doors:



Door Canopies:



Ventilation:



Testing / Quality Control

All new designs and processes are scrutinized and tested for dimensional tolerances, strength, and frame/cladding assembly issues. WSSL conducts full scale assembly tests on our two acre prototype area. The importance of Quality control is continually emphasized and all are encouraged to suggest improvements.

Shipping and Logistics

WSSL works through a network of cost-effective and dependable freight companies to ensure timely delivery, whether to Panama, Germany, Taiwan, or Fort McMurray.

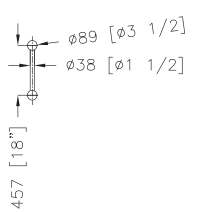
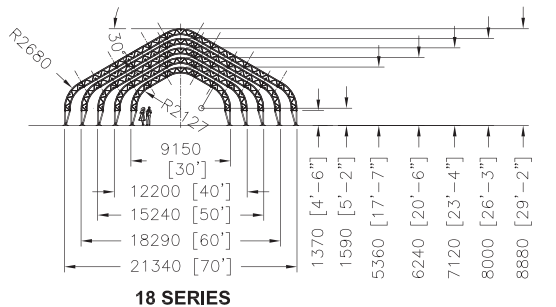
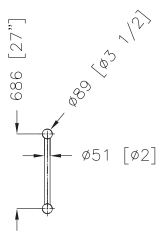
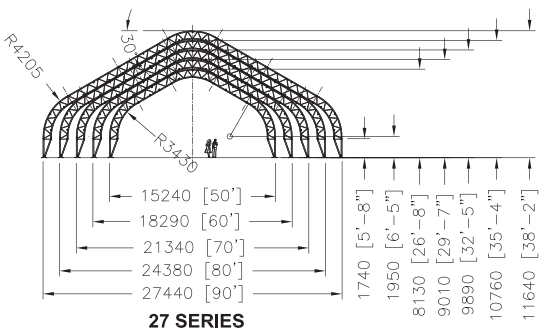
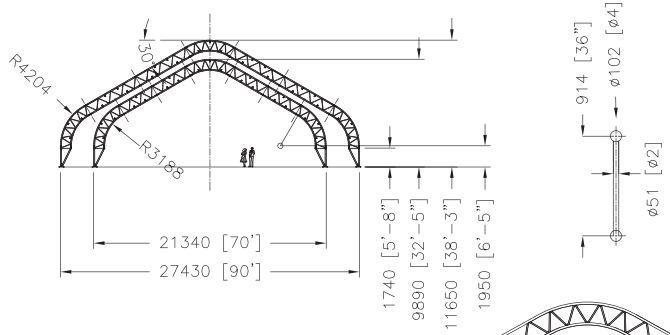
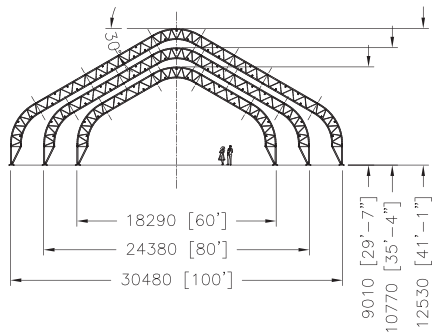
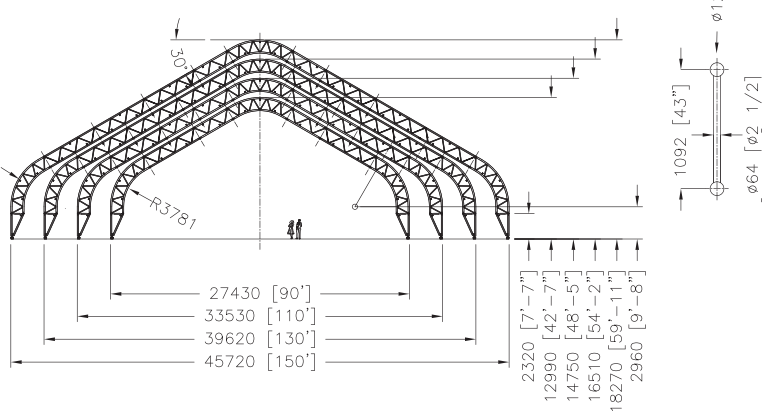
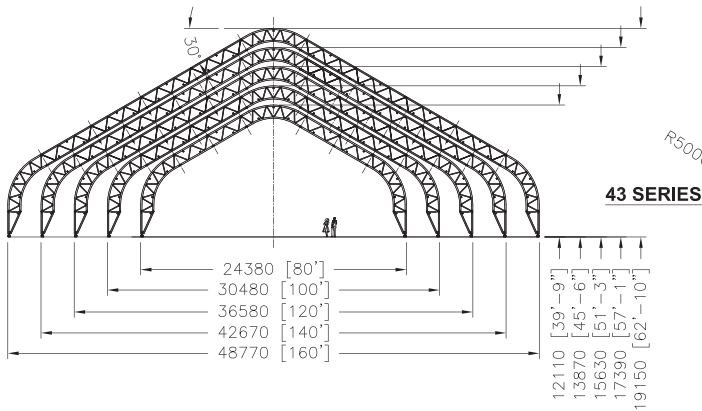


Construction; assembly and erection



GIGA-SPAN

STRUCTURES
by **WSSL**



GIGA-SPAN

STRUCTURES
by **WSSL**

ROOF & WALLS:

Shaped for cover stability.
Mildew and rot resistant.
Fire retardant: satisfies ULC-S109 for National Building code, and NFPA 701 large scale, California Fire Marshal.
Weave 16 x 16 PPL fire retardant HDPE.
Coating thickness 4.0 mil each side.
Single skin or insulated.

FRAMING:

Structural steel tube truss, 55000 psi yield.
Galvanized finish.
High zinc coating welded areas.
Aluminum track for attaching fabric roof panels.
Interchangeable parts.

HARDWARE:

All galvanized or otherwise rust resistant.
(Grade 8 bolts, cables, and turnbuckles)

ASSEMBLY:

Bases fixed to anchorage.
Frame arches assembled and lifted up.
Arches secured with fixed length spreaders.
Roof panels installed after frame is complete.

VEHICLE DOORS:

Overhead or sliding person doors, steel or fabric clad.

ANCHORAGE/FOUNDATION:

Depending on site & customer requirement.

GIGA-SPAN

STRUCTURES
by **WSSL**

The Head Office for Warner Shelter Systems Limited is located in Calgary, Alberta, Canada - home of the Calgary Stampede and host city for the 1988 Winter Olympics. Here, in the foothills of the Rocky Mountains, some of the most dramatic weather conditions exist, making it an ideal location for research and development of our fabric-clad structures.

Founded in 1970 by Kurt Warner, P.Eng., WSSL has designed and manufactured quality award winning tents and fabric clad portable and semi-permanent structures for over 42 years. Warner Shelter Systems Structures are constructed of simple but durable frames with smooth, graceful fire retardant covers.

The Warner structures range from 100 to 100,000 sq. ft.

WARNER SHELTER SYSTEMS LIMITED

Guarantee

GIGA-SPAN Structures



WSSL
WARNER SHELTER SYSTEMS LIMITED

The architectural membrane, structural steel, and/or aluminum framing materials used in WSSL GIGA-SPAN Structures have been selected for their proven strength, durability, and longevity. To show sincere confidence in our products, WSSL is pleased to issue the following guarantee:

MEMBRANE FABRIC COMPONENTS
All WSSL GIGA-SPAN Structure membrane fabrics are fire retardant: our suppliers warrantee that their fabrics satisfy the requirements of ULC-S-109, NFPA-701, and California State Fire Marshal. The fabrics contain inhibitors to resist mildew and ultraviolet degradation. Other additiives help with stand extreme climatic variations.

*WSSL will supply new fabric components, on a pro-rata basis at the then current price, to replace those components which have deteriorated from any of the aforementioned factors within **TEN YEARS** for regular white, opaque white, and tan fabrics and **FIFTEEN YEARS** for premium fabrics from date of delivery of the structure(s).*

STRUCTURAL STEEL AND ALUMINUM COMPONENTS
All structural steel and aluminum used in WSSL GIGA-SPAN components is of the highest quality. The GIGA-SPAN frame components are designed and engineered for their intended use.

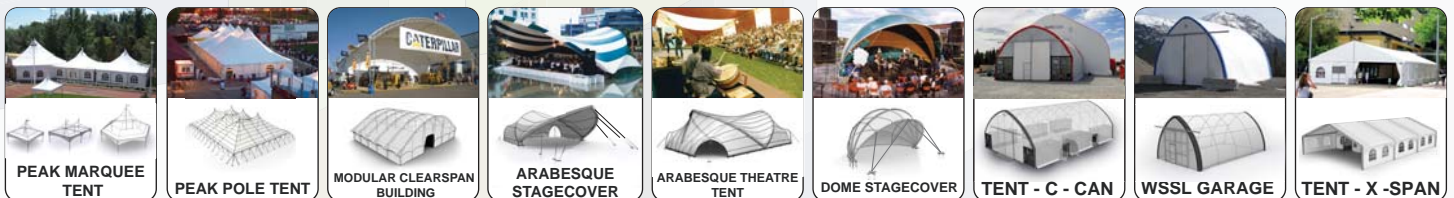
This guarantee applies to the original purchaser of the GIGA-SPAN structure. Due diligence during setup, take down, and cleaning will extend the anticipated fabric life.


Kurt E. Warner, President

WSSL - offering quality shelter solutions for over 42 years



Other WSSL tents & structures



Warner Shelter Systems Limited

Tents and Fabric-Clad Structures

9811 - 44th Street, SE, Calgary, Alberta, Canada T2C 2P7
 Phone: (403) 279-7662 or (800) 661-6155; Fax: (403) 236-2633
 Website: www.wssl.com • E-mail: warner@wssl.com

