

# FRAMELESS STEEL BUILDINGS



INDUSTRIAL | COMMERCIAL | RECREATIONAL | INSTITUTIONAL

# BEHLEN

Made Strong

# A GLOBAL LEADER

## in Frameless Steel Buildings

Over the past 50 years, BEHLEN Industries LP has grown to be the largest manufacturer of steel building systems in Canada. We now serve customers worldwide through a growing network of authorized builders and continue to earn a reputation as a global leader in our industry.

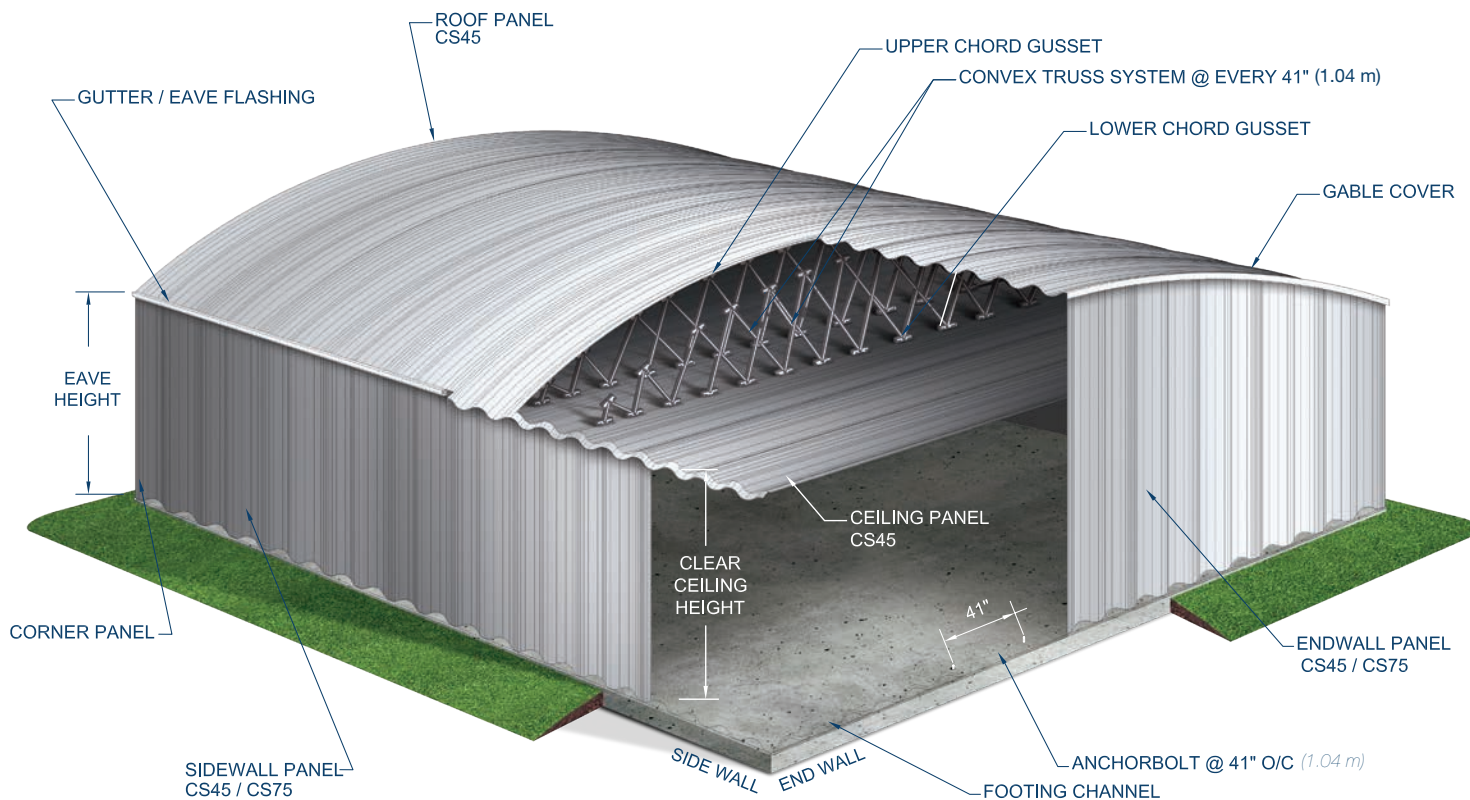
Our success has come primarily through our commitment to quality, innovation and customer service. BEHLEN Frameless steel buildings are energy-efficient and long-lasting, and offer maximum creative flexibility for architects and builders. Our highly trained team and in-house engineering staff constantly strive to rise above our customers' expectations.

Here are some of our accomplishments:

- North America's first steel building manufacturer registered to ISO 9001
- Certified to CSA A660, the Canadian Quality standard for Steel Building Systems
- Manufacturer of the first frameless steel building system in Canada
- Manufacturer of the first frameless steel building to clear spans of 313' (95 m) wide
- Platinum Member of Canada's 50 Best Managed Private Companies
- Unanimously approved by the CISC as a Steel Fabricator CISC Member



## FRAMELESS STEEL BUILDING DETAILS



## VERSATILE AND LOW COST

BEHLEN is proud to offer FRAMELESS steel building solutions, a unique steel building system that offers visual appeal, creative versatility and durability, while capitalizing on a construction technique that saves time, labour and materials.

FRAMELESS steel buildings are constructed with our engineered panel system, eliminating the need for structural steel. This unique system allows us to offer low-cost, energy-efficient solutions.

Our convex roof buildings can offer obstruction-free spans of up to 328' (100m), completely independent of structural elements such as columns and rafters. This provides our customers with unparalleled flexibility.



# ENERGY SAVINGS

The lack of structural steel helps give our buildings an insulation advantage. Inexpensive batt insulation is installed easily on the interior with insulation supports, which minimize energy loss caused by thermal bridging. The wall system also accepts a variety of types of insulation, including spray-on, strapping and batts.

## ATTIC SYSTEM

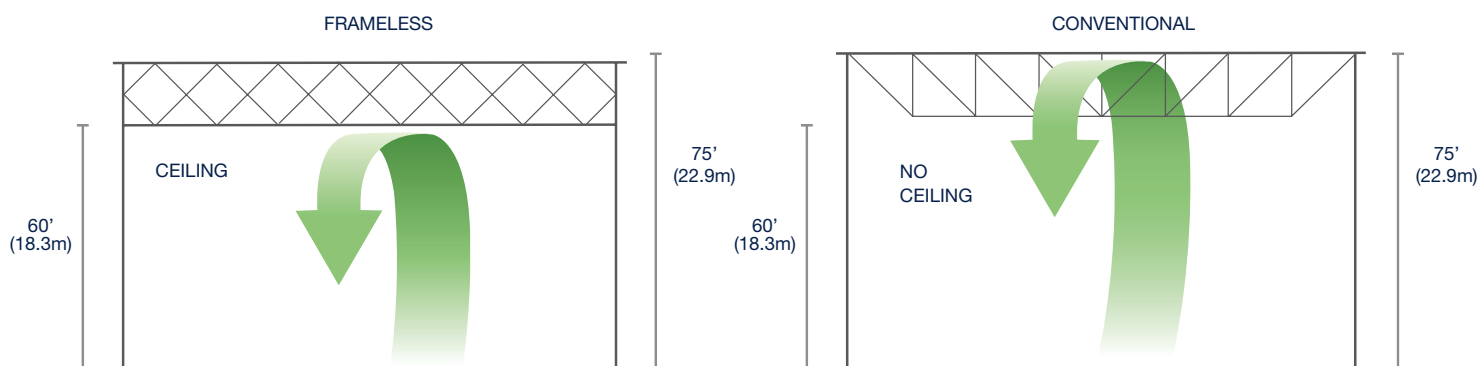
The attic cavity can easily accommodate inexpensive, blown-in insulation with an R-Value up to R60 which offers excellent protection against extreme heat or cold. Additionally, the ventilated attic helps deliver lower energy bills and eliminates the risk of wet, saturated insulation.

## CEILING

Our obstruction-free interiors offer easy climate control with fast heating and cooling. Such energy efficiency leads to lower operating costs for customers.

## CLEAN

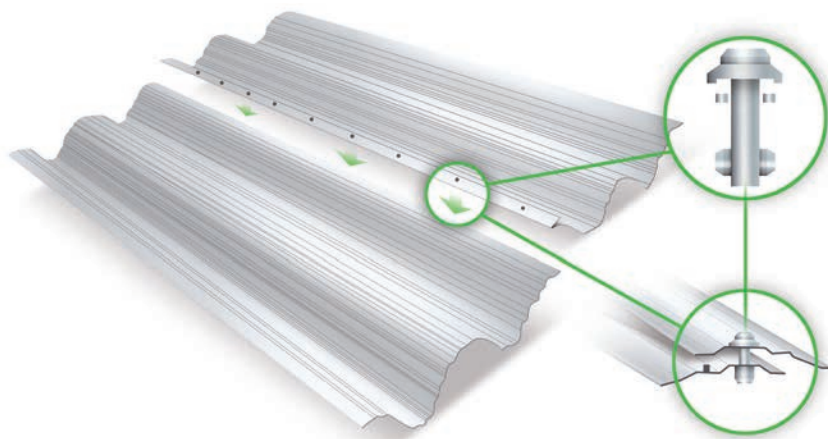
A natural ceiling provides a bright clean interior with no exposed roof trusses. This means fewer light units with higher reflectivity, in turn reducing lighting requirements and lower energy bills.



# PANEL AND WALL SYSTEM

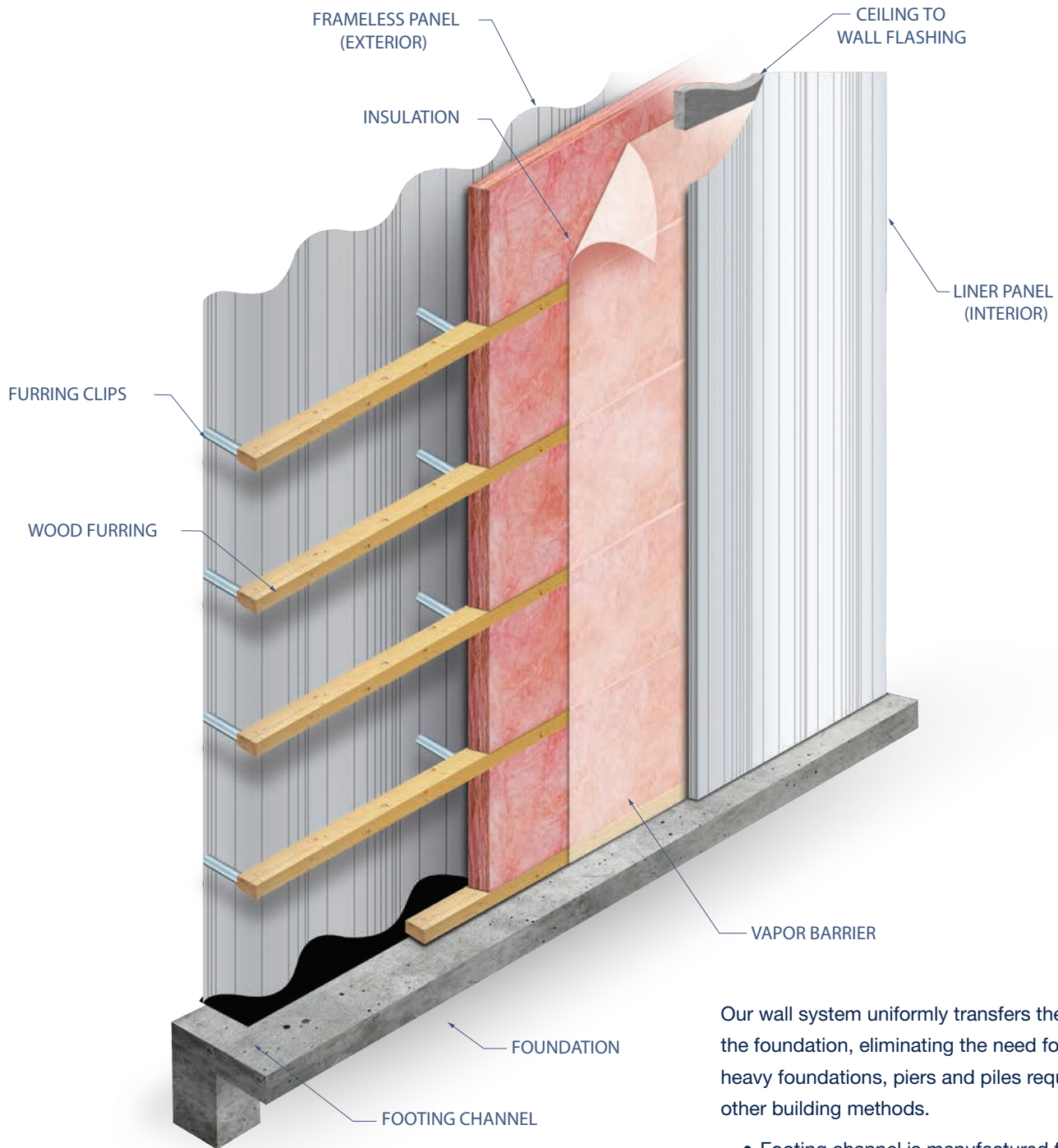
The entire building system is manufactured with heavy-gauge engineered steel panels, created using an exclusive roll form corrugation process that provides excellent structural integrity.

- 41" (1.04 m) wide panels are bolted together at 6" (152.4 mm) intervals on the seams with 3/8" (9.5 mm) plated or color matched bolts
- Wall and roof panels are manufactured from galvanized, galvalume or stainless steel, depending on requirements, and are available in a variety of colors in both 4 1/2" (114.3 mm) and 7 1/2" (190.5 mm) corrugation sizes
- No heavy lifting equipment is required, since there is no structural steel



PANEL DETAILS

## WALL DETAILS



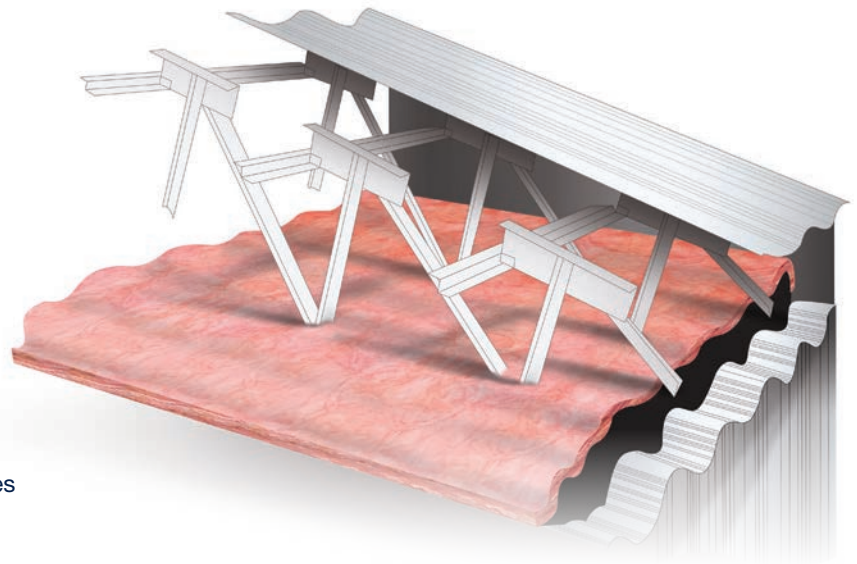
Our wall system uniformly transfers the load to the foundation, eliminating the need for expensive heavy foundations, piers and piles required with other building methods.

- Footing channel is manufactured from galvalume material, which eliminates the potential for corrosion
- System can incorporate windows, overhead doors, glass, wood, pre-cast masonry and cladding materials to provide creative design flexibility

# ROOF AND CEILING SYSTEM

The FRAMELESS system can deliver lower energy costs because of its uniquely versatile roof system.

- Roof system consists of corrugated roof and ceiling panels, joined by a lightweight, bolt-together truss
- Roof system provides a ventilated attic that promotes lower energy costs and eliminates the potential for wet insulation caused by condensation or leaks in light-gauge roof cladding
- Air movement is supported by die-stamped louvers in end panels
- In more extreme environments, mechanical ventilation can be easily incorporated
- Attic cavity easily accommodates cost-effective blown-in insulation
- Sealer applied on ceiling panel seam lines creates a vapor barrier; on roof panel seam lines, sealer provides a weather tight system
- Cavity can also accommodate wiring and HVAC duct work and pipes
- Unlike with other construction methods, attic trusses can be designed for varying load by changing the gauges. This allows the roof system to accommodate heavy loading capacity roof equipment; there is no need to change the building's interior or exterior dimensions



ROOF INSULATION



VENTILATED ATTIC

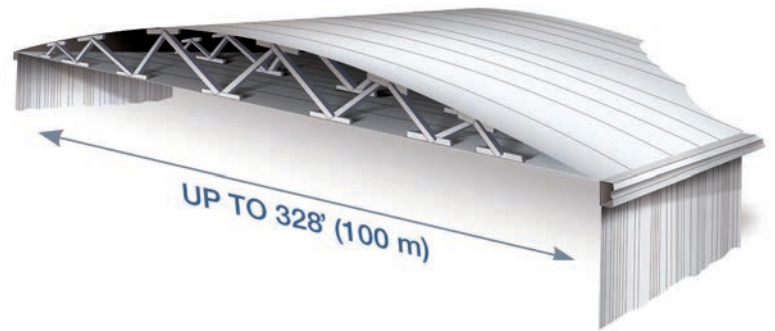


# ROOF AND CEILING SYSTEM

## CONVEX

This curved roof system provides clean, clear modern lines and offers up to 328' (100 m) of obstruction-free interior space.

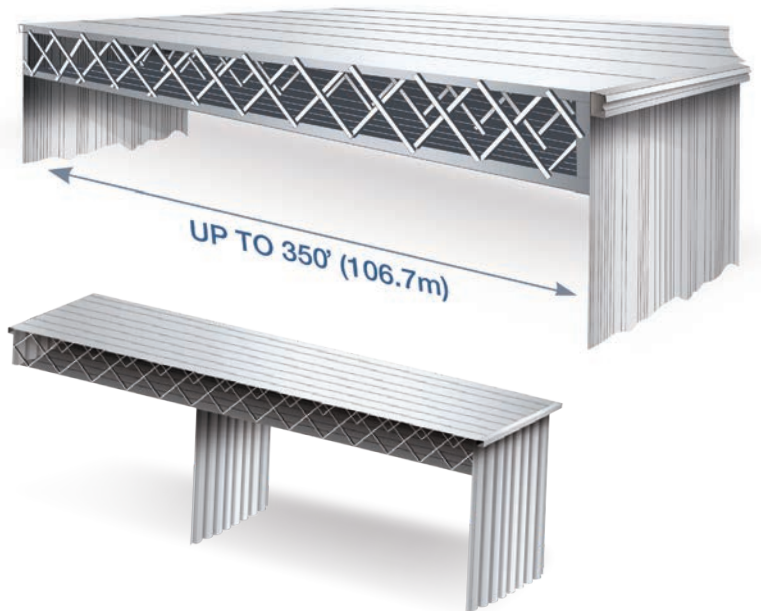
- Cost-effective design allows for low construction costs
- Energy-efficient attic
- Roof system can be designed and installed on other conventional load-bearing wall systems
- Roof can accommodate heavy roof equipment



## DUBL-PANL AND DUBL-PANL CANTILEVER

Our flat-roof systems offer clear spans of up to 350' (106.7 m), with the option of cantilevering up to half of the building's width with no structural steel columns.

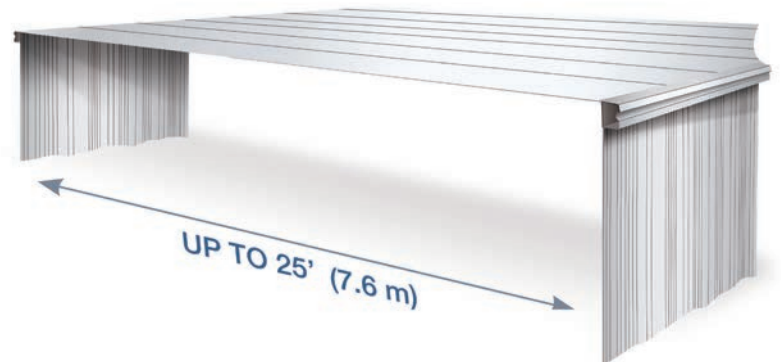
- Roof incorporates a slight slope to provide drainage
- Roof system can be designed and installed on other conventional load-bearing wall systems
- Roof system can accommodate HVAC and other roof equipment
- System can incorporate interior beams and columns to achieve greater building widths.



## SINGLE PANEL

Our single-panel roof systems offer a low-cost option to span up to 25' (7.6 m).

- Roof panel is supported by the FRAMELESS structural wall panel
- Can incorporate beams and columns to expand width of building







## BUILDING TYPE

### INDUSTRIAL

BEHLEN's expertise in industrial buildings comes from years of design and development in our Manitoba factory. Our building systems offer optimum thermal performance and flexibility for future expansion.

BEHLEN designs and manufactures industrial building solutions for the following:

- Factories
- Warehouses
- Aircraft
- Mining & Forestry
- Oil & Gas





## COMMERCIAL

BEHLEN's progressive attitude and innovative aesthetic design allows for customers to customize their project requirements. We offer diverse commercial solutions for a variety of consumer needs.

BEHLEN designs and manufactures commercial building solutions for the following:

- Car Dealers
- Restaurants
- Retail Stores
- Self-Storage
- Corporate Offices







## RECREATIONAL

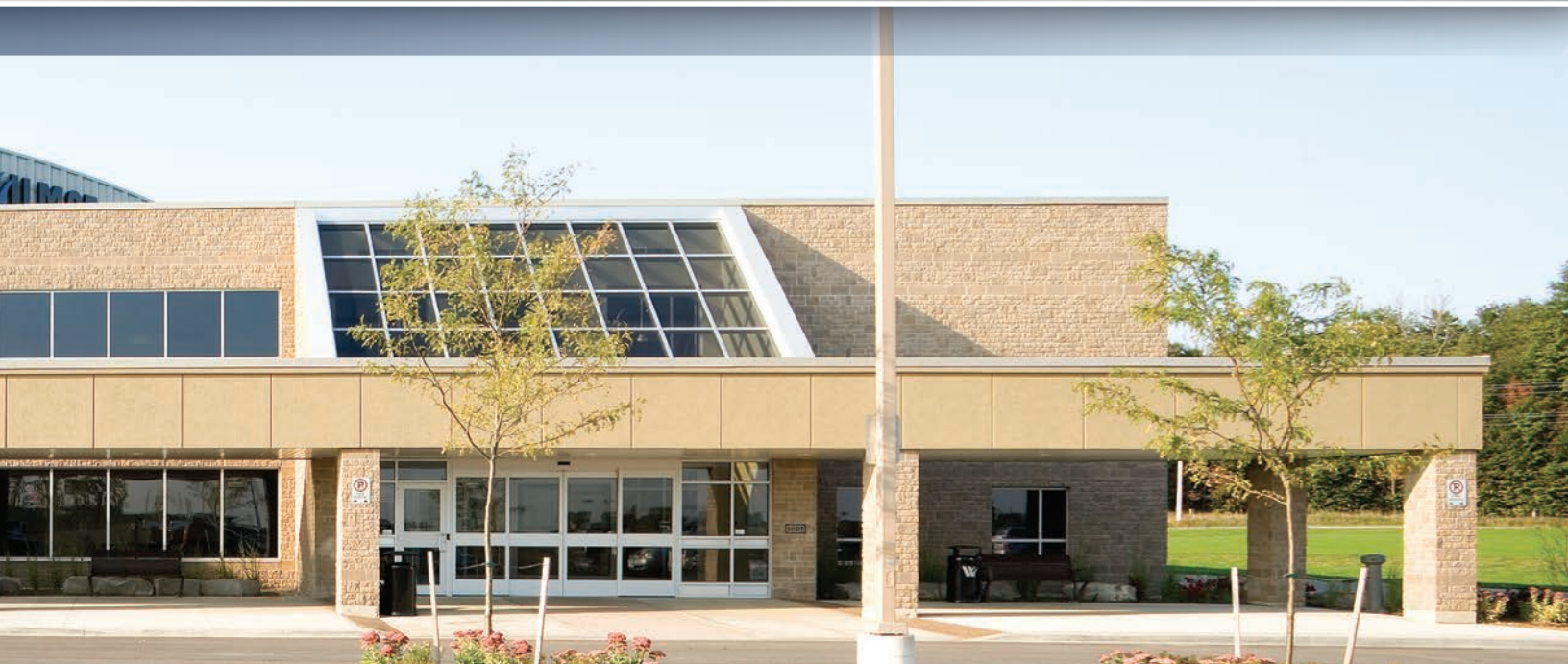
BEHLEN recreational building solutions are ideally suited for multisport facilities. These buildings score well with players and spectators alike. Our building systems help architects and designers create visually aesthetic projects that are versatile and flexible. BEHLEN recreational facilities are showcased in big cities and small towns throughout the world. Most notably, BEHLEN is responsible for the largest frameless building in the world, located in Russia.

BEHLEN is able to design and manufacture recreational building solutions for the following:

- Arenas
- Gymnasiums
- Indoor Soccer
- Other Recreational Facilities







## INSTITUTIONAL

BEHLEN buildings offer energy efficiency, creative flexibility and product longevity to meet industry demand. In addition, a vast selection of exterior and interior finishes can be integrated to suit institutional needs.

BEHLEN is able to design and manufacture institutional building solutions for the following:

- Colleges
- Universities
- Governments
- Religious Organizations



# **BEHLEN**

## **Made Strong**

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