

*Tension Fabric Structures*

# REWRITING THE PLAYBOOK ON AFFORDABLE SPORTS FACILITIES

*Presented By*

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Legacy Building Solutions



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# **PRESENTER**

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Building + Project Design Consultant

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# HIGHLIGHT REEL

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- The materials used in tension fabric structures
- How each material contributes to the strength and longevity of the structure
- Benefits of the structure specific to sports venues
- Case studies



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# ABOUT LEGACY

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**100+**

Years of combined leadership  
experience in the industry

**MILLIONS**

Of square feet sold and installed

**2010**

Founded in South Haven, MN





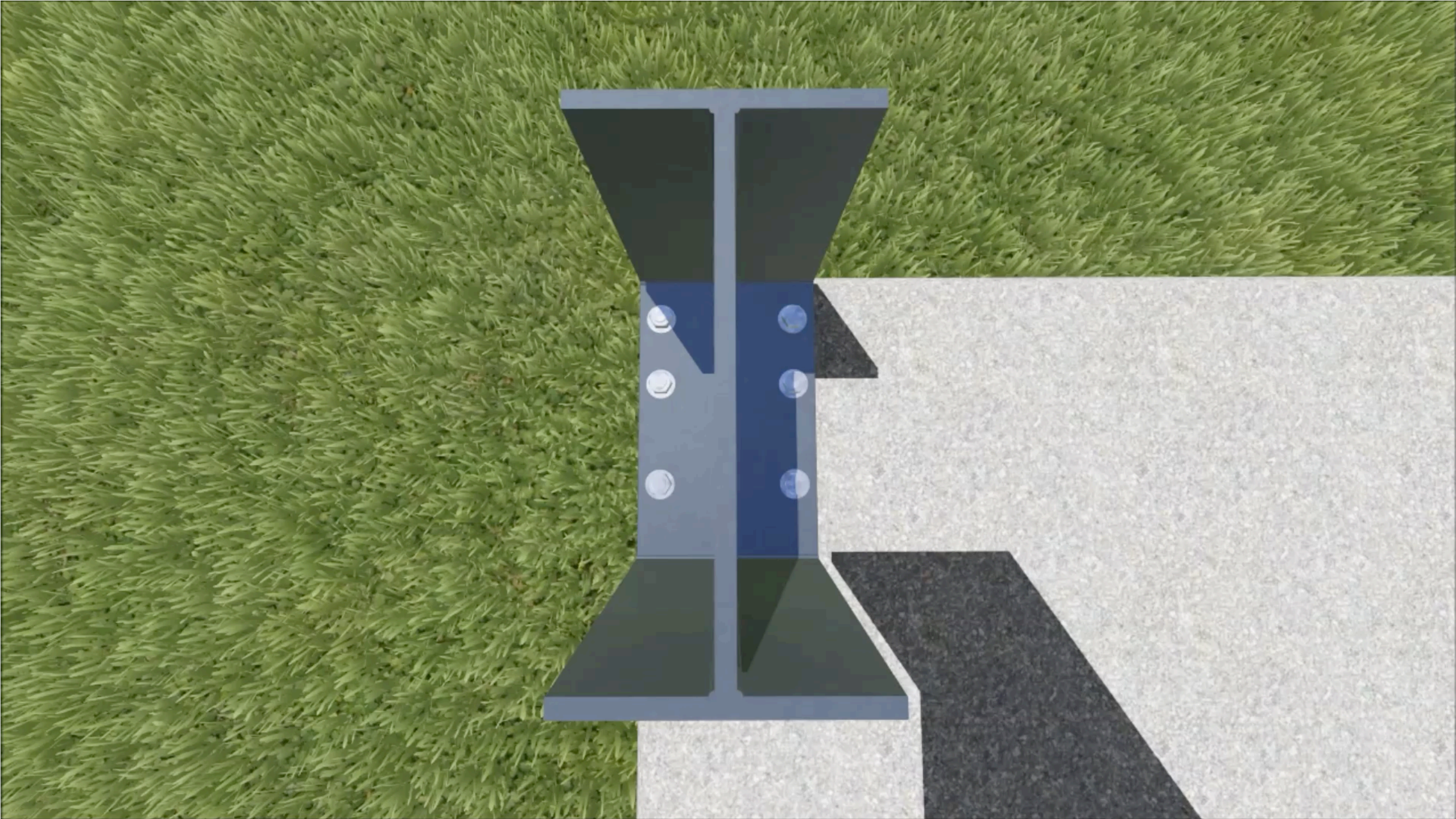
A construction worker wearing a hard hat and safety harness is positioned on a scissor lift, working on a large steel framework. The structure consists of numerous vertical and horizontal steel beams. The background is a cloudy sky. The image is in grayscale, with the text overlaid in white and yellow.

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# FABRIC STRUCTURE CONSTRUCTION: STEEL

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# RIGID STEEL FRAME

- Design flexibility
- More usable space
- Confidence
- Universality
- Support for equipment





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# RIGID STEEL FRAME

➤ Customization options:

- Balconies
- Mezzanines
- Overhangs
- Soffits
- Lean-tos





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# STEEL TREATMENT

- Hot dip galvanizing
- Epoxy paint







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# **FABRIC STRUCTURE CONSTRUCTION: FABRIC**





# BENEFITS OF FABRIC



- Natural light equals fewer lights installed and powered, lower energy costs
- No reverberation for superior acoustics
- Our fabrics have a white underside providing superior light reflection for a better lit interior



- Stays cooler in summer and warmer in winter
- Wider and taller structures with freespan space
- Seamless roof construction with no penetrations, which eliminates leaks
- Relocatable



- Installed in 1/3 the time – faster return on investment
- Minimal maintenance requirements
- 1/5 cost of roof replacement
- Single source engineering, manufacturing & installation

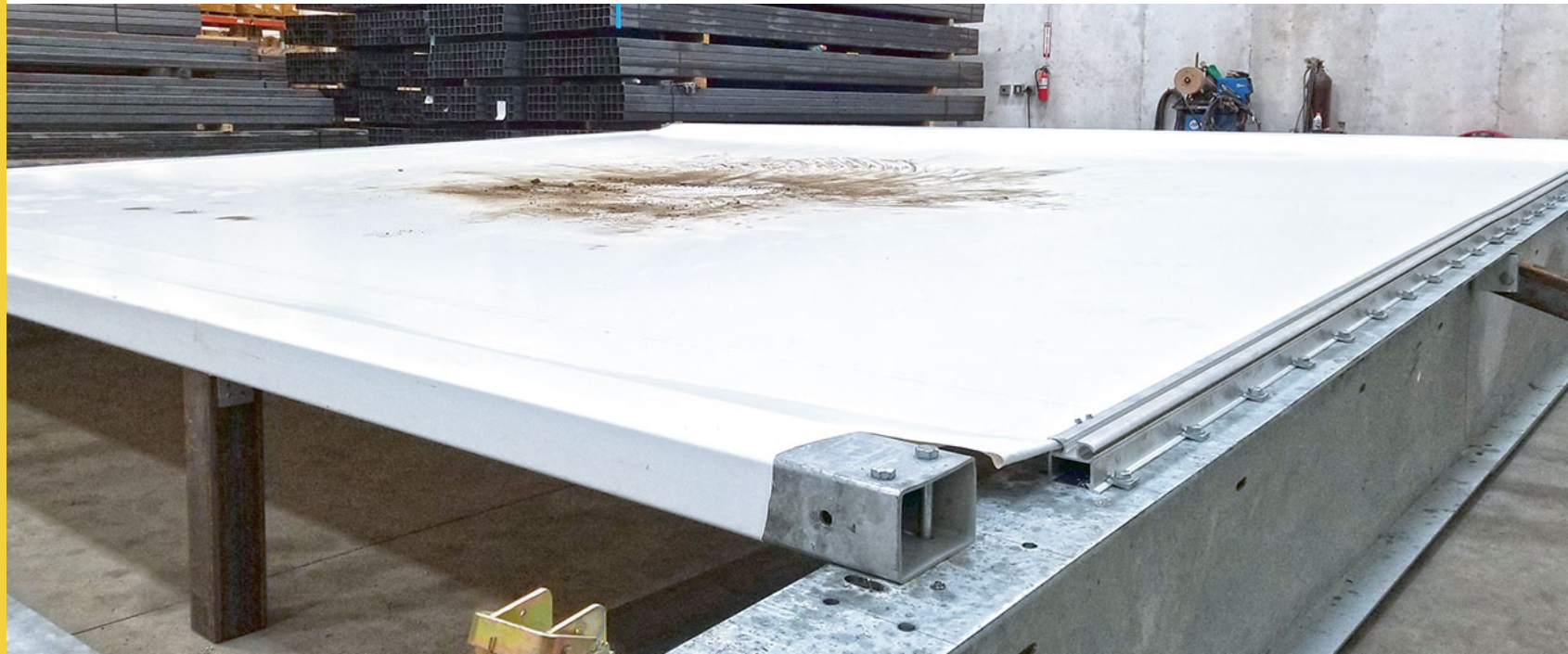




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# FABRIC STRENGTH TEST

- ExxoTec™ Elite 28 oz PVC fabric attached to steel frame for strength testing
- 10,100-lb skid loader placed, and then driven, on fabric
- Fabric supported the loader and returned to its original state in less than 24 hours without damage





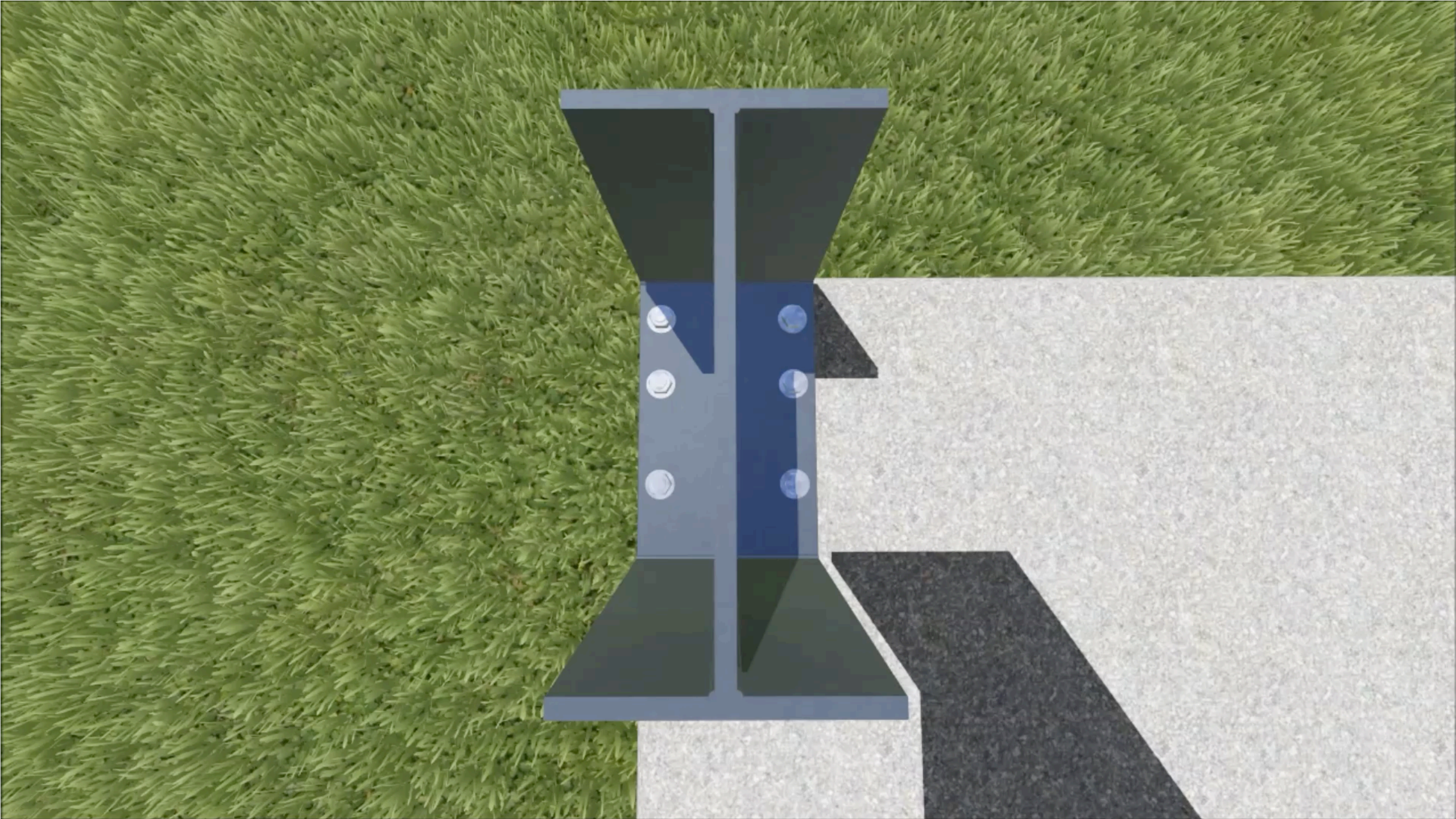


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# FABRIC AND FRAME TOGETHER

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# INSULATION, LINERS AND MORE

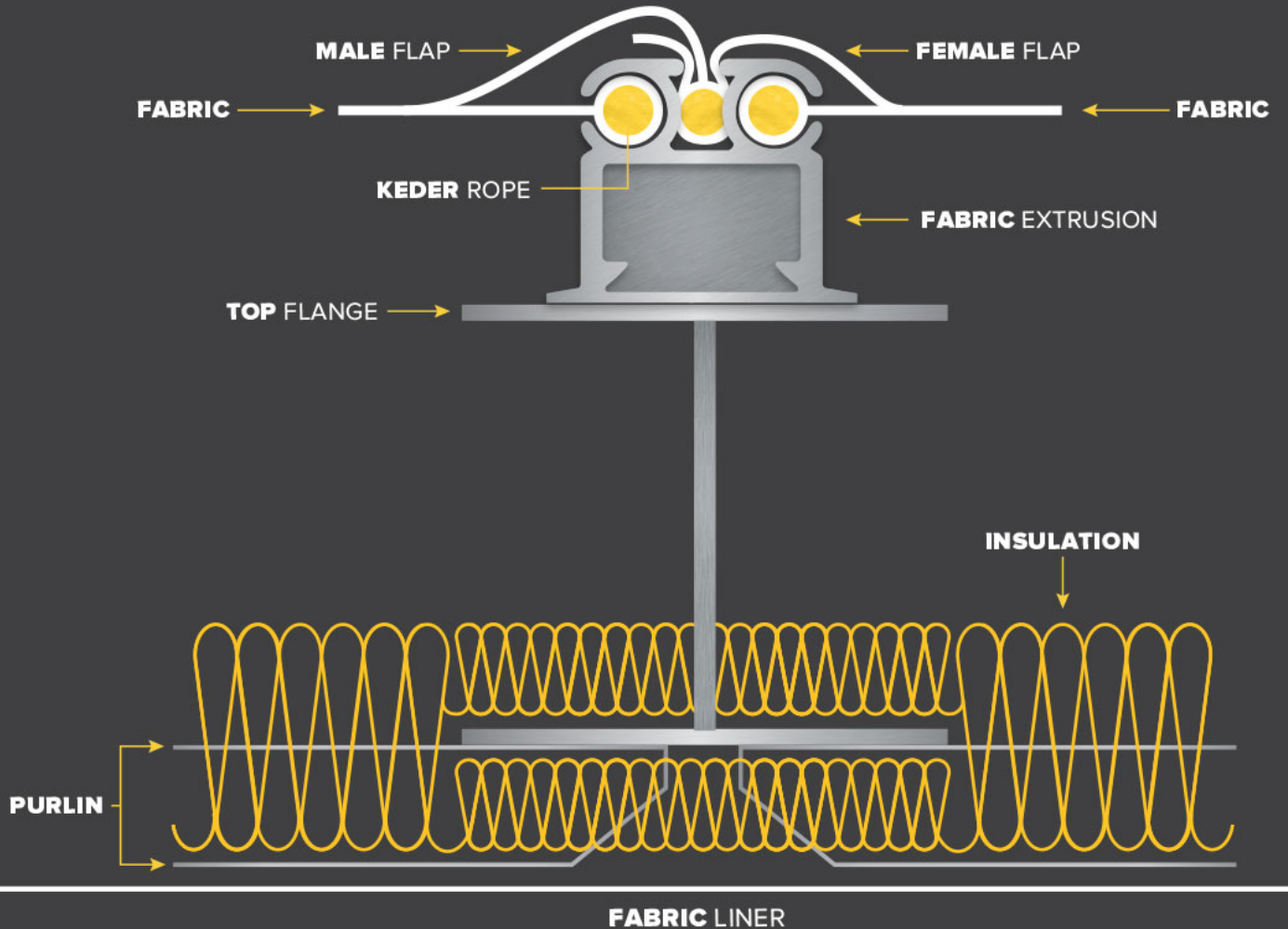
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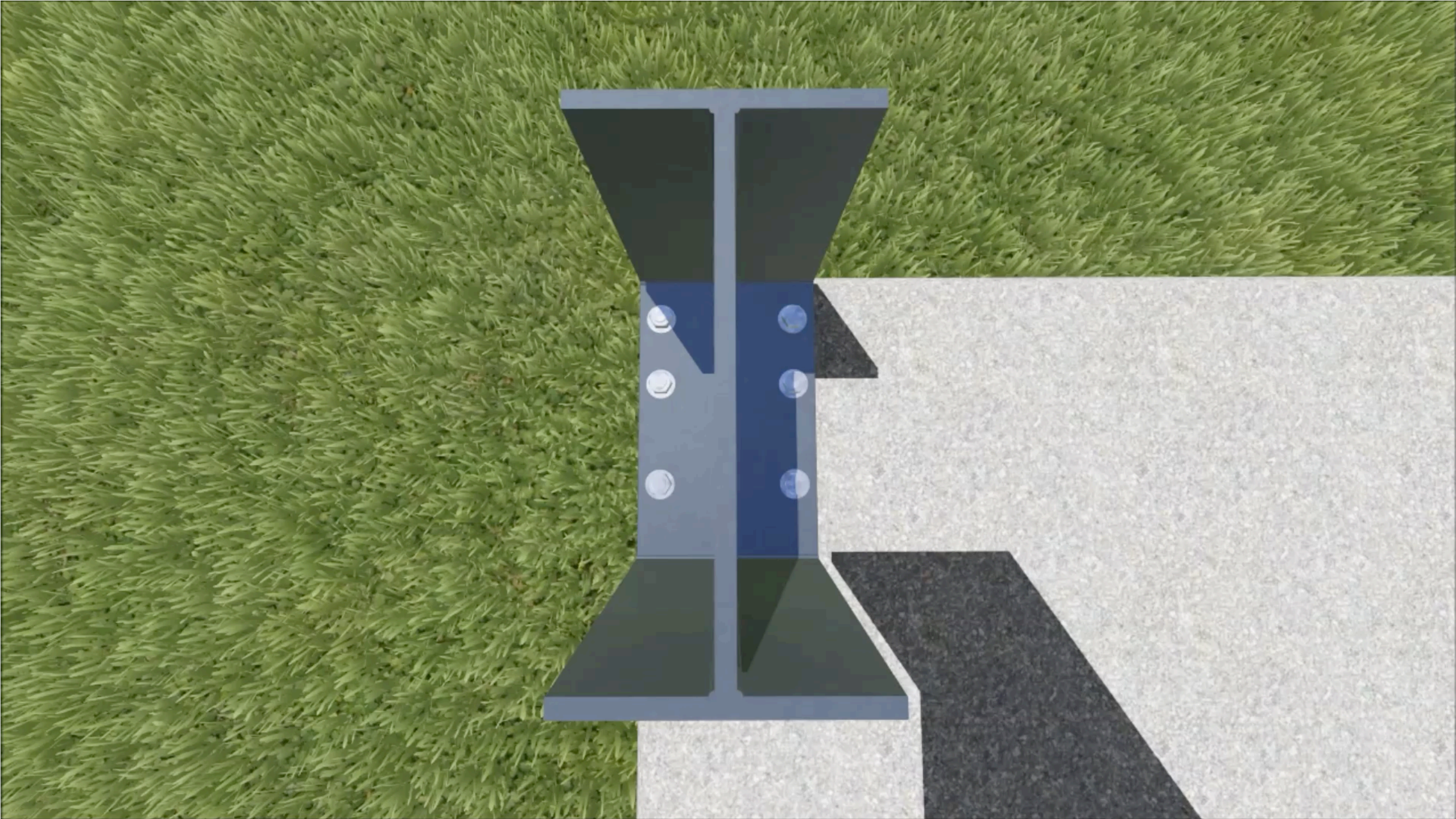


# INSULATION AND LINERS

- Commercial fiberglass insulation system installed in rigid I-beam cavity, finished with premium liner
- True R-value achieved
- Comfortable and superior interior environment in any conditions









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# ACTIVE OR PASSIVE VENTILATION

- Peak vents
- Eave intake
- Cavity ventilation in lined buildings
- Powered peak vents
- Aeration systems

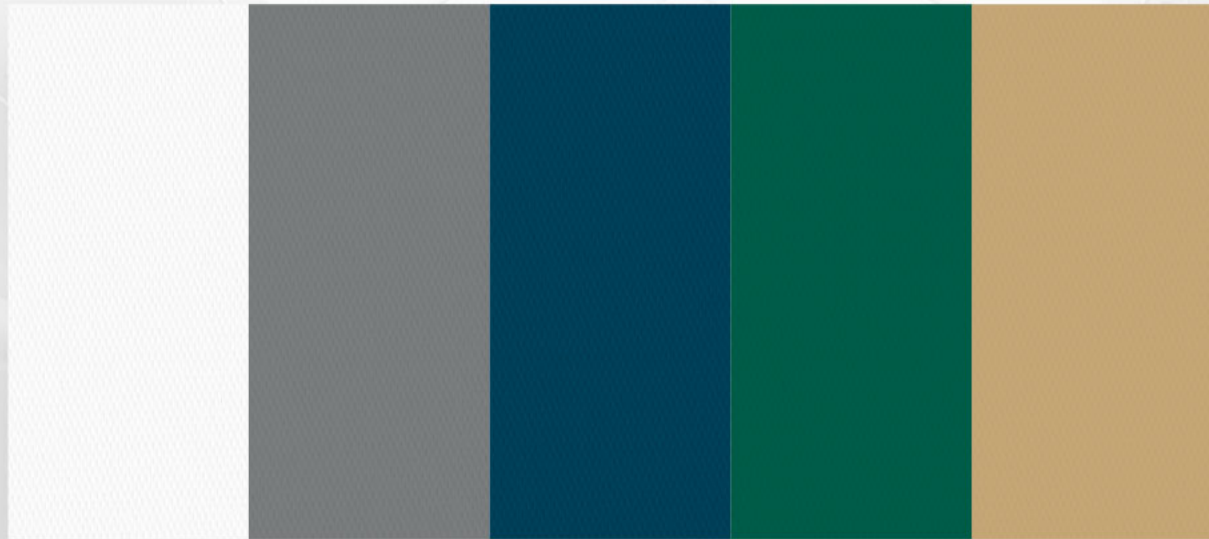




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# OPTIONS TO CUSTOMIZE

- Color options for fabric exteriors
- Color options for exposed beams
- Logos
- Mascots





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# LIGHT AND ACOUSTICS

- White liner
- Improved lighting
- Quieter than steel buildings
- Coaches want to be heard





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# OVERHANGS

- Entrance protection
  - Awnings and Canopies
- Ventilation intake
- Water management
  - Icebreakers
  - Gutters & downspouts





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# CLADDING OPTIONS

- Fabric
- Glazing walls
- Steel
- Stone





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# HANGING LOADS

- Nets
- Goalposts
- Scoreboards
- Basketball hoops
- Mezzanines
- Fire suppression, lighting, HVAC





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# DOOR AND ENTRY OPTIONS

- Personnel doors
- Rubber doors
- Overhead doors





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# DESIGNED FOR SPECTATORS

- Standard to high occupancy
- Mezzanine deck
- Ground-level viewing options
- Venue-specific gable ends for indoor/outdoor viewing





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# INSTALLATION

- Professionally trained crews
- Fabric attachment system





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# CASE STUDIES

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# FOX CREEK MULTIPLEX

*Fox Creek, AB*

- Four connected units: fieldhouse, aquatic center, full-scale hockey arena, community center (58,363.8 total sq ft)
- Community sports and event center
- 46 psf ground snow load, 90 mph wind load, high occupancy rating
- Gray primed steel frame



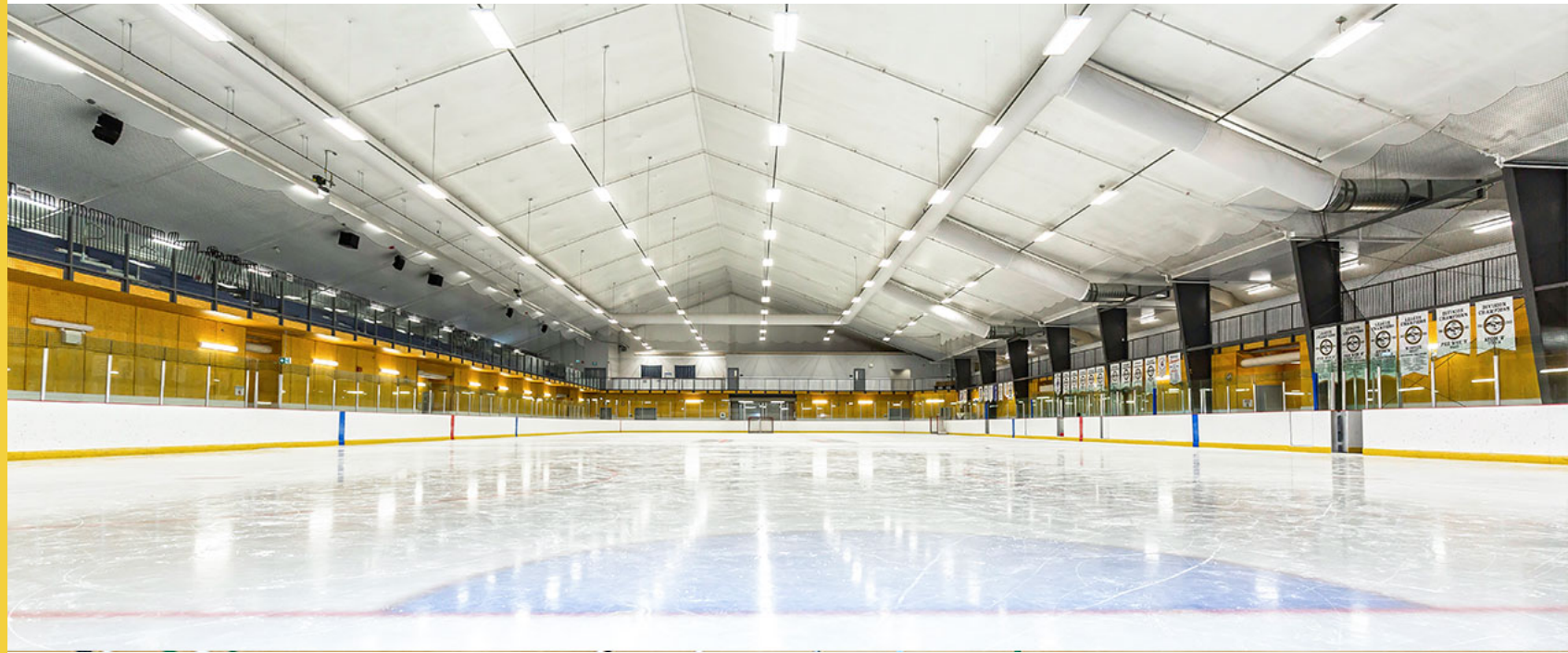


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# FOX CREEK MULTIPLEX

*Fox Creek, AB*

- PVC fabric cladding with a custom silhouette design on exterior
- Fully insulated and lined with climate control system for year-round use
- Interior build-outs for changing rooms, concessions, weight room, offices and more
- Second-floor walking track in hockey arena





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# OKLAHOMA CITY TENNIS CENTER

*Oklahoma City, OK*

- 125 ft x 300 ft building with six regulation tennis courts
- Primed rigid steel frame
- Tan and green fabric cladding
- Fully lined and insulated for year-round use
- Interior profile complies with USTA standards





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# OKLAHOMA CITY TENNIS CENTER

*Oklahoma City, OK*

- Frame engineered to support HVAC system, large fans, divider curtains and lighting
- Active and passive ventilation systems installed
- 36 in overhangs with gutters and downspouts
- LBS crews installed the structure in under 30 days





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# KIMBALL HS MULTISPORT

*Kimball, MN*

- 45 ft x 100.5 ft structure with 20 ft x 15 ft vestibule (4,822.5 sq ft)
- Gray primed rigid steel frame
- White, blue and tan ExxoTec Elite PVC fabric cladding
- Lined and insulated for year-round use





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# KIMBALL HS MULTISPORT

*Kimball, MN*

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- Vestibule connected directly to existing brick structure
- School mascot decal on exterior wall
- Building fully covered with fire suppression system
- Legacy completed all construction and interior finishing in two months





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# PACIFIC FOOTBALL CLUB

*Langford, BC*

- 164 ft x 310 ft indoor soccer facility (50,840 sq ft)
- Gray primed rigid steel frames
- ExxoTec Elite white fabric cladding





# GAME DAY RECAP

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- The materials used in tension fabric structures
- How each material contributes to the strength and longevity of the structure
- Benefits of the structure specific to sports venues
- Case studies



A black and white photograph of a tennis facility. In the foreground, two metal benches with slatted seats are positioned on a paved area. Behind them is a chain-link fence that encloses several tennis courts. In the background, a large, dark building with a gabled roof is visible. The sky is overcast with clouds. The text "Tension Fabric Structures" is overlaid in a yellow, italicized font, and "Q + A" is overlaid in a large, white, bold font with a yellow horizontal line underneath it.

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**Q + A**

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*Thank You!*

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