Hanging Brackets
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Utility Loads, Attachment to the Sprung structure

The Sprung structure is designed to carry a uniformly distributed utility load of 2 psf spread across the width of the structure. These loads typically consist of sprinkler systems, mechanical duct work, lighting trusses, suspended ceiling systems, speaker clusters, lights, fans, etc. The loading from utilities is to be uniformly distributed and balanced.

As a service, Sprung’s consulting engineer can review all loads which are to be suspended from the structure on a global basis only. The engineer will review the load affect of the utilities and will identify any problem areas. If this review is required please provide all details, drawings, and weights associated with the utility loads which are to be suspended from the structure. Please note that our engineer will not review the connection details to the Sprung structure. The structural adequacy of all connections is the responsibility of the Client’s engineer. We recommend that this service be taken advantage of, to ensure that the intended loads are evenly distributed and meet the 2 pdf load.

The Sprung structure is designed to move in high wind conditions. As such, all connections to the structure should be flexible to account for this movement. Self tapping screw connections to the structure are not permitted. Do not attach any utilities to the structural spreaders.

Attachment to the structure must only be to the beams and can be achieved using beam clamps for non insulated structures and for insulated structures the bolt chase on the bottom flange of the beam is available. Sprung offers a single point 75 pound capacity eye nut bracket and for heavier loads a 300 pound capacity attachment bracket.

For sprinkler applications, depending on the sprinkler pipe size, the 300 pound bracket is designed to meet the loading requirements of NFPA. If required, a letter and sealed drawing can be made available by Sprung’s consulting engineer as part of the utility load review.

Connections attached through the bolt chase should have a minimum spacing of 3'-0”. If closer spacing is required this would need to be reviewed by Sprung’s Consulting Engineer during the utility load review process. No single attachment is to exceed 300 pounds. Heavier items can be load shared between different points of the adjacent arches. There are many different beam clamps and attachment methods available from various companies. These include but not limited to the following; Grinnell, Unistrut and Hilti. There are several cope outs available on the bottom flange of the beam giving access to the bolt chase for the installation of the custom T-bolts (available from Sprung) or the Unistrut fasteners.

Hanging Brackets

Sprung has two types of hanging brackets available. These are bolted to the bolt chase of the bottom flange using custom T-bolts. The 300 pound capacity bracket is held in place with a series of four bolts and the single eye nut 75 pound capacity bracket is held in place with one bolt. These are available from inventory and can be ordered from a Sprung Sales Representative. The structural adequacy for using these types of attachment brackets must be reviewed by the client’s engineer to ensure that it is suitable for the hanging application.

NOTE: Structural adequacy of all connections to be determined by others.
75 lb Eye Nut Bracket

75 lb Eye Nut Bracket
75 POUND HANGING BRACKET
INSTALLATION INSTRUCTIONS

STEP 1
MARK LOCATION OF HANGING BRACKET ASSEMBLY IN THE CENTER OF THE INTERIOR PVC CAP

STEP 2
USING A 3/4" HOLE SAW FOR 5"x10" ALUMINUM I BEAM STRUCTURES OR A 1" HOLE SAW FOR 8"x12" ALUMINUM I BEAM STRUCTURES, DRILL A HOLE THROUGH THE INTERIOR PVC CAP, MAKING CERTAIN NOT TO BORE INTO THE BEAM ITSELF.

STEP 3
REMOVE THE EXCESS CAP MATERIAL, CLEARING THE HOLE OF DEBRIS.

EXCESS CAP MATERIAL

UNderside Of SPRUNG ALUMINUM I BEAM

3/4" HOLE (5"x10" BEAM)
1" HOLE (8"x12" BEAM)
*DRILL ON SITE*

INTERIOR PVC CAP
STEP 4
POSITION T-BOLT INTO THE ALUMINUM BEAM BOLT CHASE CAVITY

STEP 5
TURN T-BOLT CLOCKWISE 90° TO LOCK INTO THE BOLT CHASE.

THE INDICATOR LINE ON THE END OF THE T-BOLT RUNNING PERPENDICULAR TO THE LENGTH OF THE BEAM CONFIRMS THAT IT IS LOCKED IN PLACE.
STEP 6
INSTALL FENDER WASHER, LOCK WASHER AND EYE NUT OVER T-BOLT AND FIRMLY FASTEN

3/8" EYE NUT (5"x10" BEAM)
1/2" EYE NUT (8"x12" BEAM)

3/8" LOCK WASHER (5"x10" BEAM)
1/2" LOCK WASHER (8"x12" BEAM)

3/8" FENDER WASHER (5"x10" BEAM)
1/2" FENDER WASHER (8"x12" BEAM)

3/8"x1 1/4" T-BOLT (5"x10" BEAM)
1/2"x1 1/4" T-BOLT (8"x12" BEAM)
*SHOWN IN LOCKED POSITION*

INTERIOR PVC CAP

UNDERSIDE OF SPRUNG ALUMINUM I BEAM

FASTENER CAPACITY 75 POUNDS. QUANTITY AND LOCATION TO BE VERIFIED BY AN ENGINEER. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE UTILITY LOAD LETTER.

STRUCTURAL ADEQUACY OF CONNECTION TO BE DETERMINED BY OTHERS.
300 lb Hanging Bracket

300lb Hanging Bracket
300 POUND HANGING BRACKET
INSTALLATION INSTRUCTIONS

STEP 1
MARK LOCATION OF HANGING BRACKET
ASSEMBLY IN THE CENTER OF THE
INTERIOR PVC CAP

STEP 2
USING A 3/4" HOLE SAW FOR 5"x10"
ALUMINUM I BEAM STRUCTURES OR A
1" HOLE SAW FOR 8"x12" ALUMINUM I
BEAM STRUCTURES, DRILL A HOLE
THROUGH THE INTERIOR PVC CAP,
MAKING CERTAIN NOT TO BORE INTO
THE BEAM ITSELF.

STEP 3
REMOVE THE EXCESS CAP MATERIAL,
CLEARING THE HOLE OF DEBRIS

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UNDERSIDE OF SPRUNG ALUMINUM I BEAM

CENTER LINE OF HANGING BRACKET

3/4" HOLE (5"x10" BEAM)
1" HOLE (8"x12" BEAM)
*DRILL ON SITE*

EXCESS CAP MATERIAL

INTERIOR PVC CAP
STEP 4
POSITION T-BOLTS INTO THE ALUMINUM BEAM BOLT CHASE CAVITY.

STEP 5
TURN T-BOLTS CLOCKWISE 90° TO LOCK INTO THE BOLT CHASE.

THE INDICATOR LINE ON THE END OF THE T-BOLT RUNNING PERPENDICULAR TO THE LENGTH OF THE BEAM CONFIRMS THAT IT IS LOCKED IN PLACE.
STEP 6
INSTALL FENDER WASHERS, LOCK WASHERS, NUTS, HEX HEAD BOLT, EYE NUT AND HANGING BRACKET OVER T-BOLTS AND FIRMLY FASTEN

5/8" EYE NUT
5/8" LOCK WASHER
5/8" FENDER WASHER
3/8" NUT (5"x10" BEAM)
1/2" NUT (8"x12" BEAM)
3/8" LOCK WASHER (5"x10" BEAM)
1/2" LOCK WASHER (8"x12" BEAM)
3/8" FENDER WASHER (5"x10" BEAM)
1/2" FENDER WASHER (8"x12" BEAM)

300# HANGING BRACKET
5/8"x2 1/4" HEX HEAD BOLT
3/8"x2" T-BOLT (5"x10" BEAM)
1/2"x2" T-BOLT (8"x12" BEAM)
*SHOWN IN LOCKED POSITION*

INTERIOR PVC CAP
UNDERSIDE OF SPRUNG ALUMINUM I BEAM

FASTENER CAPACITY 300 POUNDS. QUANTITY AND LOCATION TO BE VERIFIED BY AN ENGINEER. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE UTILITY LOAD LETTER.

STRUCTURAL ADEQUACY OF CONNECTION TO BE DETERMINED BY OTHERS.
Installation of the T-Bolt

IMPORTANT

BOLTS MUST BE TURNED 90 DEGREES IN BOLT CHASE TO FULLY ENGAGE AND LOCK. THIS IS ACHIEVED WHEN LINE ON BOLT IS PERPENDICULAR TO BOLT CHASE.

MAX LOAD: 75LBS VERTICAL

ALSO NOTE: NEVER USE T-BOLT ON CURVED AREA OF BEAM.
1. 8X12 ALLOWED T-BOLT PLACEMENT
   1/4"=1'-0"

2. INSTALLED 1/2"Ø T-BOLT
   6"=1'-0"

3. 1/2"Ø T-BOLT
   12'=1'-0"

1/2"Ø T-BOLTS NOT PERMITTED IN THIS AREA
1/2" SQ. HEAD BOLT MAY BE

1/2"Ø T-BOLTS PERMITTED IN THIS AREA
8X12 ALUM. I-BEAM

8"x12" ALUM. I-BEAM

4'-0"
Examples of sprinklers, HVAC duct work, and lighting trusses

Examples of sprinkler line attachment
Light weight Duct sox
www.ductsox.com

Unit and Infrared Heater