Electrical
Electrical

In the case of insulated structures, many customers desire to hide electrical and conduit within the insulated wall assembly. Electrical conduit can be installed by drilling a hole along the center line of the web of the beam. The maximum hole size is 1 ½" diameter, with hole placed a minimum of 14" apart from existing pre drilled holes on the beam. A hole is not to be drilled in the curve portion of the arch and only one hole can be drilled in the straight portion. For the 30' to 90' structures, holes have been located and pre-drilled. On the 100' to 160' structures holes can be placed in predetermined locations as required (see drawings Electrical – 59 to 61).

Please see pages Electrical – 59 to Electrical – 61 for possible conduit hole locations.

Prior to drilling any holes through the beam Sprung approval must be obtained. Please contact your Sales Representative or discuss this with the Technical Consultant on site. With advance notice these holes can be prelocated and drilled in the factory. A small set up charge will be assessed. Failure to comply may result in structural damage to the arch necessitating replacement of that portion of the arch.

Please note, the Sprung structure is designed to move and flex in high wind conditions. This would need to be accounted for in any conduit which is installed through these hole locations.

Conduit can also be installed along the bottom flange of the beam using a unistrut connection which is bolted to the bolt chase of the beam.
With a little effort all electrical wiring and conduit can be easily hidden in the wall cavity offering a very clean appearance. Practices similar to conventional construction would apply. Notice how clean the finished results are below.
Conduit should not be screwed or bolted to the structural spreaders. However, if required, light weight conduit can run along the structural spreaders and be fastened to the spreaders using zip ties. As above, any conduit which is attached to the structure, would need to be flexible to allow for the structure movement.

- Gas line and conduit attached to beam using unistrut at bolt chase locations (exposed conduit)
- Electrical Runs can be supported using cable trays (exposed conduit)
- Emergency lighting attached to threaded rod via the bolt chase (exposed conduit)
- Switches attached to Beam using unistrut via the bolt chase (exposed conduit)
Items such as lights, unit heaters, speakers, etc are not to be suspended from the structural spreaders. Support or attachment brackets are not to be fastened to the structural spreaders.

Exit and Emergency lighting can be installed to a square tubing angle support located behind the architectural membrane. The support would need to be installed prior to the installation of the inner liner. (hidden conduit)

Lights can be suspended directly from the structure arches using a hanging bracket. If lights are to be suspended from the middle of the module a unistrut can be fastened to the bolt chase of the I beam from which these options can be attached.
Longer suspension lines will result in much more movement of the lights when structure is subjected to high winds. Consideration should be given when designing the lighting system to avoid unintentional movement of the fixture.
Daylight Harvesting

Daylight Harvesting can easily be incorporated into Sprung structures with the optional semi-translucent Daylight panels installed along the roof of the structure. An automated, intelligent control system will automatically dim or turn off light fixtures saving up to 70% energy costs.
Cable Box

Although finished aesthetics are usually cleaner when electrical conduit and wiring is hidden in the wall cavity of the Sprung Structure, sometimes there may be a requirement for a cable tray type system that can be accessible at all times. The box system below offers this end-user with a flexible solution that is easy to modify in the future.
Wiring

Regulations and code in many jurisdictions prevent Sprung from attaching a lead, or otherwise wiring, many electrical accessories. Some examples include Overhead Doors, lights, louvres, exhaust vents, etc. Sometimes it may be convenient for the electrician to prewire an accessory before it is installed. This is particularly true of the peak mounted exhaust vents. By pre-wiring the exhaust motor while it is on the ground the electrician would not have to arrange a large manlift to access the vent on the exterior of the structure at the peak. Rather the motor can be prewired with a lead and simply accessed from the interior of the structure when the lines are run.
SECTION 30'-0" INSULATED STRUCTURE

1/4" = 1'-0"

HOLE
1 Utility Hole

NOTE: HOLES TO BE LOCATED IN THE CURVED SECTION

NOTE: NO HOLES TO BE LOCATED IN THE CURVED SECTION

5"-10" ALUM. 1 BEAM

NOTE: HOLES TO BE CENTERED IN BEAM. STRUCTURE MOVES LATERALLY (SIDE TO SIDE) IN HIGH WIND CONDITIONS. PLEASE TAKE THIS INTO ACCOUNT WHEN DESIGNING & INSTALLING ELECTRICAL CONDUIT.

6.5" 1 Utility HOLE

1 Utility HOLE

NOTE: HOLES TO BE CENTERED IN BEAM. STRUCTURE MOVES LATERALLY (SIDE TO SIDE) IN HIGH WIND CONDITIONS. PLEASE TAKE THIS INTO ACCOUNT WHEN DESIGNING & INSTALLING ELECTRICAL CONDUIT.

2.5"

6.5"
NOTE: HOLES TO BE CENTERED IN BEAM.
STRUCTURE MOVES LATERALLY (SIDE TO SIDE) IN HIGH WIND CONDITIONS, PLEASE TAKE THIS INTO ACCOUNT WHEN DESIGNING & INSTALLING ELECTRICAL CONDUIT.

5"x10" ALUM.
1 BEAM

NOTE: NO HOLES TO BE LOCATED IN THE CURVED SECTION

NOTE: HOLES TO BE 1 1/2" MAX.

SECTION 40'-0" INSULATED STRUCTURE

1/4" = 1'-0"

5"x10" BEAM
40.0' STRUCTURE CONDUIT HOLE LOCATIONS

DATE 02/20/2009
SCALE AS NOTED
DRAWING # UTILITY 40
NOTE: HOLES TO BE CENTERED IN BEAM. STRUCTURE MOVES LATERALLY (SIDE TO SIDE) IN HIGH WIND CONDITIONS, PLEASE TAKE THIS INTO ACCOUNT WHEN DESIGNING & INSTALLING ELECTRICAL CONDUIT.

8" x 12" ALUM. BEAM

NOTE: NO HOLES TO BE LOCATED IN THE CURVED SECTION

NOTE: HOLES TO BE 1 1/2" MAX.