

AutoCeil Metal Building Requirements

BUILDING REQUIREMENTS

AutoCeil™ is a safer, faster and ideal method of installing ceiling and wall liners in buildings to support insulation and finish interiors. The following three changes are required for AutoCeil installation: 1. Adding ceiling support struts 2. Engineer the rafter brace loads from the purlins to the ceiling support struts 3. Using a base channel option on exterior walls. Thermal Design manufactures the AutoCeil sheet to fit each building bay, covering both sidewalls and the building width with a single piece of AutoCeil sheet material. The system utilizes a special winch system to pull the AutoCeil sheet across the entire building over the struts. From the floor, up one sidewall, across the building width and down the opposite sidewall to the floor can be pulled in minutes. The sheet is tensioned, fastened, sealed and insulated. The following building requirements are to facilitate the automated process.

See video, specifications and instructions at: autoceil.com

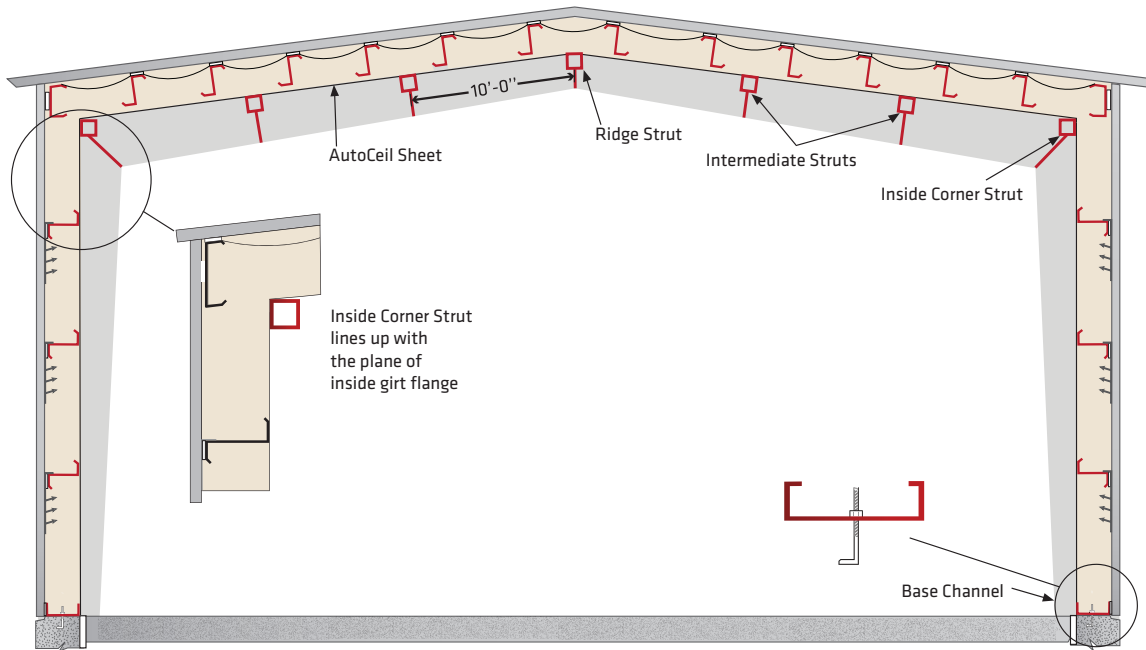


Figure 1

1. Building Frames, Struts and Purlins

Struts and building frames shall be engineered to carry the following loads:

- 1.1 Dead weight of the strut assemblies reduced by any weight reductions of purlins due to the brace load change.
- 1.2 AutoCeil™ material and insulation material load - Recommended 2 lbs/sq-ft of uniform tributary area at the spacing of the struts using AutoCeil™ with fiberglass insulation.
- 1.3 Vertical Attachment Plate - Welded or bolted to the ends of the struts. (see Figure 2)
- 1.4 Rafter flange bracing loads are to be removed from the purlins and applied to the struts. (see Figure 2)
- 1.5 Inside Corner Strut(s) and Ridge Strut - Uniform loads imposed upon the inside eave corner and ridge struts resulting from tensioning of the AutoCeil™ material around the strut at a maximum angle of 90° tensioned to a maximum force of 125 lbs applied per linear feet of strut length. (see Figure 1)
- 1.6 Additional collateral loads or point loads planned to be imposed on the struts and frames by others.
- 1.7 Appropriate safety factor, if any, as required by the use of the struts.

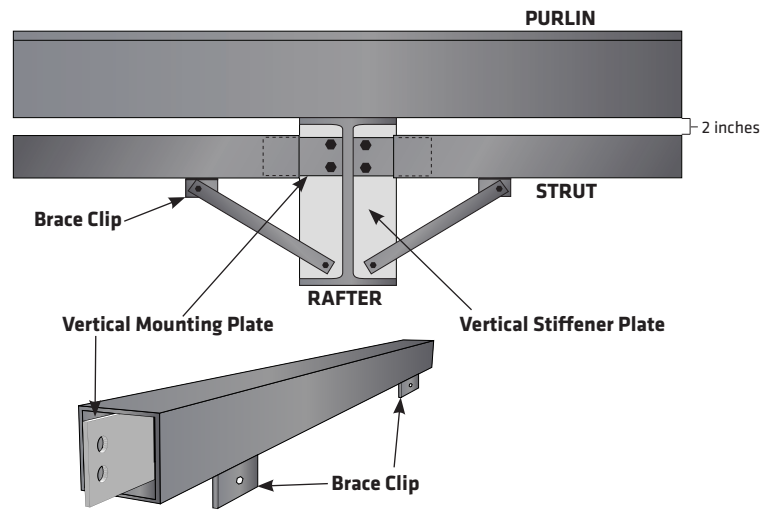


Figure 2

2. Support Struts and Bracing

Series of steel support struts are required spanning between adjacent rafters that are engineered and provided as an integral component of the building. Support struts are required at uniform 10' spacings from the center of the ridge strut down to each sidewall with those nearest the walls being the variable space.

2.1 Hot-rolled, square tubing of the appropriate engineered steel grade and thickness. Examples: 4"x4", 5"x5", 6"x6", 7 x7", etc.

2.2 Vertical Mounting Plate - Welded to the strut end and projecting from each end of the strut tube for mounting the strut end to a vertical stiffener plate welded between the upper and lower rafter flanges. (see Figure 2)

2.3 AutoCeil Tensioned Sheet Forces - The Ridge Strut and the Inside Corner Struts, will have a maximum force of 125 lbs applied per linear ft of strut length for tensioning purposes.

2.4 Offset Distance - Top plane of all struts shall be offset 2 inches below a line formed by the top plane of the rafter flange, unless otherwise specified. (see Figure 2)

2.5 Surface Conditions - The top, flat plane of the struts shall be smooth and free of projections, sharp edges, welding spew, etc.

2.6 Cleaned and prime painted or galvanized coated steel.

2.7 Ridge Strut Placement - Approximately in center of the ridge purlin space. Attachment can be made to extended rafter splice bolt(s) if needed.

2.8 Intermediate Strut Placement - 10' on center starting from the ridge line or high side line to the point of the Inside Corner Strut.

2.9 Inside Corner Strut Placement - Exterior side of strut is to align with the inside steel line of the wall girts. (see Figure 1)

3. Purlins

Engineered to meet required loads without the rafter bracing loads which are transferred to the ceiling struts by design.

3.1 Preferred if purlins are not placed directly above the struts.

3.2 Purlin Spacings - Specify purlins at 2', 3', 4', 5' and 6' spacings to fit the fiberglass blanket widths without undue waste.

3.3 Purlin Attachment Clip (option) - It is recommended that the purlins shall be attached to the rafters employing clips. Ideally, clips are slightly narrower than the top rafter flange width, allowing for a small rafter flange top edge for ease of sealing of the AutoCeil material edges continuously along the rafters.

(Design option) - Another advantage of the use of the purlin attachment clips is the ability of the purlins to be inexpensively raised off the top of the rafters to create additional space for insulation or other purposes. Elevated purlins to be specified by the designer or contractor when added insulation space is required.

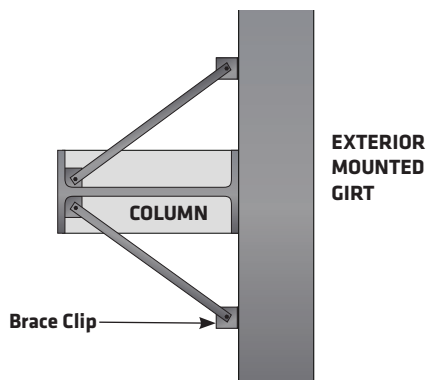


Figure 3

4. Girts

4.1 By-pass mounted wall girts shall be ordered which allows space for full thickness insulation to be installed between the wall panel and the building column. (see Figure 3)

4.2 Brace Clips - Column bracing shall be attached to the interior face of girts using surface mounted clips with multiple self-drilling fasteners or a bolt. (see Figure 3)

5. Base Channel (see Figure 1)

5.1 Minimum 16 gauge thick steel by the girt depth.

5.2 Side Wall and End Wall Base Channel - The preferred method is to provide a base channel for attachment of the AutoCeil sheet.

6. Anchor Bolts (see Figure 1)

6.1 AutoCeil requires a base channel set with 3/8" or 1/2" diameter anchors into the foundation or floor.

6.2 Spacing - Anchor bolts shall be installed at center point of the bay spacing with additional anchor bolts installed 4' spacing on center each way with a bolt adjacent every channel end.

6.3 Bolts shall be centered between the flanges of the base channel.

6.4 Bolts shall be a minimum diameter of 3/8" with a minimum of 500 lbs pull-out resistance.

Notice: Exterior wall and roof panel joints, seams and transitions shall be sealed and materials shall be installed as air barriers in accordance with manufacturer's instructions.

Thermal Design, Inc. manufactures the AutoCeil™ System and provides all components required to complete the installation for buildings that are ordered to the specifications. Specification suggestions are welcomed.

Thermal Design and www.autoceil.com will assist manufacturers with questions and requirements. If a building manufacture will not fulfill these specifications, please contact Thermal Design and we will assist builders with alternative building manufacturer referrals that will meet AutoCeil specifications.

For technical engineering questions contact 800-255-0776