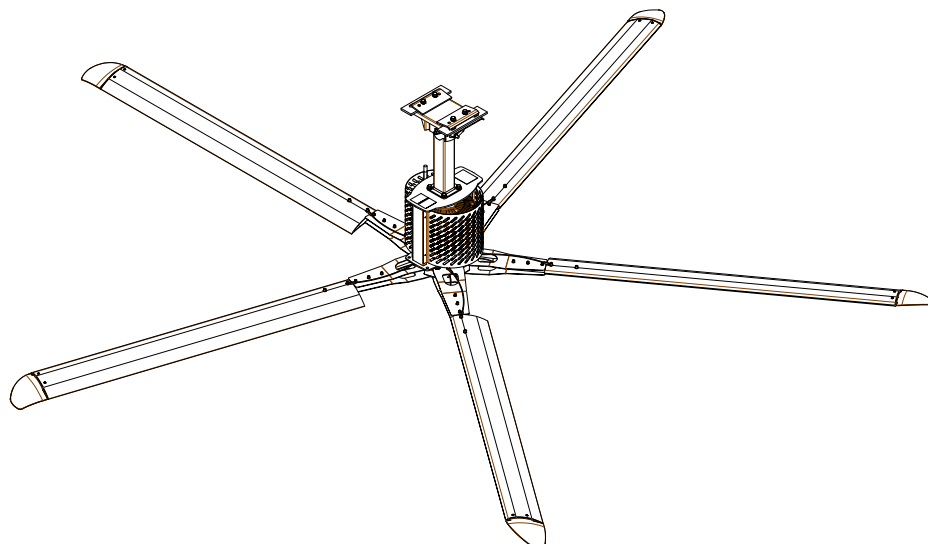
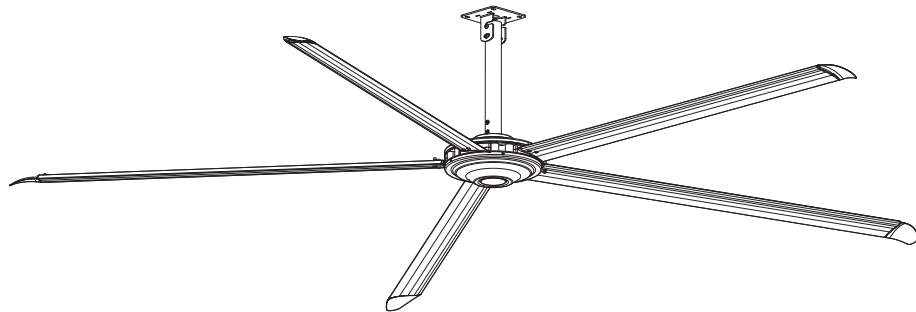
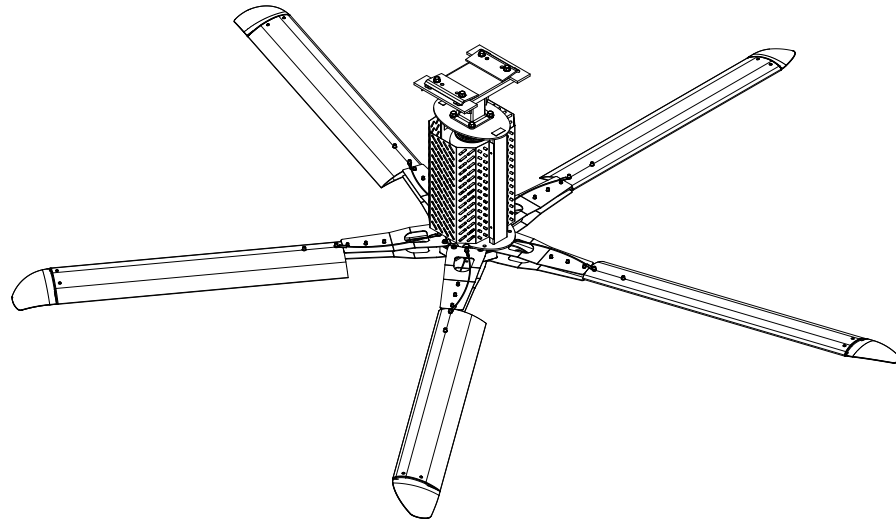


# HVLS Application Guide

7 Steps to making the proper fan selection and installing HVLS Fans



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# INTRODUCTION

Following the steps below will assist you with selecting the proper fan.

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## STEP 1

Ask the proper questions.

- What is your goal for adding HVLS fans?
- What are the dimensions of the building or the space where the HVLS fan will be installed?
  - Length
  - Width
  - Height
- Will the fans be installed in the entire building or just sections of the building?
- Is the roof sloped?
- What other requirements will be in the building?
  - Is there **racking**?
  - Is there **lighting**?
  - Is there **signage**?
  - Are there **fire breaks**?
  - Are there **conveyors**?
  - Are there **drops** for electrical, piping, or air in the ceiling?
- Will there be any other air movement in the building due to one or more of the following?
  - Exhaust fans
  - Louvers
  - Heaters
  - HVAC ducts and return/discharge units
  - Air make up units
  - High speed fans
- Ask for a building layout or space layout for where the HVLS fans will be installed.
- Ask what type of floor obstructions will be within the fan installation area.
- Ask what type of processes the customer will be doing in the facility.

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## STEP 2

Ask what type of airflow the customer is looking for.

- Summertime comfort
  - Defined as applying the fans in a manner to provide maximum airflow throughout the space which will provide maximum perceived temperature drop using the evaporative cooling effect.
- General airflow
  - Defined as applying the fans in a manner to create consistent airflow throughout the space which eliminates hot or cold pockets, air stagnancy, and to provide employees or patron with a more comfortable environment.
- Destratification
  - Defined as applying the fans in a manner to keep the air from stratifying within the building or space.

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## STEP 3

Choose the fan model and fan size based on the answers in **Step 1** and **Step 2**.

- Commercial Fan
  - The Commercial fan uses a gearless direct drive AC motor for premium efficiency, low dBA level, high end design features and a color package.
  - Some application examples are restaurants, bars, car show rooms, schools, office environments, airport terminals, and many other conditioned spaces.
- Industrial Fan
  - The Industrial fan uses an AC induction premium IE3 motor with a gearbox.
  - Some application examples are warehouses, manufacturing hangers, gyms, maintenance shops, aquatic facilities, dairy barns, agricultural buildings, and any other space that needs a large volume of air moved.
- Direct Drive Fan
  - The Direct Drive fan uses a DC brushless premium efficiency motor that maximizes performance along with decreasing dBA levels.
  - The Direct Drive fan can be applied in both commercial and industrial applications.

<b>MODEL FAN</b>	<b>FAN DIAMETER</b>	<b>TYPICAL INDUSTRIAL SPACING / SUMMER COMFORT</b>	<b>GENERAL AIR MOVEMENT</b>	<b>MAXIMUM EFFECTIVE SQUARE FT / DESTRATIFICATION</b>
Apex	6 FT / 1.8 M	30 FT / 9.14 M	40 FT / 12.19 M	2,000 Sq Ft / 185.80 M2
Apex	8 FT / 2.4 M	35 FT / 10.66 M	45 FT / 13.71 M	3,000 Sq Ft / 278.70 M2
Apex	10 FT / 3.0 M	40 FT / 12.19 M	50 FT / 15.24 M	4,000 Sq Ft / 371.61 M2
Apex	12 FT / 3.7 M	45 FT / 13.71 M	55 FT / 16.76 M	5,000 Sq Ft / 464.51 M2
Apex	14 FT / 4.3 M	50 FT / 15.24 M	60 FT / 18.29 M	6,000 Sq Ft / 557.41 M2
Colossus	8 FT / 2.4 M	55 FT / 16.76 M	75 FT / 22.86 M	4,000 Sq Ft / 371.61 M2
Colossus	10 FT / 3.0 M	60 FT / 18.29 M	80 FT / 24.38 M	5,000 Sq Ft / 464.51 M2
Colossus	12 FT / 3.7 M	65 FT / 19.81 M	85 FT / 25.91 M	7,000 Sq Ft / 650.32 M2
Colossus	14 FT / 4.3 M	70 FT / 21.33 M	90 FT / 27.43 M	8,000 Sq Ft / 743.22 M2
Colossus	16 FT / 4.9 M	90 FT / 27.43 M	110 FT / 33.53 M	15,000 Sq Ft / 1,393.54 M2
Colossus	18 FT / 5.5 M	95 FT / 28.96 M	115 FT / 35.05 M	18,000 Sq Ft / 1,672.25 M2
Colossus	20 FT / 6.1 M	100 FT / 30.48 M	120 FT / 36.58 M	20,000 Sq Ft / 1,858.06 M2
Colossus	24 FT / 7.3 M	110 FT / 33.53 M	130 FT / 39.62 M	30,000 Sq Ft / 2,787.09 M2
Summit	8 FT / 2.4 M	55 FT / 16.76 M	75 FT / 22.86 M	4,000 Sq Ft / 371.61 M2
Summit	10 FT / 3.0 M	60 FT / 18.29 M	80 FT / 24.38 M	5,000 Sq Ft / 464.51 M2
Summit	12 FT / 3.7 M	65 FT / 19.81 M	85 FT / 25.91 M	7,000 Sq Ft / 650.32 M2
Summit	14 FT / 4.3 M	70 FT / 21.33 M	90 FT / 27.43 M	8,000 Sq Ft / 743.22 M2
Summit	16 FT / 4.9 M	90 FT / 27.43 M	110 FT / 33.53 M	15,000 Sq Ft / 1,393.54 M2
Summit	18 FT / 5.5 M	95 FT / 28.96 M	115 FT / 35.05 M	18,000 Sq Ft / 1,672.25 M2
Summit	20 FT / 6.1 M	100 FT / 30.48 M	120 FT / 36.58 M	20,000 Sq Ft / 1,858.16 M2
Summit	24 FT / 7.3 M	110 FT / 33.53 M	130 FT / 39.62 M	30,000 Sq Ft / 2,787.09 M2

## STEP 4

Verify that your size selection will work in the application.

- To verify if the fan size selection will work in the application, you must answer the following questions:
  - Will the fan spin freely without impacting any objects?
  - Does the fan maintain 3 feet of clearance in all directions from a general obstruction (lights, small water pipes, air hoses, cable trays)?
  - Will the fan maintain 1/2 a diameter from objects below the fan?
  - Will the fan provide enough airflow coverage in the space or area?
  - Will the bottom of the fan and fan blades maintain 10 feet above the finished floor?

## STEP 5

Verify the final fan size selection will comply the Roof Slope guide below.

**\*The roof slope guide does not account for any possible obstructions below the mounting points. All fans must still maintain 3' between blades and typical obstructions\***

INDUSTRIAL FAN / DIRECT DRIVE FAN / 3-BLADE FAN				
Roof Slope	0	2/12	3/12	4/12
Roof Angle / Degree	0	9.5	14.0	18.4
Fan Diameter	Extension requirement from mounting point (FT / M)			
8 FT / 2.4 M	0 FT / .91 M	1 FT / .91 M	1 FT / .91 M	2 FT / .91 M
10 FT / 3.0 M	0 FT / .91 M	1 FT / .91 M	2 FT / 1.22 M	2 FT / 1.52 M
12 FT / 3.7 M	0 FT / 1.22 M	1 FT / 1.22 M	2 FT / 1.52 M	2 FT / 1.8 M
14 FT / 4.3 M	0 FT / 1.22 M	2 FT / 1.8 M	2 FT / 1.8 M	3 FT / 1.8 M
16 FT / 4.9 M	0 FT / 1.52 M	2 FT / 2.13 M	2 FT / 2.4 M	3 FT / 2.74 M
18 FT / 5.5 M	0 FT / 1.52 M	2 FT / 2.4 M	3 FT / 2.74 M	3 FT / 2.74 M
20 FT / 6.1 M	0 FT / 1.8 M	2 FT / 2.74 M	3 FT / 3.0 M	4 FT / 3.35 M
24 FT / 7.3 M	0 FT / 1.8 M	2 FT / 3.0 M	3 FT / 3.35 M	4 FT / 3.7 M
COMMERCIAL FAN				
Roof Slope	0	2/12	3/12	4/12
Roof Angle / Degree	0	9.5	14.0	18.4
Fan Diameter	Extension requirement from mounting point (FT / M)			
6 FT / 1.8 M	0 FT / 6.1 M	1 FT / .91 M	1 FT / .91 M	1 FT / .91 M
8 FT / 2.4 M	0 FT / 6.1 M	1 FT / .91 M	1 FT / .91 M	2 FT / .91 M
10 FT / 3.0 M	0 FT / 6.1 M	1 FT / .91 M	2 FT / 1.22 M	2 FT / 1.52 M
12 FT / 3.7 M	0 FT / 6.1 M	1 FT / 1.22 M	2 FT / 1.52 M	2 FT / 1.8 M
14 FT / 4.3 M	0 FT / 6.1 M	2 FT / 1.8 M	2 FT / 1.8 M	3 FT / 1.8 M

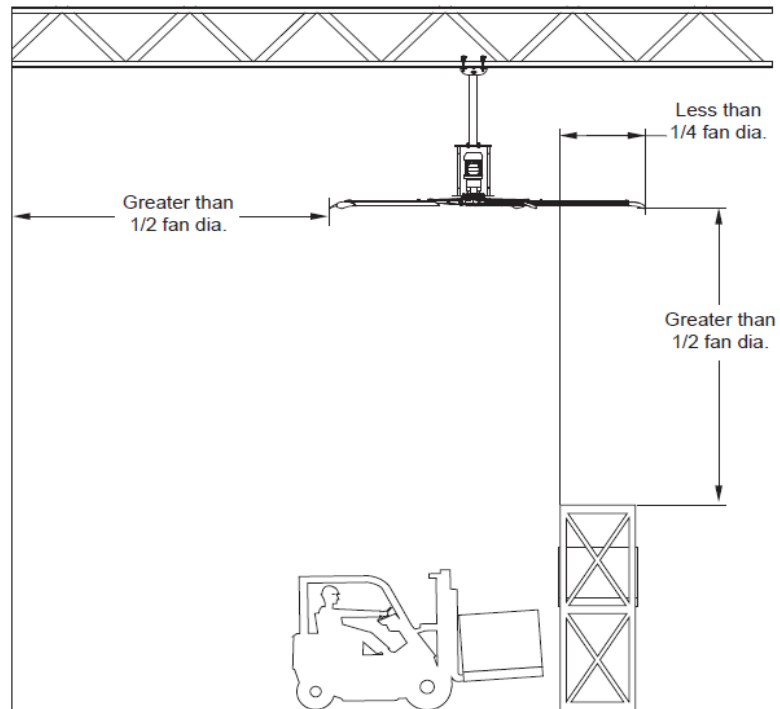
**\*\*Non standard obstructions may require additional length to the extensions. Please consult the factory for additional clarification on non standard obstructions\*\***

## DISTANCE NEEDED FROM AN EXHAUST FAN OR LOUVER

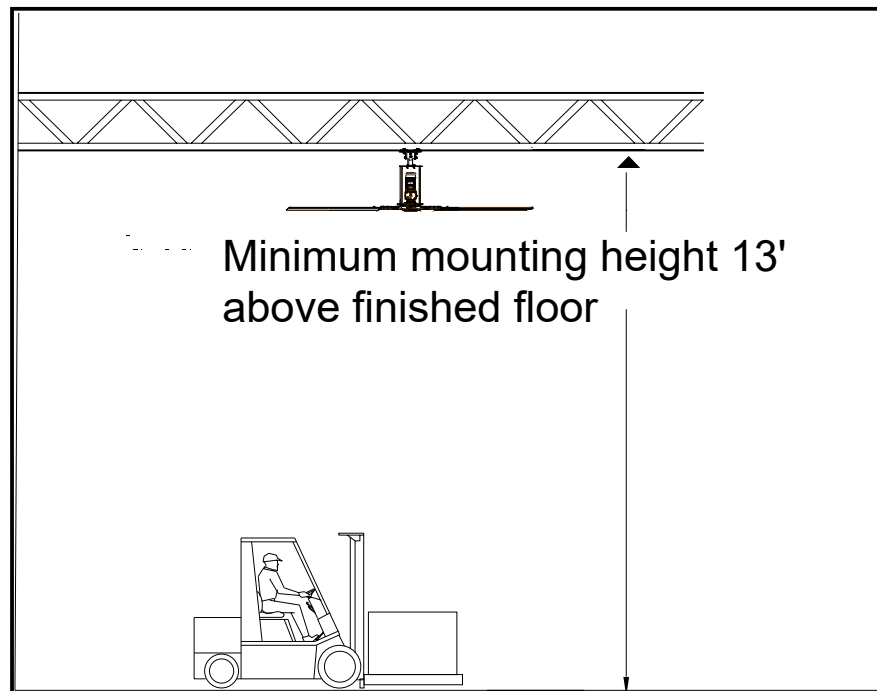
- HVLS fans should maintain two fan diameters away from exhaust fans or louvers that are in line with the fans blade plane

## DISTANCE NEEDED FROM A WALL AND RACKING

Fig. 4



## MOUNTING HEIGHT FROM A FINISHED FLOOR



## DISTANCE FROM AN HVAC DISCHARGE OR RETURN

- HVLS fans should maintain one fan diameter from exhaust fans or louvers that are a minimum of 3 feet above or below the blade HVLS fan.

Fig. 2

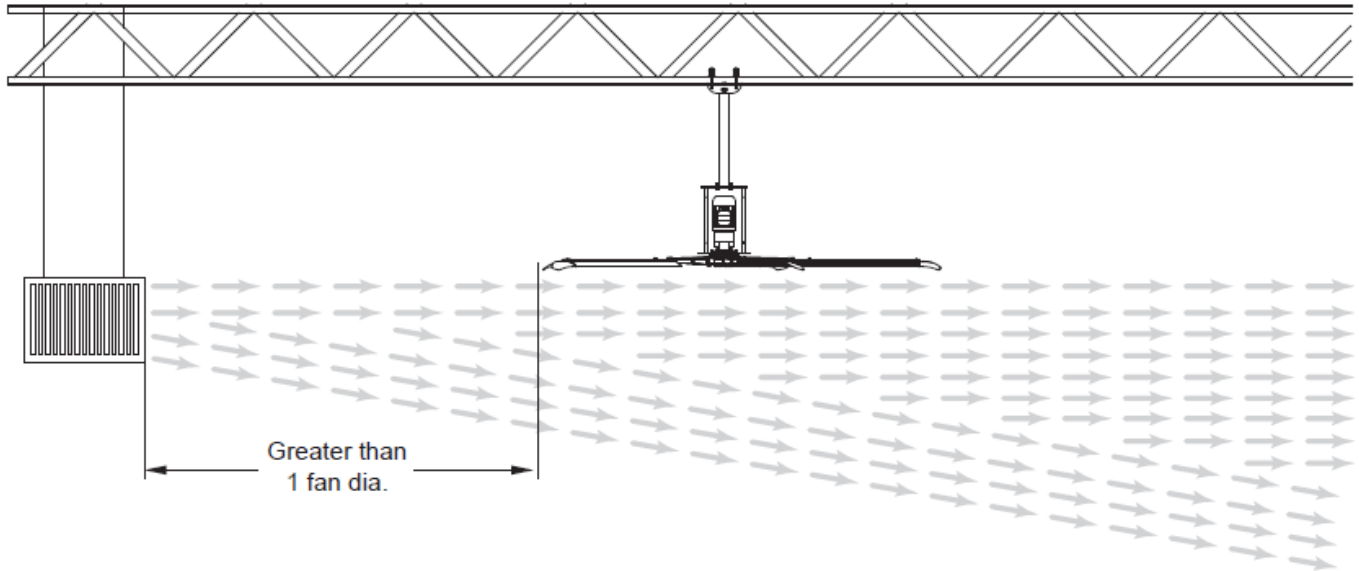
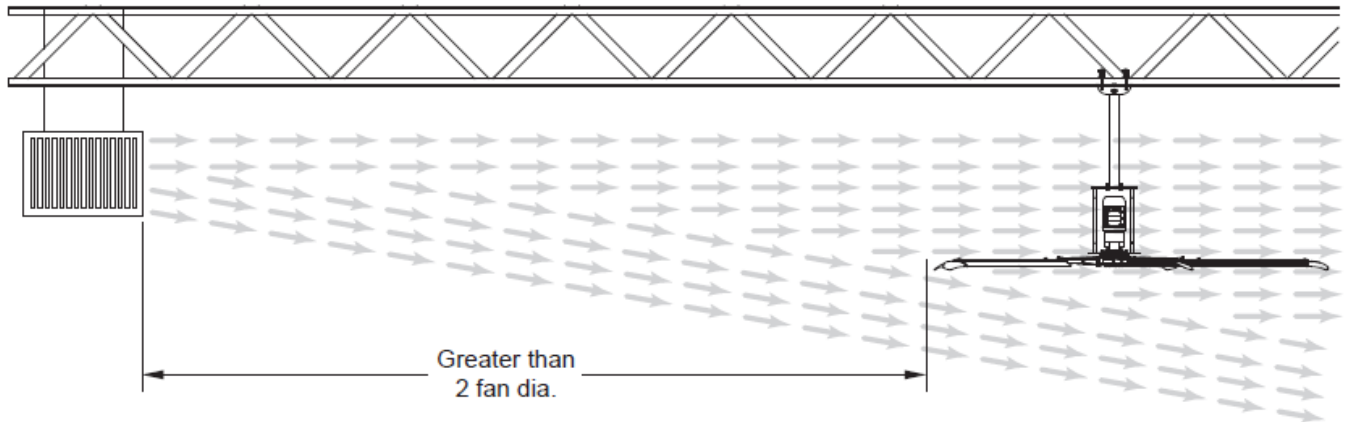


Fig. 3

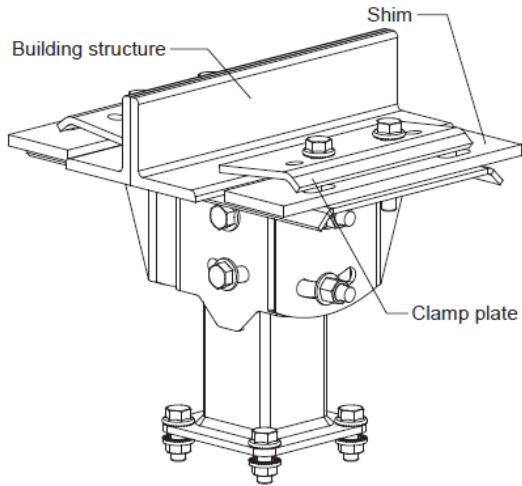


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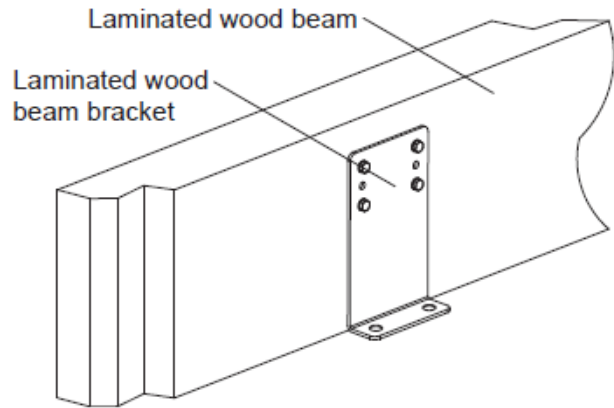
## STEP 6

Verify the fans mounting method.

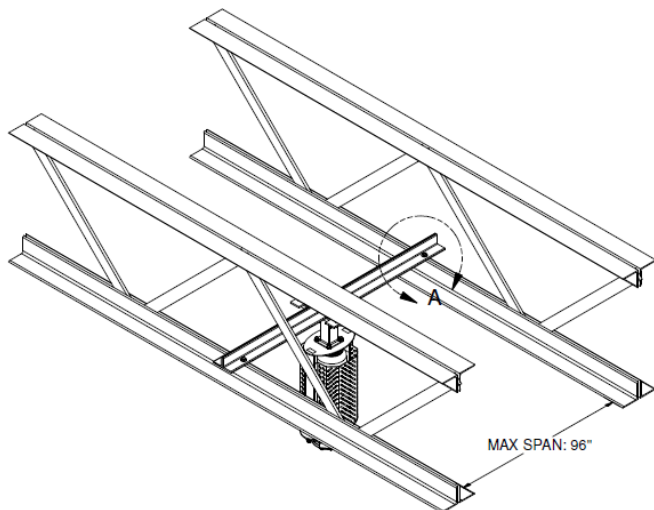
### I-BEAM INSTALLATION



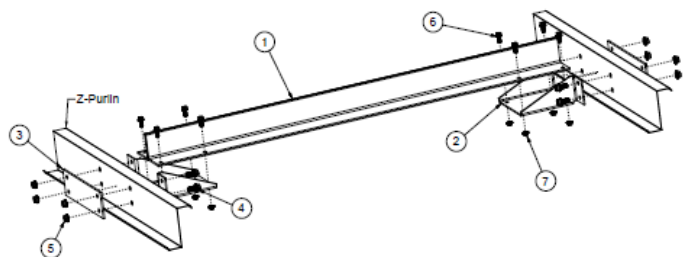
### LAMINATED WOOD BEAM



### TRUSS INSTALLATION



### Z-PURLIN INSTALLATION





## STEP 7

Consult the factory for any additional installation questions.

- Concrete Ceilings Designs
- Saw Tooth Building Designs
- Sloped Z-Purlin
- Sloped C-Channel
- Slopes beyond a 4/12 pitch
- Laminated beam roof designs with beams under 5 inches wide.