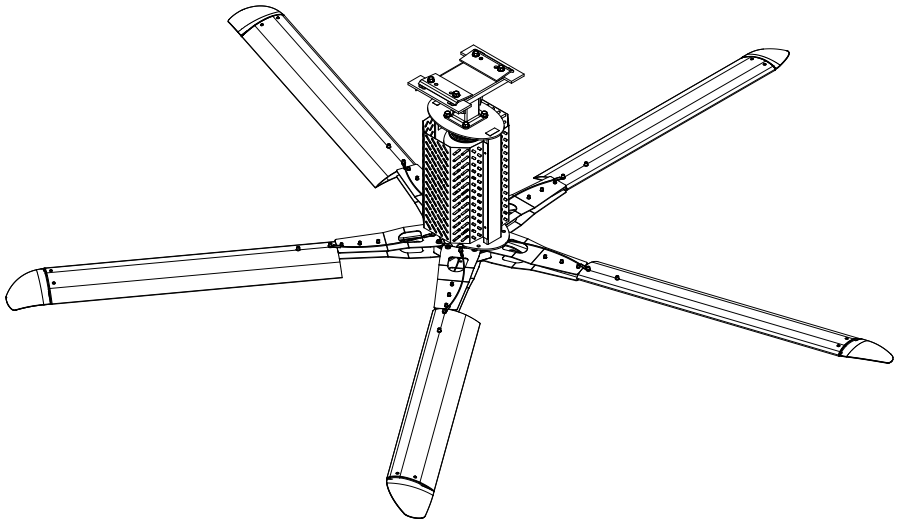
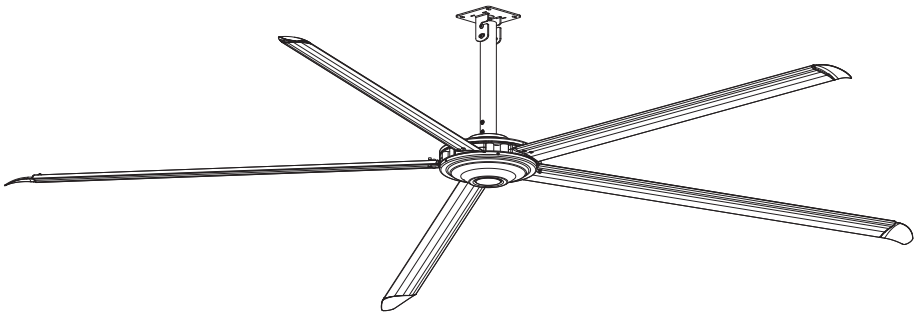
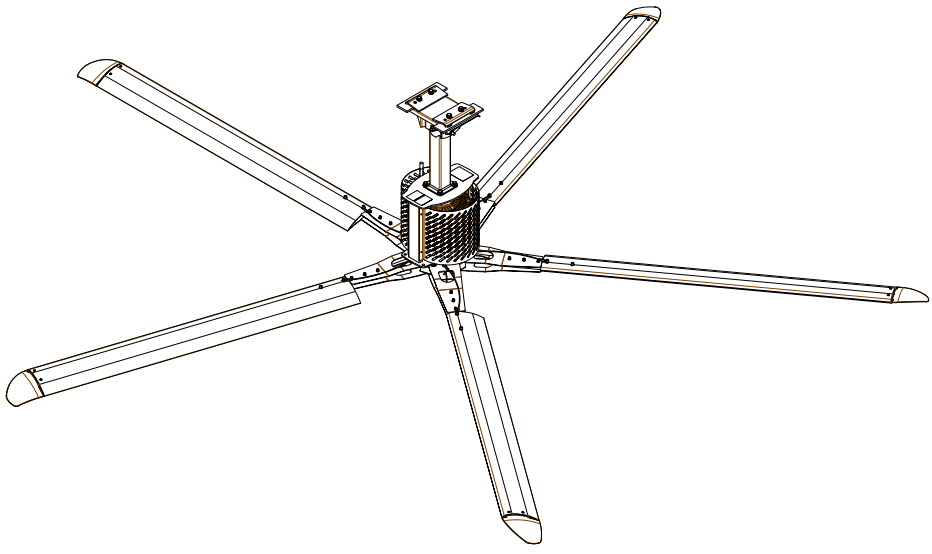
HVLS Application Guide

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







Part Number: 6022798A

INTRODUCTION

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

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.

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 th 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.

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.

MODEL FAN	FAN DIAMETER	TYPICAL INDUSTRIAL SPACING / SUMMER COMFORT	GENERAL AIR MOVEMENT	MAXIMUM EFFECTIVE SQUARE FT/ DESTRATIFICATION
Commercial	8 FT / 1.8 M	30 FT / 9.14 M	40 FT / 12.19 M	2,000 Sq Ft / 185.80 M2
Commercial	8 FT / 24 M	35 FT / 10.66 M	45 FT / 13.71 M	3,000 Sq Ft / 278.70 M2
Commercial	10 FT /3 .0 M	40 FT / 12.19 M	50 FT / 1 5.24 M	4,000 Sq Ft / 371.61 M2
Commercial	12 FT / 3.7 M	45 FT / 13.71 M	55 FT / 16.76 M	5,000 Sq Ft / 464.51 M2
Commercial	14 FT / 4.3 M	50 FT / 15.24 M	60 FT / 18.29 M	6,000 Sq Ft / 557.41 M2
Industrial	8 FT / 2.4 M	55 FT / 16.76 M	75 FT / 22.86 M	4,000 Sq Ft /3 71.61 M2
Industrial	10 FT /3.0 M	60 FT / 18.29 M	80 FT / 24.38 M	5,000 Sq Ft / 464.51 M2
Industrial	12 FT / 3.7 M	65 FT / 19.81 M	85 FT / 25.91 M	7,000 Sq Ft / 650.32 M2
Industrial	14 FT / 4.3 M	70 FT / 21.33 M	90 FT / 27.43 M	8,000 Sq Ft / 7 43.22 M2
Industrial	16 FT / 4.9 M	90 FT / 27.43 M	110 FT / 33.53 M	15,000 Sq Ft / 1,393.54 M2
Industrial	18 F / 5.5 M	95 FT / 28.96 M	115 FT / 35.05 M	18,000 Sq Ft / 1,672.25 M2
Industrial	20 FT / 6.1 M	100 FT / 30.48 M	120 FT / 36.58M	20,000 Sq Ft / 1,858.06 M2
Industrial	24 Ft /7.3 M	110 FT / 33.53 M	130 FT / 39.62 M	30,000 Sq Ft / 2,787.09 M2
Direct Drive	8 FT / 2.4 M	55 FT / 16.76 M	75 FT / 22.86 M	4,000 Sq Ft / 371.61 M2
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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 / Degreese	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 / Degreese	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

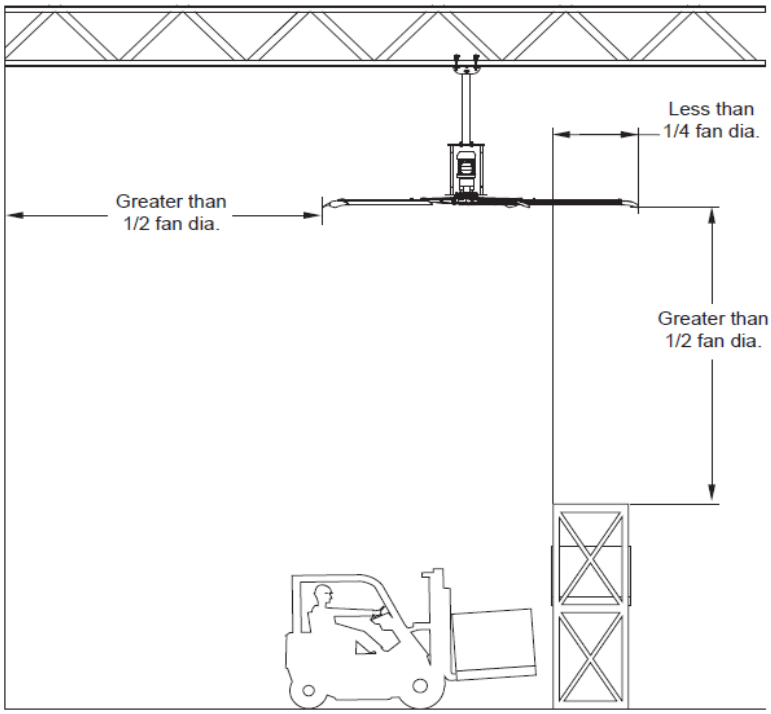
Non standard obstructions may require additional length to the extensions. Please consult the factory for additional clarification on non standard obstructions

DISTANCE NEEDED FROM AN EXHAUST FAN OR LOUVER

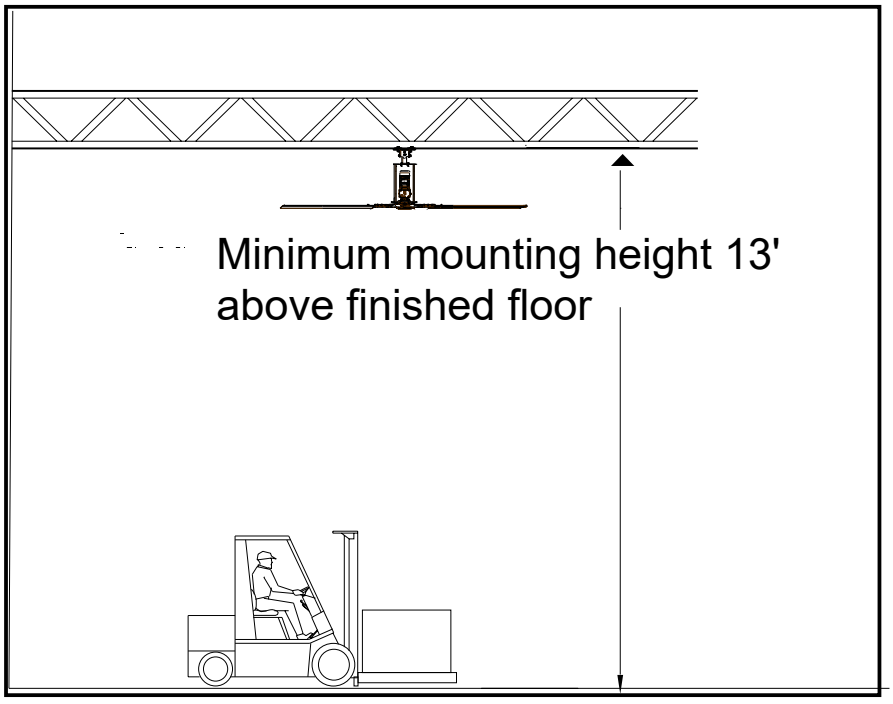
- HVLS fans should maintain two fan diameters away from exhaust fans or louvers that are in line with the fans blade plane

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

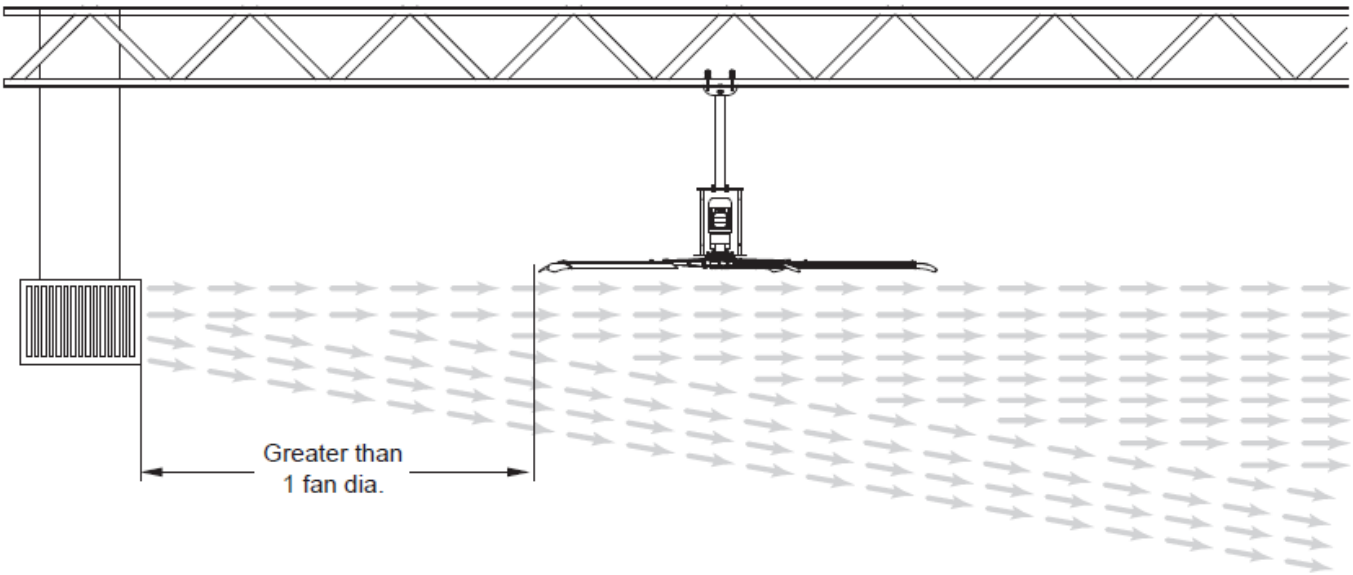
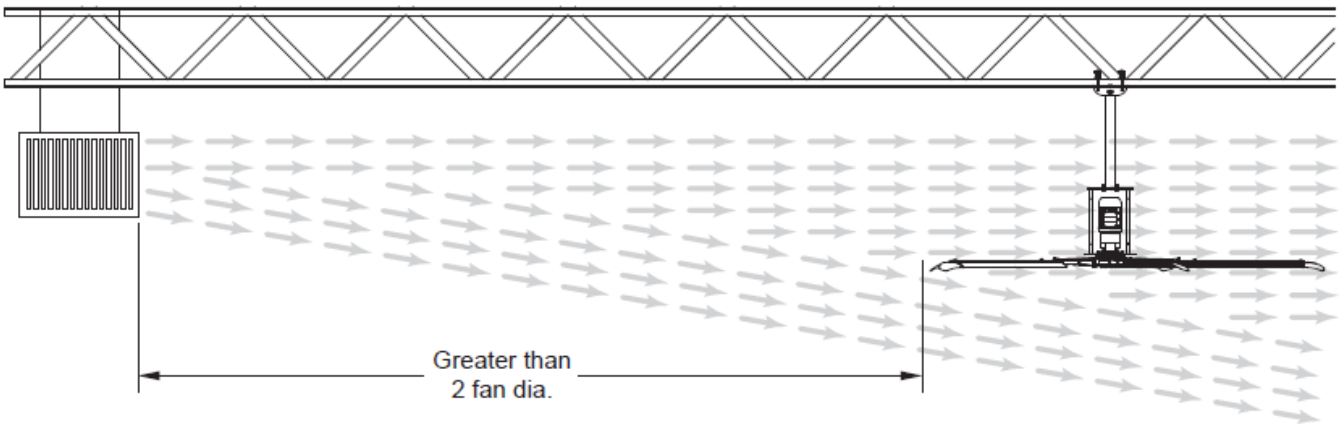


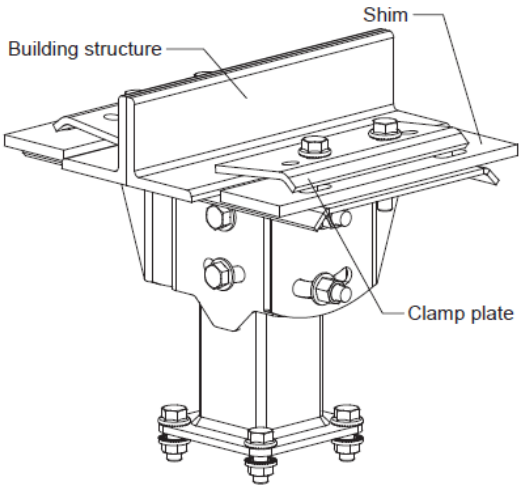
Fig. 3



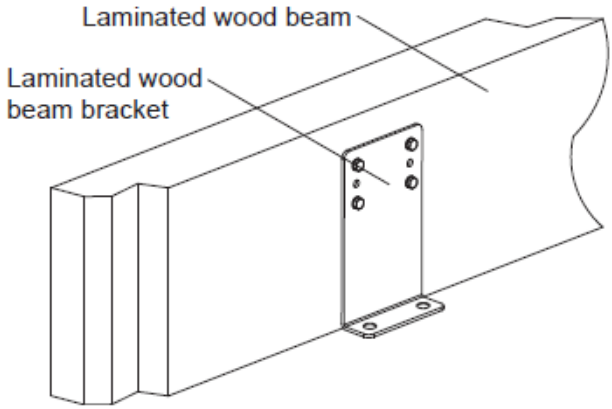
STEP 6

Verify the fans mounting method.

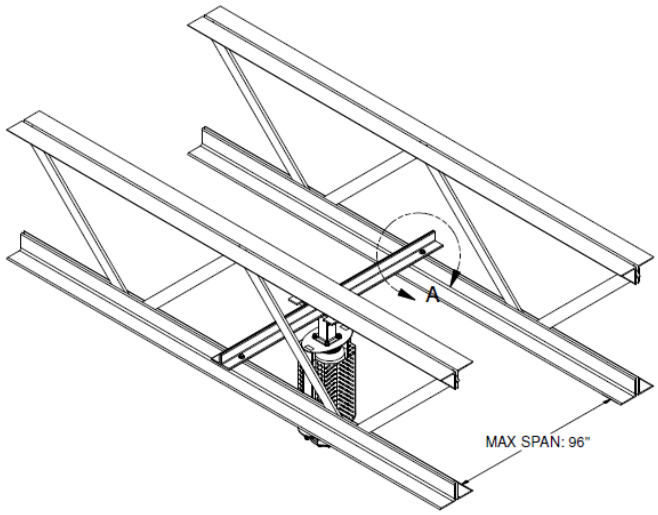
I-BEAM INSTALLATION



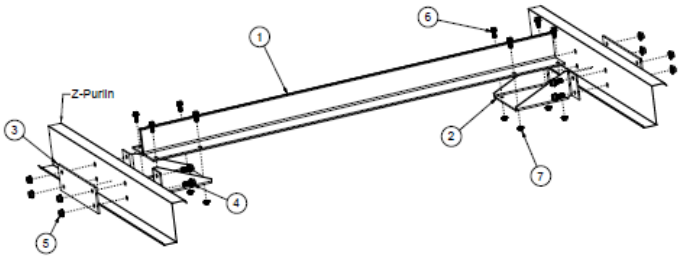
LAMINATED WOOD BEAM



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.