Optimal Installation:

The Key To A Successful HVLS Investment

Hunter

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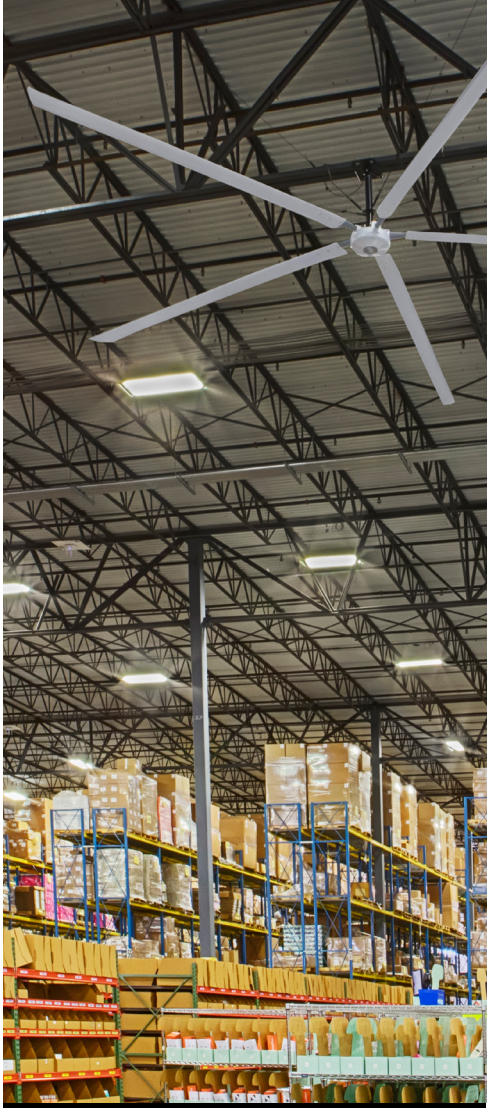
Choosing to purchase a high-volume, low-speed (HVLS) fan for your facility can be a wise investment. Even with a comprehensive understanding of all the factors that combine to produce the real ROI of an HVLS fan (such as better health and safety, increased productivity and accuracy, and improved employee morale), when it comes to making this investment, it is important to make sure that you are getting the maximum benefits.[1] There are two predominant ways to do this.

First, it is important to outline the goals for your HVLS fan. Are you looking for better air quality? Or, is overall cooling and heating a key concern? Knowing what outcomes you want will make your fan a successful investment and is a central part of determining whether you are reaping the greatest benefits from your fan. A second measure of maximum performance is driven by the identification of these goals. Once you know what you need your fan to accomplish, you can make arrangements for your installation to be conducted in such a manner to meet those goals, ensuring optimal performance. Examining these two areas is the beginning of getting the most out of your HVLS fan investment.



Fan Goals

Two of the primary goals we see for customers considering an investment in an HVLS fan are improved air quality and help with managing temperature within a facility. Each of these goals can require different installation considerations such as location, interaction with other items in the space, and fan choice – both type and size.

Air quality

The onset of COVID-19 has brought the importance of air quality to the forefront of most minds, however, protection from this virus is just one small reason that air quality is often a reason for an HVLS investment. Sick building syndrome is an issue that can affect up to 30% of new builds and renovations, and improving indoor air quality (IAQ) is one way to combat this.[2] If your facility houses equipment that produces exhaust fumes, both employee and customer satisfaction levels may be at stake. If IAQ is a chief concern, in any capacity, there are some things you can do to achieve maximum HVLS benefits. For example, if you have a large access point to fresh outside air, such as dock doors, then that will affect the placement of your fan in order to meet your air quality goals.

Temperature control

Maintaining a temperate work environment is another common reason that you might consider an HVLS fan. From productivity/accuracy levels[3] to workplace safety, climate control is proven to increase your output as well as assist in avoiding unexpected health related expenditures.[4] While it might seem obvious that an industrial ceiling fan would be a first line defense, the devil is often in the details - especially where heat is concerned. Do you work in a state with high levels of humidity, in addition to heat? Is your facility a gym where perspiration can increase humidity levels making customers uncomfortable and putting equipment at risk?[5] Answers to questions like these can be essential in ensuring that you get the best performance, not only from your HVLS fan, but also from those working for you.

Ask the Right Questions

In order to meet your facility goals with an HVLS fan, it is important to ask the right questions on the front end. By asking these questions at the start of your fan selection and installation process and by taking time to measure them against your defined goals, you can be sure that your fan is being installed in the most cost and time efficient manner. As well as have your fan performing at its best.

Installation Questions

Standard installations are considered standard for a reason, however, even the most conventional jobs usually require some level of customization. Left unaddressed, even the slightest differentiations in requests can potentially make a big difference in whether you are able to reap the full benefits of an HVLS fan. Following are a few installation questions to get you started.

What is the square footage of the space to be covered by the fans?

As a rule of thumb, an HVLS fan can be expected to perform at highest capacity within five times its blades diameter. For example, a 20 foot fan will provide optimal airflow for a facility with a coverage area of 15,000 square feet. Without determining the coverage requirements in your facility, you run the risk of underperformance by expecting your fan to provide cooling or heating that is greater than its capacity. Maybe, instead of one large fan, you might need two smaller fans to meet your goals. Using this information as a guide, you will be able to make the best choice of a fan – or fans – for your facility.

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What is the ceiling height at each fan location?

Knowing the height of the ceiling where each fan will be located is key for two important reasons: to ensure that the fan has the capacity to push the air all the way to the floor of your facility and, should the ceiling be too high, what length of downrod will you need to compensate for the ceiling height. Similar to determining if your fan is appropriate to the square footage of your facility, there is a simple equation to help you navigate the appropriate height for your HVLS fan: your fan should be 20-25 feet off the ground for maximum performance. This allows the fan to push the cooled or heated air down to the facility floor at a velocity that can make a tangible difference in how your workspace temperature feels. It is important to note, however, that this equation does not take into account any airflow obstacles such as racking. However, obstacle information is important to consider as part of the air flow equation.

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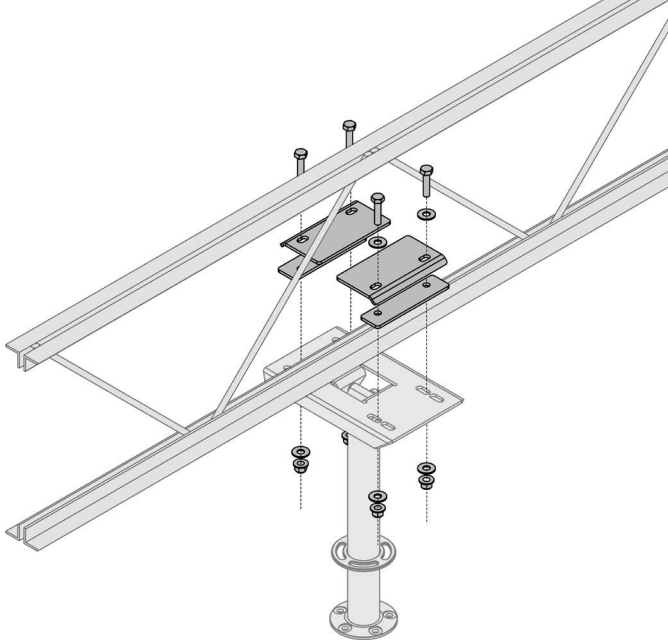


What type of structure will the fans be mounted to?

The type of structure you will be using to mount your HVLS fan greatly influences your fan's ability to operate at its fullest potential. It will also serve to alleviate frustrations during the installation process. Some common structures that fans are mounted to are steel I-beams, glu-lam beams, wood beams, unistrut, and in some cases, you may have a structure different from any of these. Because each has different installation requirements, your structure will determine what mounting fixtures or clamps you will need to hold the fan in place. In addition to subpar performance, installing a fan on a structure without being prepared for its individual nuances can also lead to instability of your fan and unnecessary operational noise.

Are there unique specifications for your controller?

How your fan will be controlled and through what type of system is often a piece of the installation puzzle that gets overlooked, increasing the risk of myriad performance issues. Understanding your fan control options helps you make informed decisions before installation begins. This allows you the chance to prepare, in advance, for any potential setbacks.

How will your fan(s) be controlled?

If you are installing more than one fan, or replacing a fan that is already a part of an airflow system, it is imperative to know if your fan will be controlled 1:1, as part of a network, or connected to a building management system (BMS). This is especially important information if your fan will be tied into a BMS. Knowing what communication protocol the fan will be communicating through (Mobus RTU, BacNet IP, BacNet MS/TP, etc…) can make integrating into the BMS or networking the new fan go more smoothly.

If there are multiple fans, how far apart will they be mounted?

The answer to this question may not be solely determined by the coverage area specification of the fan. Other factors such as the length of cable needed to be run between fans also could come into play. Knowing this upfront can prevent unforeseen costs and delays in getting the system up and running. The standard maximum distance between fans is 300 feet if using Ethernet cable, such as CAT5. Should your fans need to be installed where more than 300 feet of Ethernet cable is called for additional costs could be incurred as additional controllers or, potentially, signal repeaters will be required for fan or fan system operation

What are your electrical requirements?

Not knowing the answer to this question could be the cause of one of the most frustrating delays in your installation process. Because knowing your voltage requirements is a necessity for the very act of running your fan, not knowing ahead of time what your voltage requirements are can result in two highly frustration outcomes:

Fan Not Functioning

Should you order a 480 Volt fan, when your requirements are actually 220 Volts, your fan will not run. After going through the process of outlining your goals, deciding on a fan, and installing it, there is nothing more frustrating than flipping the switch and the blades not spinning. Many times voltage is not the first step in the troubleshooting process and can lead to unanticipated downtime as you work to determine why the fan isn't working.

Additional Unplanned Expenses

Should you order a fan that does not match your voltage requirements, whether by accident or omission, there may be additional costs for rectifying the situation. Confirming what your voltage requirements are, then verifying that an HVLS fan is available to meet those requirements through the website or company from which you are purchasing can save time and money.

The Down Low On Downrods

Proper downrod selection is another area that contributes to a smooth and cost-effective install. Selecting the right downrod size before beginning the install can save considerable time. A few problems that can be alleviated by a downrod include:

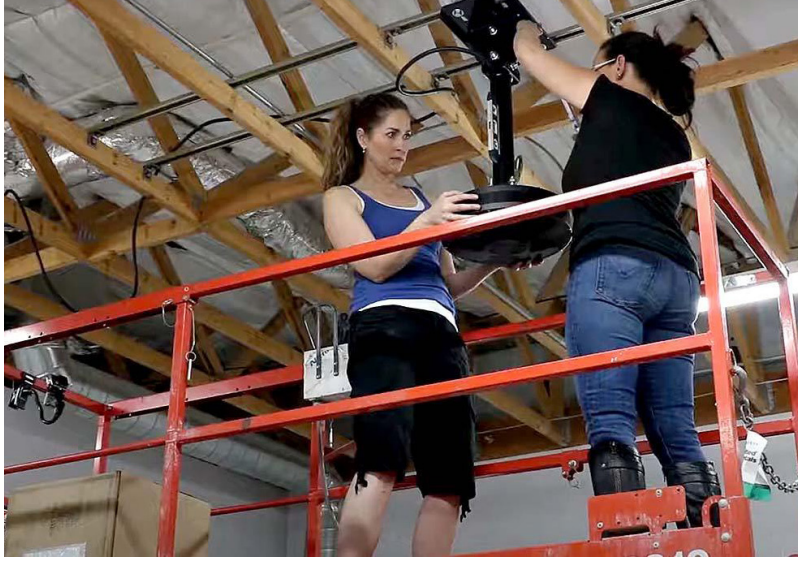
"Starving" the Fan

For a fan to run at maximum performance and efficiency, it needs to be able to circulate the air in the space - including the air above it. If a fan's blades are too close to the ceiling, the amount of air that a fan has access to is limited, resulting in a scenario known as "starving the fan". Installing the correct length of downrod, typically greater than 2 feet from the ceiling, creates space for optimal air circulation and fan performance.

Overcoming Fan Obstacles

Obstacles in your facility such as racking or other pieces of furniture/equipment can affect the air flow, circulation, and performance of your fan. When encountering such complications, a new equation is required to move the air efficiently. Often, the height of your fan can be adjusted by the downrod length to account for these changes, plus, having adding space between the fan and ceiling can make maintenance or troubleshoot easier as well. The specifications for your facility may vary individually, however, so working with a professional to determine the ideal height in these circumstances is the best course of action.

Additional Pro Tips



Working with professionals is a surefire way to install your fan correctly, but at Hunter, we pride ourselves on a fan design that allows almost anyone to complete an install. Should you choose self-installation, our team of professionals put their heads together and came up with a few pro tips for you.

Use materials designed by your fan's manufacturer

As mentioned above, attempting to utilize your own equipment (such as CAT5 repeaters) can result in fans not operating at all. Not only that, but if your installation with your own cables or equipment goes awry, you will likely need to buy several new components. In this case, what might have been a small additional cost, may turn into part replacement before you've even felt the first breeze from your fan.

Take Your Time

The anticipation of experiencing the benefits of an HVLS fan can sometimes get the best of self-installers, but rushing through the process can lead to costly mistakes. Take twist-and-lock connectors for example; when rushing through this simple process of assembling your fan, it is possible to strip the twist-and-lock grooves resulting in equipment damage and, in turn, replacement.

Read the Instructions

Hunter has worked hard to put together a bulletproof instruction guide for installing your HVLS fan. Whatever experience you may have had with installation processes should assist you in your fan installation, but reading and following the instructions found in the manual can reduce headaches and expenditures in the long run. Utilizing our step-by-step guide will set you up for plug-and-play success.

Meet Your HVLS Goals with Hunter

As always, we are here to assist you with every part of the HVLS process. If you need help determining the answers to any of these questions, or are interested in professional installation, the experts here at Hunter would love to help.

You can contact us at industrialinfo@hunterfan.com or via our website below.

CONTACT US

Endnotes

1 https://industrial.hunterfan.com/hvls-fan-real-roi

2 https://www.epa.gov/sites/production/files/2014-08/documents/sick_building_factsheet.pdf

3 https://www.polarhide.com/HeatPproductivity_NASA.pdf

4 https://www.hunterfan.com/blogs/hunter-industrial-blog/the-financial-impact-of-workplace-injuries

5 https://clubsolutionsmagazine.com/2005/08/fans-keep-air-circulating-for-fitness-centers/