



CUSTOMER GUIDE



WHERE TO START

There are endless combinations where the WindStorm™ Fans can accommodate our customer's needs. There are four basic categories where problems are easily solved: cooling without A/C, cooling with A/C, Destratification/ Winter comfort and air quality control.

The Plan

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ENGINEERING THE BEST

The end of a ten foot fan blade has a rotational speed 10 times greater than that of its base.

In order to make the most of every rotation a blade must have a deeper angle of attack where it is moving slower. This is the shape used by WindStorm™ Fans and is the innovation responsible for a lighter fan that moves more air with lower horsepower and a lower RPM.

By comparison, an HVLS fan without twist and taper can only efficiently push air at the end of its blades. To compensate the fan must operate at higher RPM, and a higher-horsepower gearmotor assembly. However its airflow pattern will remain uneven, comparatively turbulent and the range of usage will suffer. Especially at the critical low-speed settings.

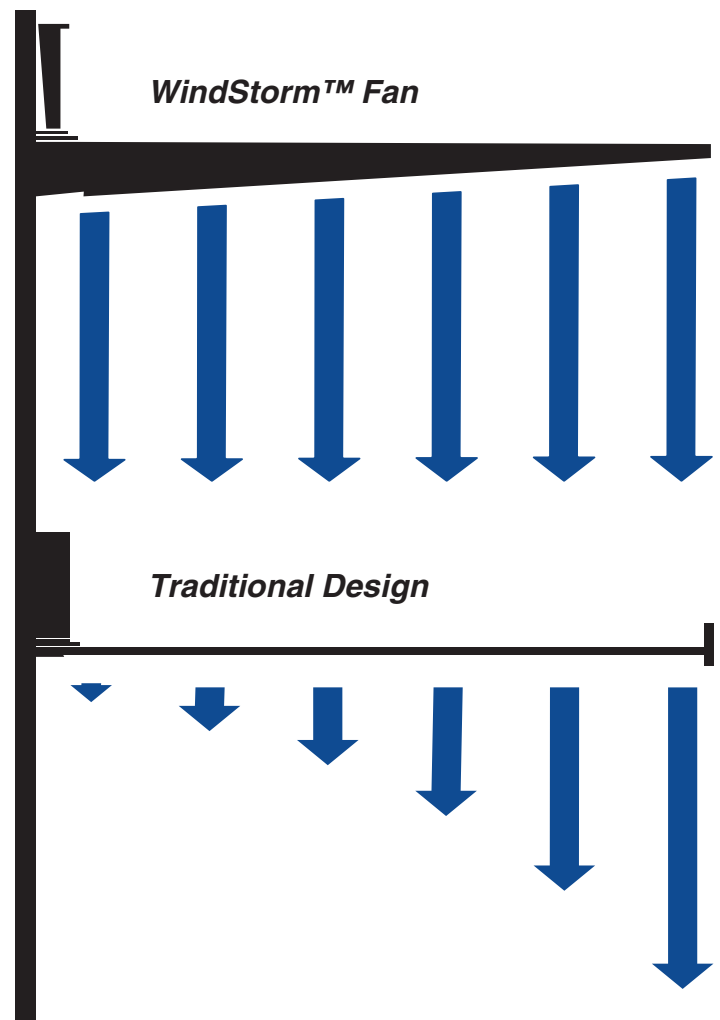
NO DEAD-ZONE

Our blades use twist and taper to account for the difference in rotational speeds at the base of the blade versus the end of the blade.

On a twenty foot fan tip of the blade has a rotational speed that is ten times as fast as the base.

If your fan has the same diameter and the same angle of attack along the entire length of its blades, loss of efficiency will occur at a linear rate approaching the center.

Your WindStorm™ Fan moves more air at every RPM speed. Allowing you to move more air at slower speeds and use less energy.



COOLING WITHOUT CLIMATE CONTROL

PRODUCTIVITY LOSS DUE TO HEAT

Apparent °F	Relative Productivity	Productivity Loss
71°	99.9%	~0%
80°	96.23%	3.77%
85°	92.07%	7.93%
90°	87.40%	12.60%
95°	83.03%	16.97%
100°	79.77%	20.23%
105°	78.41%	21.59%
•Source: Seppanen, O., Fisk, W. J. and Lei, Q.H. (2006)		

THE PROBLEM:

Overheating means lost productivity, increased mistakes and lower morale. The numbers prove it, but we've run the math in the table to the left so you don't have to.

HOW HVLS FANS SOLVE MY PROBLEM:

A 3 - 5 mph breeze can reduce apparent temperature by as much as 10F°. HVLS fans work smarter, not harder; they get results quietly using small amounts of electricity without taking up floor space and last a very long time.

HOW TO BEGIN PLANNING:

The first step is to find out where most of the people spend most of their time and to take a measurement of that space.

Then, consider the direct breeze region associated with each size fan. As a rule of thumb, each fan will produce a 3 - 5 mile per hour breeze in a space equal to 3 - 4 times its diameter, depending on the size and number of obstructions present.

Therefore, if employees spend most of their day in a space which is 80' across, the optimal solution is a single 20' fan positioned roughly in the center of this space.



COOLING WITH CLIMATE CONTROL



THE PROBLEM:

You have a building A/C system that keeps occupants comfortable but that comfort comes with a price not limited to power draw. Breakdowns, replacements, inefficiency and maintenance all grow your bills. Fortunately, HVLS fans are a cost-efficient solution to all of those problems.

HOW HVLS FANS SOLVE MY PROBLEM:

WindStorm™ Fans reduce the apparent temperature experienced by the people working or playing beneath them. This allows owners, managers and designers to leave the A/C system at a higher set-point without compromising comfort.

Savings can be as much as 6% per degree.

HOW TO BEGIN PLANNING:

Determine the regions of your facility where people spend most of their time working or playing. Measure the dimensions of these locations and size the best fan by its effective breeze region. For low traffic or diffused-presence areas refer to the maximum effective square footage specifications.

WHY WINDSTORM™ FAN:

The breeze pattern produced by our airfoils is bigger and more consistent at slower speeds with less turbulence. For the user this means more air can be moved more slowly in sensitive environments, giving you an added degree of control and better results across the continual of usage, from zero to one hundred.

Add the savings gained through power efficiency over competing models where the choice becomes clear.

DESTRATIFICATION

destratification

Noun

(countable and uncountable, plural destratifications)

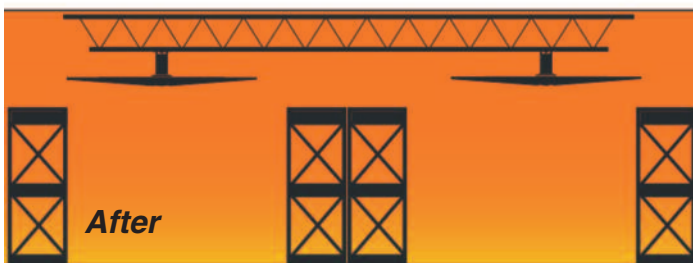
A process in which the air or water is mixed in order to eliminate stratified layers of temperature or plant or animal life.

Destratification will always result in big savings, especially over time. However the optimal solution is as much about your goals as it is about your space. The two broadest categories are outlined below.

COMPLETE DESTRATIFICATION:

Ex: Temperature sensitive products on a tall shelf

The ideal solution balances your work environment's airspeed tolerance with the fan's specified maximum square footage. If airspeed is not a problem, your solution will use fewer fans running faster. A larger number of fans may be required if airspeeds must be kept low.

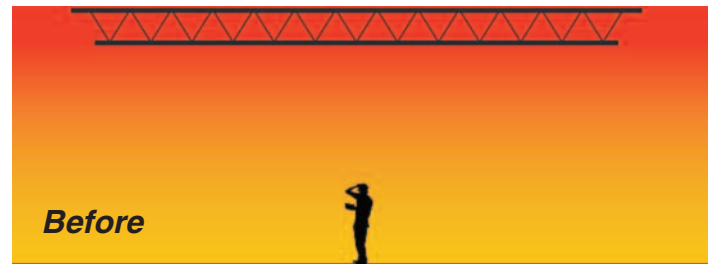


Savings will come primarily from less HVAC usage at a lower intensity, less spoilage, and a lower setpoint.

LOCAL DESTRATIFICATION:

Ex: Maintain employee comfort while cutting costs

The most efficient solution is to place the fewest number of the largest possible fans above the space where most of the people spend most of their time and to focus on redirecting heated air from the ceiling directly to the people below.



Savings will come primarily from dropping your setpoint and allowing the fans to direct warm air to the floor.

AIR QUALITY CONTROL

THE PROBLEM:

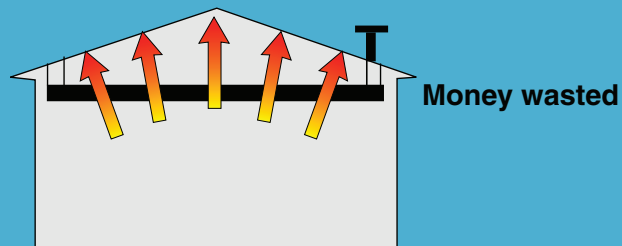
Ceiling-located HVAC systems' intake and return vents can struggle to efficiently and evenly distribute the benefits of climate control building occupants.

This results in increased burden on your system as it tries to compensate for inefficiency. This causes more frequent repairs and a higher cost of usage.

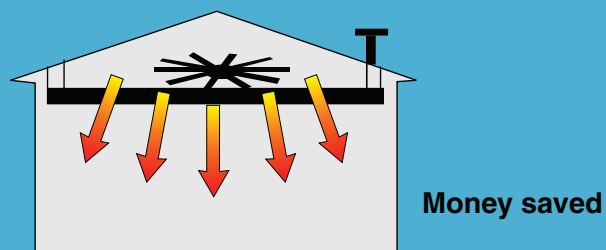
HOW HVLS FANS SOLVE MY PROBLEM:

HVLS fans can dramatically reduce HVAC air intake by circulating and destratifying climate controlled air volumes. The result is lower operational costs, stable indoor air quality and reduce maintenance needs.

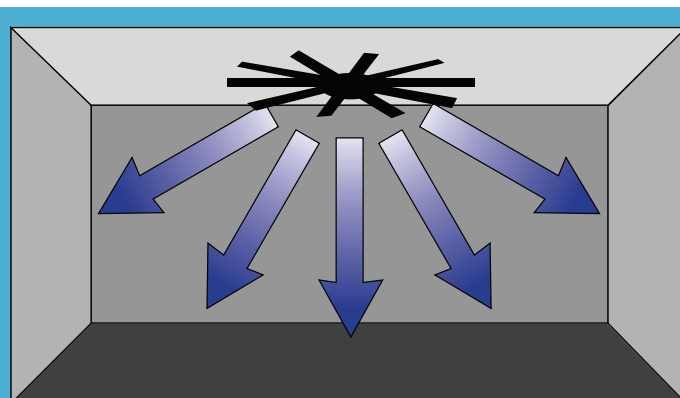
Winter heating with WindStorm™ Fans



Before WindStorm™ Fan



After WindStorm™ Fan



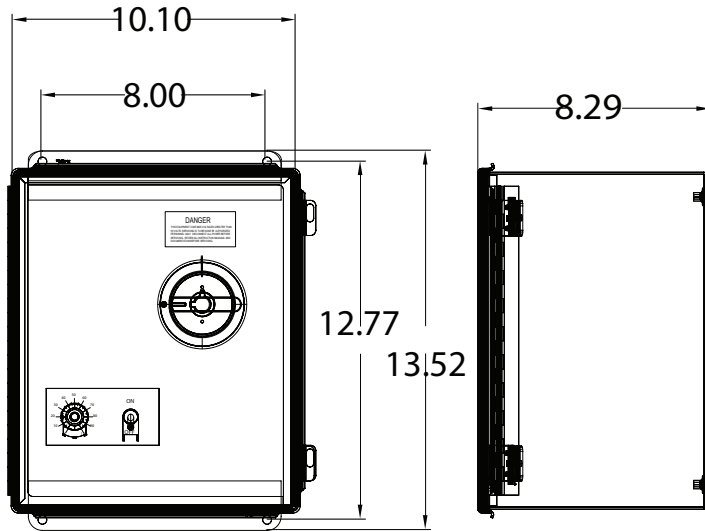
Summer cooling with WindStorm™ Fans



HARDWARE OPTIONS

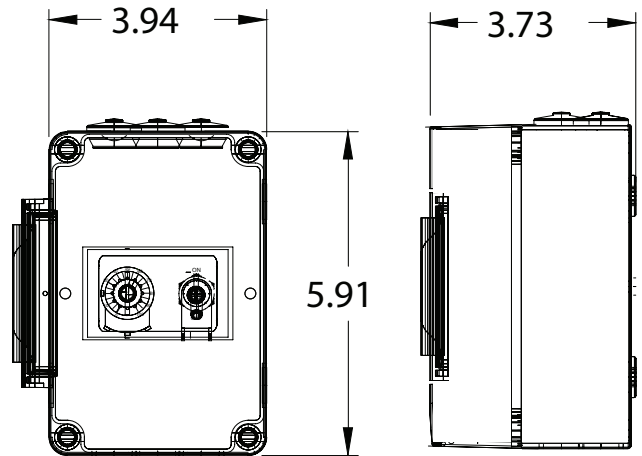
SINGLE FAN CONTROLLER:

Ships standard with every fan.



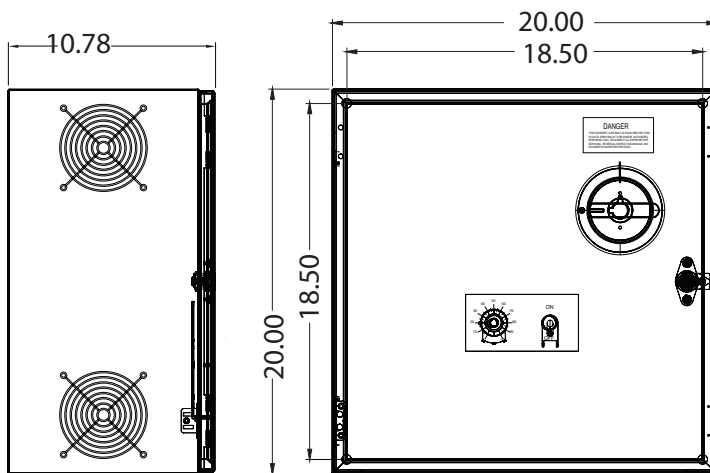
REMOTE OPERATOR STATION:

Controller with key-lockout for space sensitive locations



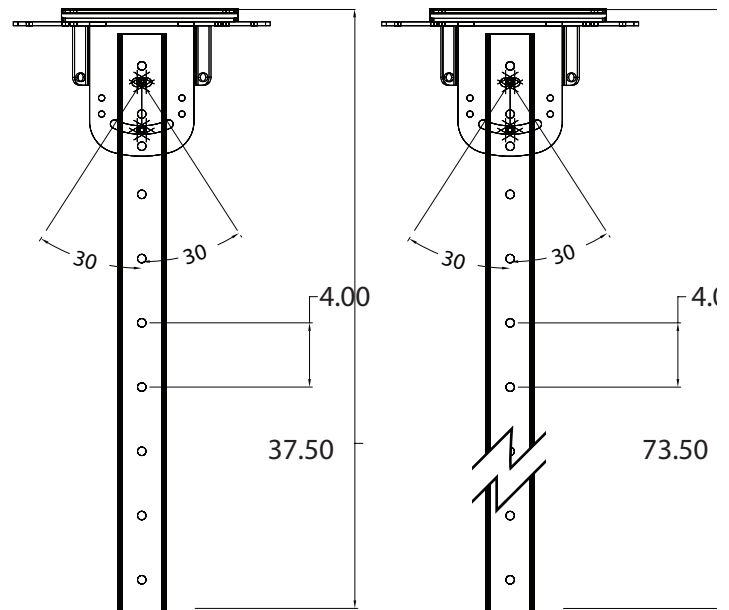
MULTI-FAN CONTROL UNIT:

Control up to four fans from a single unit.



MOUNTING EXTENSION KIT:

3' & 6' Drop Kits Stock, Modification to Order



TECHNICAL SPECIFICATIONS



Specifications:

Fan Diameter	8 Ft.	12 Ft.	16 Ft.	20 Ft.
Number of Airfoils	8 Airfoils	8 Airfoils	8 Airfoils	8 Airfoils
Fan Weight	91 Lbs.	109 Lbs.	127 Lbs.	161 Lbs.
Motor Enclosure	Totally Enclosed Fan-Cooled	Totally Enclosed Fan-Cooled	Totally Enclosed Fan-Cooled	Totally Enclosed Fan-Cooled
Motor Power	0.5 HP	0.5 HP	0.5 HP	1.0 HP
Maximum RPM	44 RPM	44 RPM	44 RPM	39 RPM
Maximum CFM*	~45,000 CFM	~90,100 CFM	~123,000 CFM	197,000 CFM
Sounds Level (dBA)**	<57 dBA	<57 dBA	<57 dBA	59 dBA
Direct Breeze Region**	28' - 32' diameter	42' - 48' diameter	56' - 64' diameter	70' - 80' diameter
Best Industrial Spacing****	42 Ft.	63 Ft.	84 Ft.	105 Ft.
Maximum Square Footage****	4,250 Sq. Ft.	8,500 Sq. Ft.	12,750 Sq. Ft.	19,750 Sq. Ft.
Input Power	110-120V, 1 Ft.: 13.0 A 208-240V, 1 Ft.: 6.4 A 208-240V, 3 Ft., 3.7 A 460-480V, 3 Ft., 1.85 A	110-120V, 1 Ft.: 13.0 A 208-240V, 1 Ft.: 6.4 A 208-240V, 3 Ft., 3.7 A 460-480V, 3 Ft., 1.85 A	110-120V, 1 Ft.: 13.0 A 208-240V, 1 Ft.: 6.4 A 208-240V, 3 Ft., 3.7 A 460-480V, 3 Ft., 1.85 A	208-240V, 1 Ft.: 6.4 A 208-240V, 3 Ft., 3.7 A 460-480V, 3 Ft., 1.85 A
Motor Maxium Full Load Amps	208-240V: 1.90 A 460-480V: 0.95 A	208-240V: 1.90 A 460-480V: 0.95 A	208-240V: 1.90 A 460-480V: 0.95 A	208-240V: 3.66 A 460-480V: 1.83 A
Minimum Airfoil Clearances	Sides: 2 Ft. Ceiling Deck: 4 Ft.	Sides: 2 Ft. Ceiling Deck: 5 Ft.	Sides: 2 Ft. Ceiling Deck: 6 Ft.	Sides: 2 Ft. Ceiling Deck: 6 Ft.
Standard Mount	I-Beam/Z-Purlins/Open Joist	I-Beam/Z-Purlins/Open Joist	I-Beam/Z-Purlins/Open Joist	I-Beam/Z-Purlins/Open Joist
Extensions	3' & 6' Mounting Extensions Available	3' & 6' Mounting Extensions Available	3' & 6' Mounting Extensions Available	3' & 6' Mounting Extensions Available
Cotroller	NEMA I Wall Mounted VFD w/Safety Disconnect, On/Off Toggle & Speed Pot	NEMA I Wall Mounted VFD w/Safety Disconnect, On/Off Toggle & Speed Pot	NEMA I Wall Mounted VFD w/Safety Disconnect, On/Off Toggle & Speed Pot	NEMA I Wall Mounted VFD w/Safety Disconnect, On/Off Toggle & Speed Pot
Safety Features	Safety Cable, Hub Clips, Hub Retainer, Dual-Method Fastening of all Joined Components, Integrated Sprinkler Shut-off	Safety Cable, Hub Clips, Hub Retainer, Dual-Method Fastening of all Joined Components, Integrated Sprinkler Shut-off	Safety Cable, Hub Clips, Hub Retainer, Dual-Method Fastening of all Joined Components, Integrated Sprinkler Shut-off	Safety Cable, Hub Clips, Hub Retainer, Dual-Method Fastening of all Joined Components, Integrated Sprinkler Shut-off
Warranty	5 Years All Parts	5 Years All Parts	5 Years All Parts	5 Years All Parts

*CFM measurements are an approximation derived from several factors. AMCA does not certify CFM ratings for fans larger than 8' in diameter.

**dBA measurements taken directly beneath units running at 3/4 speed in an active work environment.

***For applications in which breeze production/ventilation is the foremost consideration, applies to operation at 1/2 max speed with a clear floor.

****For applications in which heating/cooling cost reduction is the foremost consideration.

CUSTOMIZATION OPTIONS

8 STOCK COLORS:

No surcharge applied, available with every fan



Black



White



Green



Yellow



Brushed Aluminum



Blue



Red



Gold

FREQUENTLY ASKED QUESTIONS

Q: What speeds will I be running this fan at?

A: The only speeds we know for sure that you won't be using are 0% and 100%.

Longer A: We run our own WindStorm™ Fan about 33Hz (out of 60Hz max) during the Summertime. During the Winter we run it at closer to 11 Hz, when the goal is not to create a breeze but to bring that nice warm air off the ceiling.

Q: Is it possible to run these fans backwards?

A: NO. We have made the deliberate design choice not to implement reverse rotation. The reason is that running HVLS fans in reverse is inefficient and counterproductive for your goals.

Longer A: For one, these blades are not the same shape as standard ceiling fan blades. They function on the same aerodynamic principles as airplane blades or propellers.

Second, it's a lose-lose situation no matter what season you are in. By running HVLS fans backward you are failing to maximize the evaporative-cooling effect in Summer. During the Winter you are doing the most work for the least destratification.

If it is a cold draft you are worried about, you have only to turn up the speed until you feel the breeze, then turn it slightly down. You will get all the benefits of destratification without getting any chills. This is possible because our VFD (Variable Frequency Drive) input controllers are infinitely adjustable. No big jumps in air-speed with which to contend, as with your standard ceiling fans.

Q: Why doesn't your fan have weights?

A: They are unnecessary, costly and represent an additional point of potential failure.

Longer A: You see winglets on airplanes all the time. But how many helicopters do you see that have them? Part of the reason is that rotating airfoils are constantly moving through each other's wake, meaning that the vortex-minimizing properties of winglets are not in appreciable effect. This is why few helicopters sport them, except for those designed with highly specialized purposes in mind, such as noise reduction.

Q: Can I get a quote?

A: Absolutely!

Longer A: Call or email us and we will prepare a full quote for you as quickly as we can.