

# BLADETEC FANS

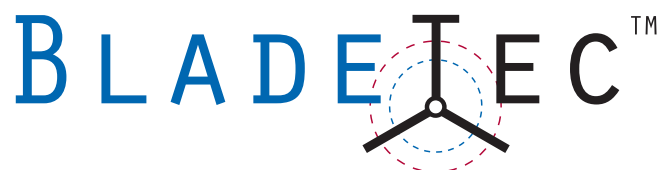
High Volume, Low Speed Fans (HVLS)



*Commercial*



**Industrial**



# BLADETEC. IT'S ALL IN THE BLADE!

For improved comfort, efficiency, aesthetics, and cost. Get more CFMs per dollar.

## **BladeTec HVLS Fans. The next generation of innovative products from DuctSox Corporation.**

For over 30 years, DuctSox has been committed to serving the HVAC community with innovative solutions for air dispersion needs. From fabric air distribution systems to HVLS fans, DuctSox products have been accepted within key industry organizations such as ASHRAE, Underwriters Laboratories, International Code Council, and many local building authorities throughout the world. DuctSox offers the best products, designs, and sales support in our industry. DuctSox strives to be the leader in the industry through our commitment to quality, service, and innovation. This commitment has allowed us to expand our product offerings to include BladeTec HVLS Fans.

### **The BladeTec advantage**

Traditional air movement from conventional high RPM beam-mounted or industrial floor fans can be ineffective and disruptive. Air speeds beyond 3.1 m/s (610 fpm) offer little, if any, added cooling benefit. High speed fans are expensive to operate, several are required for effective cooling, and they cannot destratify air to keep temperatures consistent from floor to ceiling. BladeTec HVLS Fans are able to deliver a large volume of air (up to 671,000 m<sup>3</sup>/h or 395,000 CFM) to a large space (2,641 m<sup>2</sup> or 28,400 ft<sup>2</sup>) at a relatively low cost.

### **Increased comfort and productivity**

In warmer months/climates, air from a BladeTec fan passes over people to keep them cooler, more comfortable, and more productive. In cooler months/climates, BladeTec pushes air from the ceiling down to the floor to keep employees warmer.

### **Greater energy efficiency and cost savings**

A large BladeTec fan can lower your energy costs by as much as 30%.



### **Commercial Fans: Aesthetics and Efficiency**

BladeTec Commercial fans are designed for smaller spaces from 131,000 m<sup>3</sup>/h (77,000 CFM) to 158,000 m<sup>3</sup>/h (93,000 CFM). The Commercial fan is a quiet, stylish fan, suitable for any environment such as retail spaces, health clubs, schools, auto dealers, government buildings, restaurants, theatres, and many more. The standard fan includes mill finished aluminum blades with a powder-coated motor frame. When a custom look is desired, the blades can be polished or painted to any color desired.



### **Industrial Fans: More air movement. More employee comfort. More energy savings!**

With its unique blade design, the BladeTec Industrial fan delivers the most air movement of any HVLS fan on the market today while providing improved employee comfort at the most economical start up and operating cost available. BladeTec fans can function as a standalone product or in conjunction with other methods of maintaining a comfortable air temperature in any space. With models ranging from 138,000 m<sup>3</sup>/h (81,000 CFM) to over 671,000 m<sup>3</sup>/h (395,000 CFM), the BladeTec Industrial fans are ideal for use in large buildings with high ceilings such as distribution centers, manufacturing facilities, convention centers, stadiums, warehouses, dairy/livestock barns, and airports.

# COST SAVINGS, IMPROVED ENVIRONMENTS

## Uneven temperature zones waste energy and money

- BladeTec fans make your HVAC systems more efficient
- Reduce energy consumption by 20 to 30%
- Eliminate the cold and hot zones
- All the comfort, without all the cost

## Save money in the warmer months

- Moving air is more comfortable
- A 1 m/s to 2 m/s (197 fpm to 394 fpm) increase in air speed delivers the equivalent of a 3 °C to 7 °C (5.4 °F to 12.6 °F) decrease in room temperature
- A BladeTec fan allows you to raise the summer temperature setting
- 7% energy savings for every degree (°C) you can raise your setting
- Reduce energy consumption by up to 20%
- The perfect supplement for your A/C system

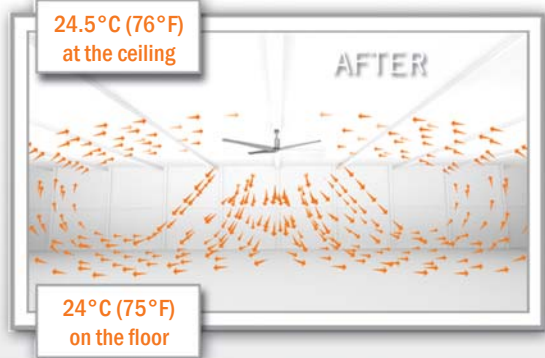
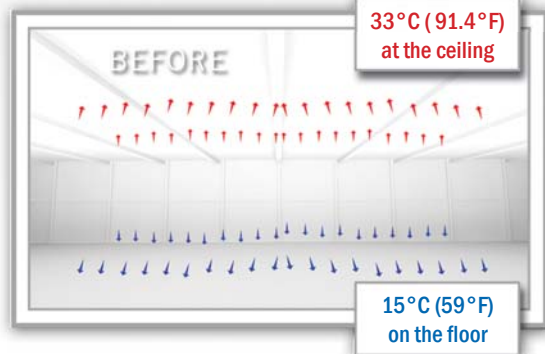
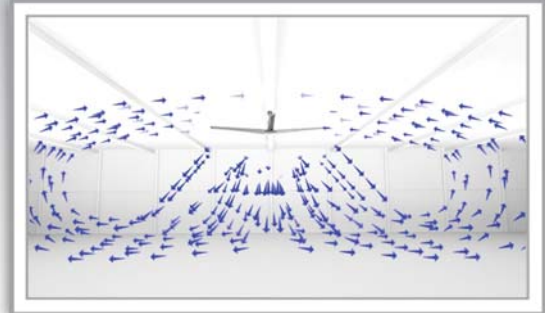
## Save money in the cooler months

- Mix warm air from the ceiling with cooler air below, a process called destratification
- The fan gathers air and pushes it down in a conical shape until it reaches the floor and then flows out horizontally
- Reduce energy consumption by up to 30%

## Better fans for better environments

While the money saved by reducing your energy costs can provide a real return on investment, additional benefits include:

- Help eliminate heat stress
- Reduced condensation on the floors
- Reduced condensation on products and packaging
- Improved indoor air quality by dispersing fumes/odors
- Improved productivity
- Consistent floor-to-ceiling temperatures



## DID YOU KNOW?

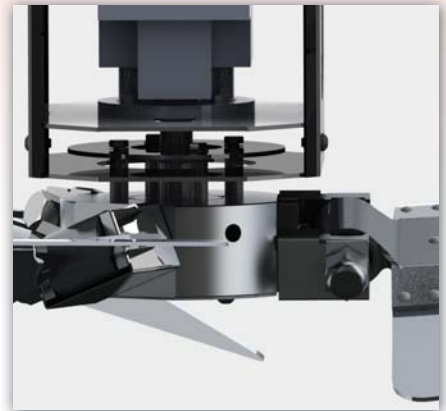
Running 10 to 20 traditional floor or smaller ceiling fans can cost 5 to 7 times more to run as one HVLS fan. Additional benefits of HVLS fans include:

- Safer work environments
  - Eliminate trip hazards
  - Reduce potential for eye injuries
  - Reduce noise
- Reduce maintenance costs
- Free up low voltage power outlets





FOR COMMERCIAL APPLICATIONS



The BladeTec Commercial HVLS Fan was designed specifically for smaller spaces where style and efficiency are important. The unique three-blade design of the Commercial Fan maximizes both. The BladeTec Commercial Fan can extend air movement up to 18m (60 ft), but is also a quiet solution for environments where noise should be at a minimum.

The BladeTec Commercial Fan can be used in a variety of commercial environments and is available in three sizes including 2440mm (8 ft), 3050mm (10 ft), and 3660mm (12 ft).



### Commercial Applications

- Office Buildings
- Health clubs
- Schools/universities
- Retail
- Auto dealers
- Lobbies/atriums
- Libraries
- Religious facilities
- Hotels
- Theatres
- Bars/restaurants
- Hospitals
- Hundreds of other applications

# COMMERCIAL FAN FEATURES

## Unique three-blade design

- Mill finished aluminum blade with Vortex Tips
- Ideal contour and twist for maximum air movement

## Upward blade tilt

- Increases airflow and reach
- Extends reach of air movement up to 18m (60 ft) from the fan's center in all directions
- Directs air outward from fan's center in a conical shape

## Resilient blade/hub connection

- Vibration-absorbing material reduces stress to the hub by up to 75%
- Rotationally balanced blade/hub
- Used for over 40 plus years in the most demanding applications worldwide
- Designed for over 10 times the force and stress generated by the BladeTec Commercial Fan

## Robust mounting system

- Extruded, precision-milled aluminum hub
- Three-way motor-to-hub safety connection



## Easy-to-use controls

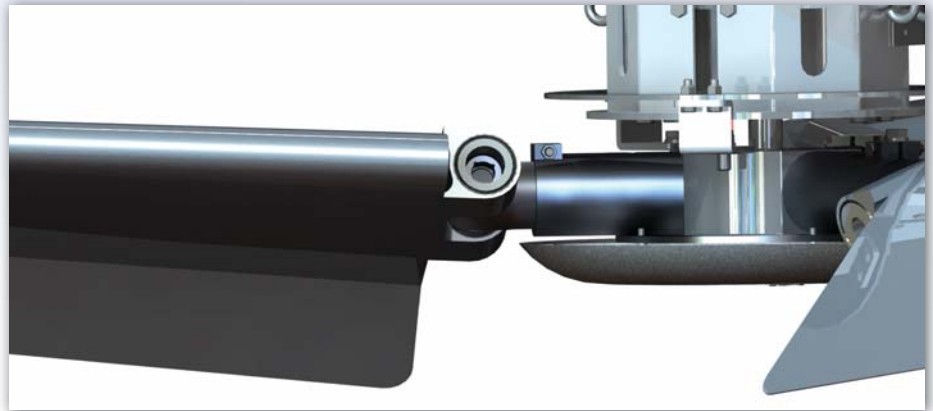
- Simple on/off button
- Adjustable speed control
- Operates in forward or reverse
- Fits into standard electrical housing
- Controls up to 4 fans
- Optional Zone Controller can operate up to 18 fans



<b>DIAMETERS</b>	2440mm (8 ft), 3050mm (10 ft), 3660mm (12 ft)
<b>BLADES</b>	Aluminum
<b>BLADE FINISH</b>	Mill finished, custom colors optional
<b># OF BLADES</b>	3
<b>AIRFLOW</b>	2440mm (8 ft) = 131,000 m <sup>3</sup> /h or 77,000 CFM 3050mm (10 ft) = 154,600 m <sup>3</sup> /h or 91,000 CFM 3660mm (12 ft) = 158,000 m <sup>3</sup> /h or 93,000 CFM
<b>MOTOR</b>	1 HP
<b>VOLTAGES</b>	230, 380, 400, 460
<b>PHASE</b>	3 phase standard, 1 phase also available for 230
<b>AMPS</b>	2.9A @ 230V and 400V, 1.7A @ 380V and 460V
<b>WATTS</b>	650 to 800
<b>FREQUENCY</b>	50 to 60 Hz
<b>COVERAGE</b>	Up to 1017m <sup>2</sup> (11,000 ft <sup>2</sup> ) 18m (60 ft) from the fan's center in all directions
<b>DECIBELS</b>	40 to 52 dBA depending on fan speed (measured 6100mm or 20 ft below and 6100mm or 20 ft from the fan's center)
<b>AIR SPEED</b>	Up to 2 m/s (394 fpm) at full speed
<b>CONTROLS</b>	Variable speed
<b>MOUNTING HEIGHTS</b>	3050mm (10 ft) to 9150mm (30 ft), finished floor to bottom of blade
<b>WEIGHT</b>	68 kg (150 lbs)
<b>WARRANTY</b>	3-year parts and 1-year labor warranty 10-year structural integrity warranty Lifetime warranty on workmanship of blades and hub



FOR INDUSTRIAL APPLICATIONS



The BladeTec Industrial HVLS Fan was designed specifically for larger spaces where maximizing employee comfort, air movement, and energy savings are key. The unique three-blade design of the Industrial Fan maximizes all of these. In addition, it delivers the most air movement of any HVLS fan around. The BladeTec Industrial Fan can extend its air movement up to 29m (95 ft).

The BladeTec Industrial Fan can be used in a variety of industrial environments and is available in five sizes: 2440mm (8 ft), 3660mm (12 ft), 4880mm (16 ft), 6100mm (20 ft), and 7320mm (24 ft).



### Industrial Applications

- Distribution centers
- Manufacturing facilities
- Warehouses
- Athletic facilities
- Airports
- Convention centers
- Stadiums
- Arenas
- Dairy/Livestock Barns
- Hundreds of other applications

# INDUSTRIAL FAN FEATURES

## Unique three-blade design

- Made of strong, durable, lightweight aluminum
- Varies in width along entire length of blade
- Ideal contour and twist for maximum air movement
- Complex jig-formed shape is not possible with extruded blades

## Upward blade tilt

- Increases airflow and reach
- Extends reach of air movement up to 29m (95 ft) from the fan's center in all directions
- Directs air outward from fan's center in a conical shape

## Resilient blade/hub connection

- Vibration-absorbing material reduces stress to the hub by up to 75%
- Rotationally balanced blade/hub
- Used for over 40 plus years in the most demanding applications worldwide
- Designed for over 10 times the force and stress generated by the BladeTec Industrial Fan

## Robust mounting system

- Stabilizing cables, beam clamp and motor housing
- Extruded, precision-milled aluminum hub
- Three-way motor-to-hub safety connection



## Easy-to-use controls

- Simple on/off button
- Adjustable speed control
- Operates in forward or reverse
- Fits into standard electrical housing
- Controls up to 4 fans
- Optional Zone Controller can operate up to 18 fans

<b>DIAMETERS</b>	2440mm (8 ft), 3660mm (12 ft), 4880mm (16 ft), 6100mm (20 ft), 7320mm (24 ft)
<b>BLADES</b>	Aluminum
<b>BLADE FINISH</b>	Mill finished, custom colors optional
<b># OF BLADES</b>	3
<b>AIRFLOW</b>	2440mm (8 ft) = 138,000 m <sup>3</sup> /h or 81,000 CFM 3660mm (12 ft) = 224,000 m <sup>3</sup> /h or 132,000 CFM 4880mm (16 ft) = 350,000 m <sup>3</sup> /h or 206,000 CFM 6100mm (20 ft) = 491,000 m <sup>3</sup> /h or 289,000 CFM 7320mm (24 ft) = 671,000 m <sup>3</sup> /h or 395,000 CFM
<b>MOTOR</b>	2 HP
<b>VOLTAGES</b>	230, 380, 400, 460, 575
<b>PHASE</b>	3 phase standard, 1 phase also available for 230
<b>AMPS</b>	6.3A @ 230V, 3.55A @ 380V, 3.6A @ 400V, 3.15A @ 460V, 2.5A @ 575V
<b>WATTS</b>	1300 to 1600
<b>FREQUENCY</b>	50 Hz
<b>COVERAGE</b>	Up to 2641 m <sup>2</sup> (28,400 ft <sup>2</sup> ) 29m (95 ft) from the fan's center in all directions
<b>DECIBELS</b>	50 to 62 dBA depending on fan speed (measured 6100mm or 20 ft below and 6100mm or 20 ft from the fan's center)
<b>AIR SPEED</b>	Up to 2.8 m/s (550 fpm) at full speed
<b>CONTROLS</b>	Variable speed
<b>MOUNTING HEIGHTS</b>	4575mm (15 ft) to 24400mm (80 ft), finished floor to bottom of blade
<b>WEIGHT</b>	136 kg (300 lbs)
<b>WARRANTY</b>	3-year parts and 1-year labor warranty 10-year structural integrity warranty Lifetime warranty on workmanship of blades and hub

# FAN SELECTION GUIDE

BladeTec fan layout is based on the concept of how air velocities can produce a perceived range of temperature drops at varying distances from the center of the fan. To help define these ranges, we have introduced the concept of Areas of Influence. Figure A defines the Area of Influence as four distinct areas (A1, A2, A3, and A4) using concentric circles to represent average air velocities, distances, and perceived temperature drop. Each BladeTec model has its own Area of Influence. The larger the fan, the larger the Area of Influence. Each area of influence is based on air velocity and the change in perceived temperature drops from 2.0°C (4°F) to 8.3°C (14.4°F). For example, the A1 Area of Influence is defined at a distance from the fan center where the velocity is 2.8 m/s (550 fpm), A2 is 1.3 m/s (250 fpm), A3 is 0.9 m/s (175 fpm), and A4 is 0.5 m/s (100 fpm). (See Figure A.) The real benefit of the BladeTec selection methodology is a more scientific analysis of the relationship between fan diameter and perceived temperature change.

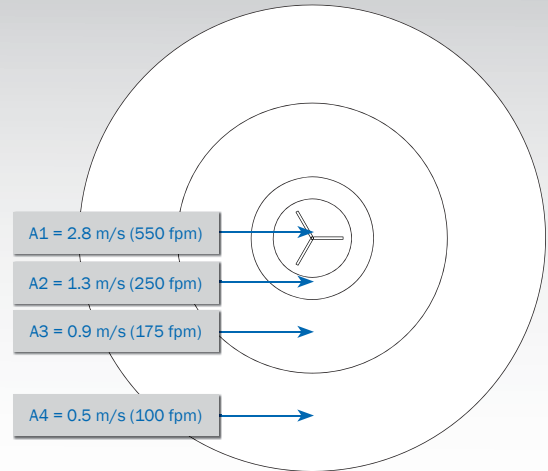


Figure A.

## The first step in selecting a fan is understanding what your application needs are.

- BladeTec fans can be used for effective cooling only. The air velocity makes the occupants perceive a cooler temperature.
- BladeTec fans can be used in combination with traditional air conditioning systems, making cooling more efficient.
- BladeTec fans can be used for mixing air vertically from ceiling to floor (typically known as air destratification) and/or mixing air horizontally from one building area to another.
- BladeTec fans can be used for drying floors and product.

## BladeTec fan performance capabilities chart

Area of Influence	m/s (fpm)	°C (°F) DeltaET*	Area of Influence diameters in meters (ft)				
			2440mm (8 ft)	3660mm (12 ft)	4880mm (16 ft)	6100mm (20 ft)	7320mm (24 ft)
A1	2.8 m/s (550 fpm)	6 to 8°C (11 to 14°F)	2.4m (8 ft)	3.7m (12 ft)	4.9m (16 ft)	6.1m (20 ft)	9.8 (32 ft)
A2	1.3 m/s (250 fpm)	3 to 5°C (5 to 9°F)	4.5m (15 ft)	9.1m (30 ft)	12.2m (40 ft)	13.0m (43 ft)	15.2m (50 ft)
A3	0.9 m/s (175 fpm)	3 to 4°C (6 to 8°F)	6.0m (20 ft)	15.0m (49 ft)	18.0m (60 ft)	30.0m (100 ft)	36.0m (120 ft)
A4	0.5 m/s (100 fpm)	2 to 3°C (4 to 5°F)	45.0m (148 ft)	48.0 (157 ft)	55.4 (182 ft)	57.9m (190 ft)	58.0m (190 ft)

\* DeltaET is the perceived temperature drop due to air velocity and is based on data supplied by ASHRAE standard 55-2010.

Note: Industrial fans were tested at a mounting height of 30 ft off grade and Commercial fans were tested at 15 ft off grade.



# FAN SELECTION GUIDE

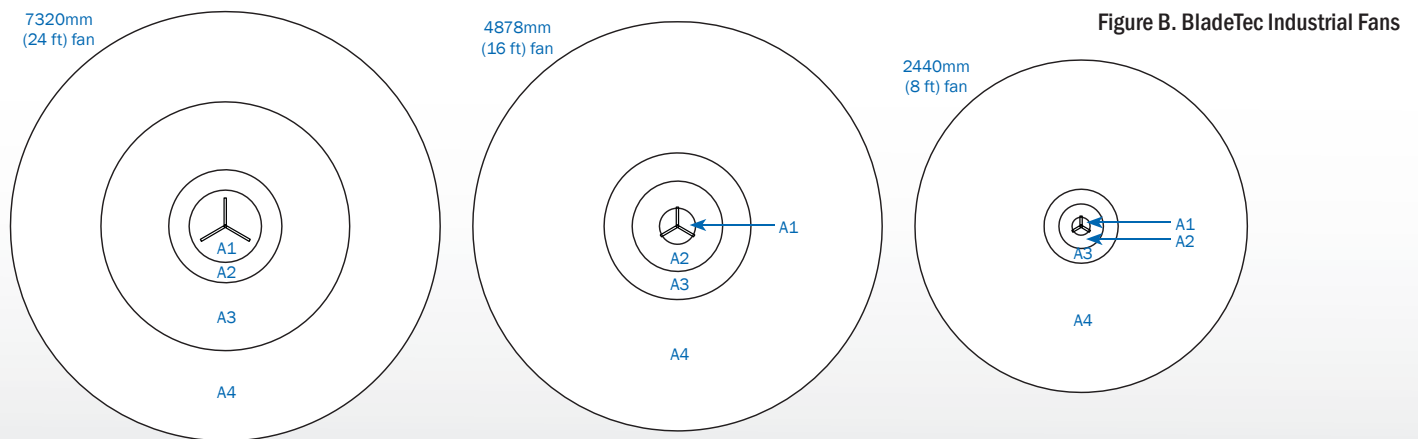
## BladeTec Commercial HVLS Fan

Area of Influence	m/s (fpm)	°C (°F) DeltaET*	Area of Influence diameters in meters (ft)		
			2440mm (8 ft)	3050mm (10 ft)	3660mm (12 ft)
A2	2.0 m/s (400 fpm)	5 to 7°C (9 to 13°F)	2.4m (8 ft)	3.0m (10 ft)	3.7m (12 ft)
A3	0.9 m/s (175 fpm)	3 to 4°C (6 to 8°F)	3.0m (10 ft)	4.6m (15 ft)	6.0m (20 ft)
A4	0.5 m/s (100 fpm)	2 to 3°C (4 to 5°F)	18.0m (60 ft)	24.4m (80 ft)	30.4m (100 ft)

### Fan Layout Examples

Fan layout based on fan diameter and Area of Influence.

Figure B is another way to look at 7320mm (24 ft), 4878mm (16 ft), and 2440mm (8 ft) BladeTec fans and their Areas of Influence. This Figure helps depict how important it is to apply correct BladeTec fan sizes with your application requirements. You can observe schematically how the Areas of Influence change by fan diameter.

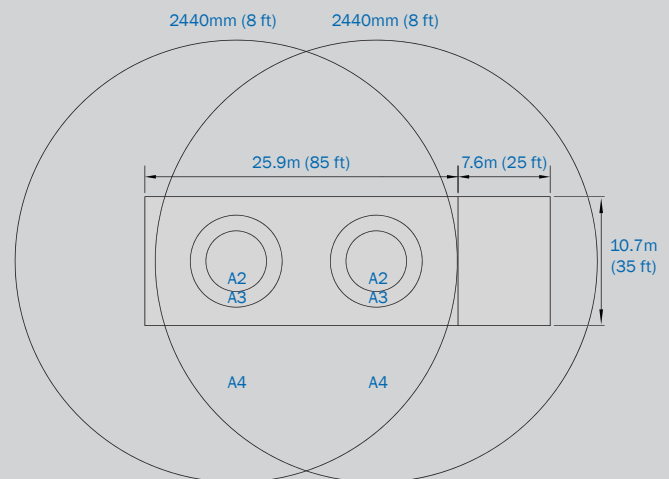


### Example #1

**Fitness Center with ceiling heights less than 6100mm (20 ft), medium to high occupancy**

**Objective:** High air velocity and effective cooling

**Solution:** Two commercial 2440mm (8 ft) fans with 33% of total area covered by A2 and A3 provides effective cooling of 3 to 7°C (4 to 12°F) with the balance of the area covered by A4 providing effective cooling of 1.5 to 2.8°C (3 to 5°F).



# FAN SELECTION GUIDE

## Example #2

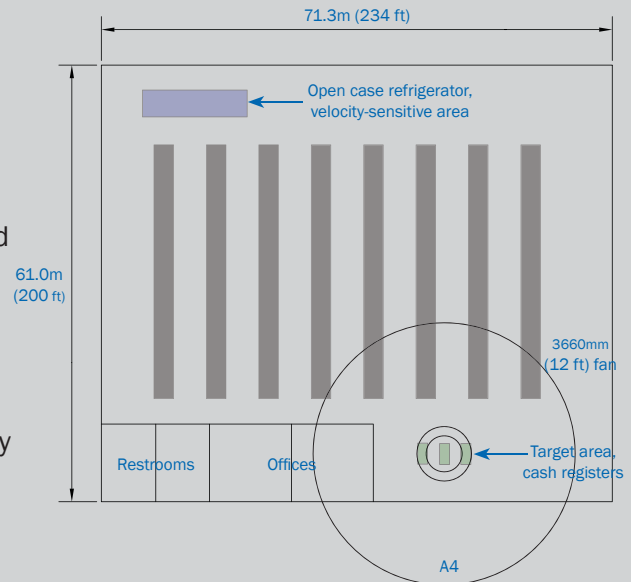
### Grocery Store with limited air conditioning

**Objective:** Provide cooling relief where there is highest concentration of people

**Solution:** One 3660mm (12 ft) Commercial fan with A2 and A3 targeted over the cash register area provides effective cooling of 3.3 to 7.2 °C (5 to 13 °F).

#### Additional considerations:

- An additional fan could also be added over aisle spaces, but caution should be taken to avoid sensitive air velocity areas (for example, open case refrigerator cases).
- An Industrial fan may also fit this application if more air movement is needed.



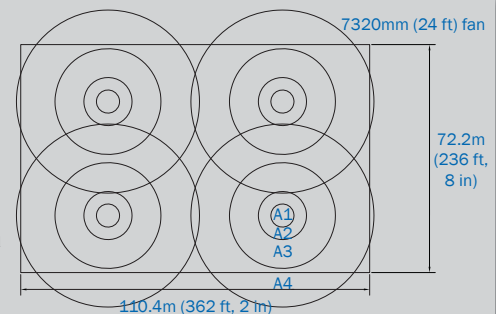
## Example #3 (2 equivalent spaces with different application requirements)

### Industrial Application with low occupancy, warehouse facility

**Objective:** Limited effective cooling

**Solution:** Four 7320mm (24 ft) BladeTec Industrial Fans effectively provide cooling air velocity while providing mixing/destratification for a majority of the building.

A1 through A4 provide mixing for destratification while A1 through A3 (44% of floor space) provide limited effective cooling of 3 to 8 °C (4 to 13 °F).

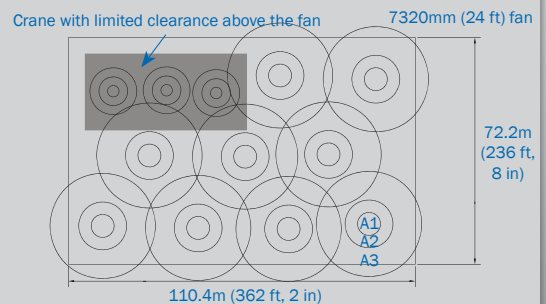


### Industrial Application with high occupancy, manufacturing facility

**Objective:** Maximize effective cooling

**Solution:** Combination of 7320mm (24 ft) and 3660mm (12 ft) BladeTec Industrial Fans provide effective cooling for a majority of the building.

A1 through A3 (90%+ of floor space) provide effective cooling of 3 to 8 °C (4 to 13 °F).



#### Other fan layout considerations:

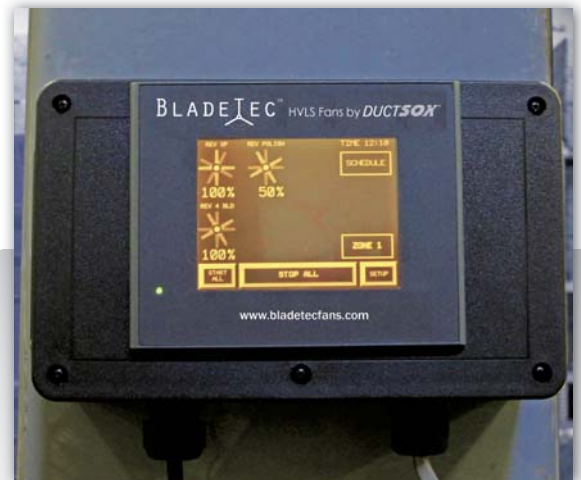
- Minimum clearance above fan (both structural/clearance and space for airflow into the fan)
- Minimum clearance below fan = 305mm (12 in)
- Minimum clearance from fan blade tips = 482mm (19 in)
- Obstructions (lighting, sprinklers, access panels, etc.) should be considered

#### IMPORTANT!!!

Fan diameter	Min. clearance dimension at full RPM
2440mm (8 ft)	610mm (2 ft)
3660mm (12 ft)	915mm (3 ft)
4880mm (16 ft)	1220mm (4 ft)
6100mm (20 ft)	1525mm (5 ft)
7315mm (24 ft)	1525mm (5 ft)

# BLADETEC ZONE CONTROLLER

The BladeTec Zone Controller is a Touch Screen Control Station designed to coordinate the operation of up to 18 BladeTec high volume, low speed fans. One centralized control station will communicate with the standard control box at each fan location to maximize performance and reduce energy costs.



## Single location control

- The Control Station can control up to 18 BladeTec Fans within one facility
- Prevent employees from making adjustments to fan speeds
- No need to visit each fan location, which may be great distances apart

## Maximize fan performance

- Control fan speeds and usage simultaneously or independently
- Schedule fans to operate only when needed to save energy
- View individual fan settings (On/Off/Reverse + Speed)
- Optional ethernet port for network access
- Relay input control for easy on/off interface
- Customize each fan name to specific building locations
- Internal battery retains custom settings in the event of a power failure



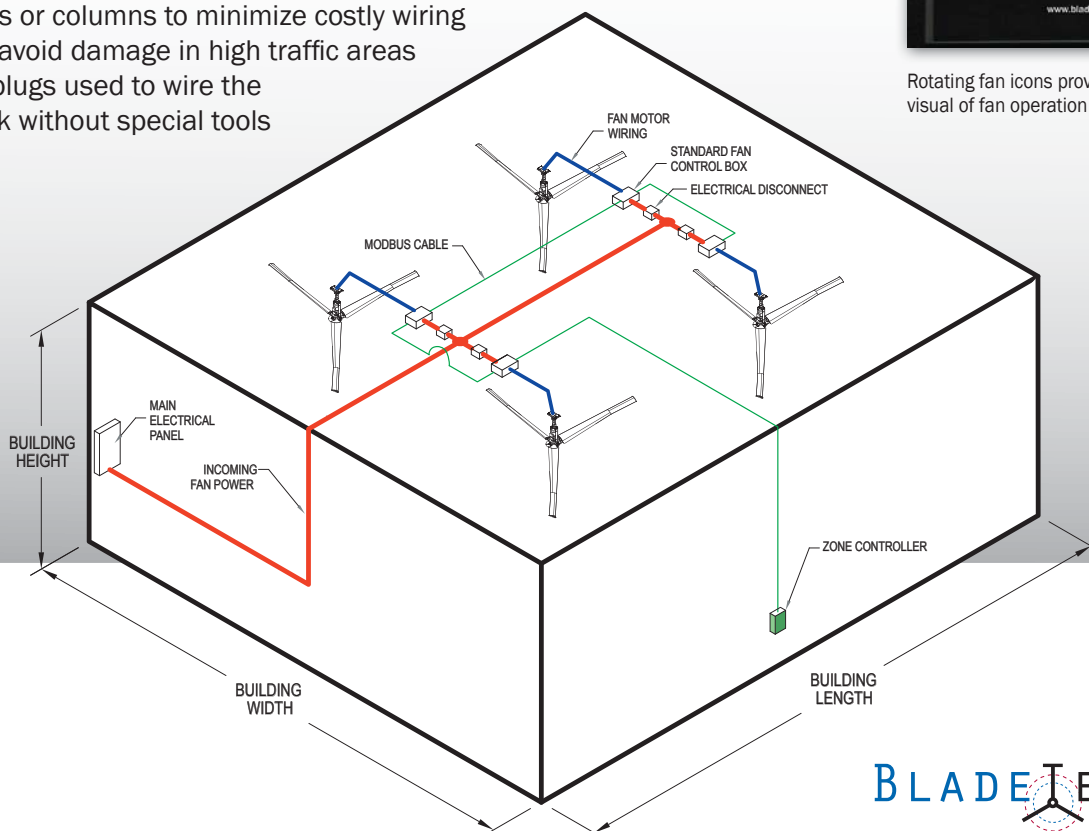
Fan network may be scheduled to start/stop twice per day

## Installation flexibility

- Standard control boxes may be mounted up higher on walls or columns to minimize costly wiring and to avoid damage in high traffic areas
- RJ-45 plugs used to wire the network without special tools



Rotating fan icons provide immediate visual of fan operation



**Our commitment to INNOVATION  
provides unique products for many  
environments.**

**DUCTSOX<sup>®</sup>**  
*Textile Air Dispersion Products*

Custom engineered air dispersion systems for  
open ceiling and finished ceiling applications.

**under  
floor SOX<sup>™</sup>**  
*Plenum Air Dispersion Systems*

Engineered distribution and dispersion systems  
provide uniform temperature and pressure for  
raised access floors.

**LabSOX<sup>™</sup>**  
*Air Dispersion For Critical Environments*

Unique air dispersion systems offer reduced  
discharge velocities for critical environments.

**KitchenSOX<sup>™</sup>**

Air dispersion systems for food preparation  
environments to eliminate drafts and  
condensation.

**simpleSOX<sup>™</sup>**  
*Adjustable Fabric Air Dispersion System*

Simple and adjustable fabric air dispersion  
system assembled with pre-made components  
for open ceiling architecture.

The products in this brochure are covered by one or more of the following U.S. patents: 4,560,315 (RE: 32,968); 4,634,334; 4,692,755; 4,744,121; 4,819,770; 4,843,373; 4,865,507; 4,920,598; 4,995,130; 5,040,258; 5,111,546; 5,212,846; 5,271,183; 5,299,386; 5,311,628; 5,323,503; 5,375,965; 5,440,772; 5,442,825; 5,453,735; 5,531,557; 5,546,623; 5,553,987; 5,582,498; 5,664,930; 5,702,223; 5,762,459 (RE:37,570); 5,882,167; 5,964,572; 6,010,297; 6,052,268; 6,065,172; 6,070,283; 6,074,157; 6,085,375; 6,092,970; 6,106,212; 6,116,839; 6,190,109; 6,220,809; 6,627,016; 6,238,163; 6,322,310; 6,311,352; 6,360,394; 6,368,043; 6,431,819; 6,488,464; 6,497,067; 6,499,169; 6,505,713; 6,524,053; 6,634,049; 6,654,976; 6,676,360; and pending U.S. and foreign patent applications.

**BLADETEC<sup>™</sup>** HVLS Fans by **DUCTSOX<sup>®</sup>**

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