3200 Ventura X5

Whole House Fan
Installation and Operation Manual

3200 Ventura Whole House Fan with Gravity Air Door

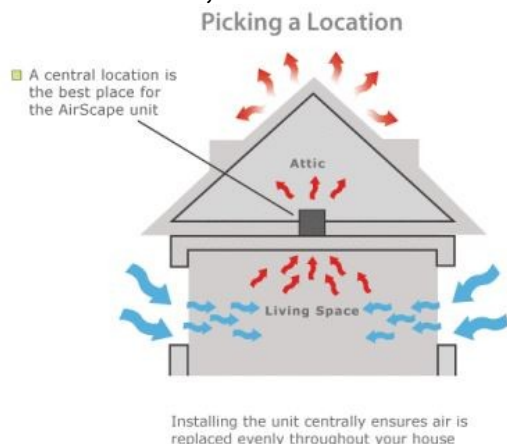**Thank you for purchasing an AirScape® Whole House Fan.**

Your fan has been designed to provide your home with natural, quiet, and energy-efficient cooling for many years. Please take a few minutes to read over this manual and its accompanying documents to make sure you are prepared to install the fan.

Before installing this fan, inspect it and all of its parts for any damage that may have been sustained during shipping. DO NOT INSTALL DAMAGED EQUIPMENT. If you suspect this fan was damaged during shipping, contact AirScape technical support by phone at 1.866.448.4187, or email at experts@airscapefans.com.

Whole House Fans are designed to be installed within a home's attic, which makes them and their sub-components extremely difficult to access once installed. **Test this fan outside of the attic Before in-stalling it. Connect the fan to its controls and to a power supply, and ensure it operates properly by turning it on and cycling through its speed settings.** If any difficulties are encountered, **contact AirScape technical support** *at* 1.866.448.4187 *or by email at* experts@airscapefans.com

As a home heats up during the day, a large amount of heat is retained in its structure and contents. These materials give off their heat slowly and continue to heat the home's interior even if the outdoor temperature is comfortable. Homeowners are then forced to endure either uncomfortable hot indoor temperatures, or the expense of air conditioning. AirScape® and Ventura® whole house fans resolve this dilemma by exhausting hot indoor air out of, and drawing cool outdoor air into, the home.

Each of our fans has been designed for quiet and efficient operation. As such, we strongly recommend running this fan through the night to extract the maximum possible amount of heat from the home. This not only helps maintain a comfortable indoor temperature, but essentially "pre-cools" the home ahead of the next day's rise in temperature, which reduces, or can even eliminate, the need for traditional air conditioning.

Fan Location Guidelines

• Locate this fan in a central location away from windows that will be opened to promote an even replacement of air throughout the home and thus a greater cooling effect.

• Locate this fan at the highest point possible to exploit natural convection and help exhaust the hottest indoor air from the home.

• In a two-story home, the ideal location for this fan is typically in the open area at the top of the stairs.

• Avoid locating this fan in a narrow space or over hard flooring as the reflection of sound off of hard surfaces can amplify its perceived noise.

• We specifically recommend against locating this fan in a bedroom as humans' perception of noise is far greater when the surrounding environment is quiet (such as within a bedroom at night).

• Within the attic, locating the fan (within 18 feet) near an electrical outlet or power supply can minimize the need for additional electrical work.

Required Attic Ventilation

It is critical that the attic be sufficiently ventilated for this fan to operate properly. Without adequate ventilation, hot air cannot easily escape from the attic, which creates back-pressure that can substantially reduce the fan's performance. Specifically, operating this fan in an attic with less net free ventilation area than recommended will decrease its airflow and energy efficiency.

Whole House Fan Model	Lift-Lock or Ventura 1700	AirScape or Ventura 2500	AirScape or Ventura 3200	AirScape or Ventura 3400	AirScape or Ventura 4300	AirScape or Ventura 5300	AirScape DVS 5.0	
CEC Required Minimum Net Free Vent Area	2.3 ft^2	4.3 ft^2	4.3 ft^2	4.6 ft^2	5.8 ft^2	7.1 ft^2	7.1 ft^2	
AirScape Recommended Net Free Vent Area	4 ft^2	6 ft^2	6 ft^2	7 ft^2	9 ft^2	10 ft^2	10 ft^2	

Venting requirements vary by fan. We recommend *a minimum* of 1 square feet of "net free" ventilation area per 500 cfm at a fan's highest speed. The minimum attic venting requirements for each model of AirScape® and Ventura® whole house fan is given in the chart at above.

Net free ventilation area can be provided by any combination of gable, eyebrow, roof cap, soffit, or ridge vents, or any other method of ventilating the attic space.

However, the openings of most vents are partially obstructed by grilles, louvers, and/or screens. A vent's "net free" ventilation area is then the surface area of its opening minus the surface area of any grilles, louvers, or screening covering it. Different types of vents have different ratios of net free area to total area.

Manufacturers typically publish their vents' net free ventilation areas and/or ratios in their products' specification documents. If this information is unavailable, a ratio of 50% net free area to total area is usually a good rule of thumb. The most notable exception to this rule of thumb are ridge vents. The industry standard net free ventilation area for ridge vents is 13% of the vent's length in feet. Thus, a ten foot ridge vent would provide 1.3 sq. ft. of net free ventilation area.

While in our experience most properly constructed homes have adequately ventilated attics, not all do. Because sufficient ventilation is so critical to this fan's performance, it is important that the home's existing ventilation be verified before it is installed.

Since most attics have multiple vents, often of different types, it is necessary to count each vent, noting its type and size. Apply the appropriate ratio to the dimensions of each vent to find its net free area, and sum these values to find the attic's total ventilation. An example of how these calculations are made is given in the chart below.

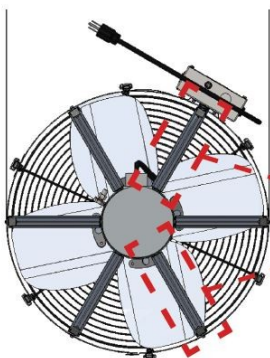| Vent Type	Dimensions	Total Area	Net Free Area Ratio ("NFA")	Net Free Ventilation Area (=Total Area x NFA)
Louver	24" × 24"	24" × 24" ÷ 144* = 4 ft²	50%	4 ft² × .50 = 2 ft²
Ridge	10 feet	n/a	13%	10 feet × .13 = 1.33 ft²
Round Soffit	10" diameter	3.14 × 5" × 5" ÷ 144* = 0.55 ft²	50%	.55 ft² × .50 = .28 ft²
* ÷ 144 = to convert inches into feet		Total Net Free Ventilation Area:		3.6 ft²

SAFETY INFORMATION

Some of the principles of this product's safe installation and operation are not immediately obvious. Read the following safety information before continuing further:

• *Never* operate this fan without a Window or Door opened.

• This fan is meant for general ventilation.
 It has NOT been designed to ventilate particle laden and / or explosive mixtures of air.

• This fan is not for use in kitchens.

• *Never* force open the damper door(s), this could severely damage the actuator. *Always* depress the actuator's yellow clutch release before manually opening or closing the damper door(s).

• Before installing or servicing this fan, switch power off at the home's electrical panel or unplug the fan in the attic, to reduce the risk of damaging circuit boards, fire, electrical shock, or injury.

HANDLING INSTRUCTIONS

This fan's aluminum construction is corrosion-resistant and extremely durable. However, this fan should NEVER be handled using any of the Aerodynamic Wings that mount the motor within the assembly. These Wings are highlighted in the illustration. Always handle this fan by either its external casing or the motor itself. You can also handle this fan by its hanging straps, but be careful as their edges are sharp.

SUPPLIES INCLUDED

Prior to beginning installation, please verify all of the following items were received:
• 20" Fan Assembly. (see last pages for identification of parts)
• Door Assembly (Air-Door 14) (see last pages for identification of parts)
• 20" x 7' Duct Assembly (see last pages for identification of parts)
• Cube-Core Grille (incl. powder-coated wood screws)
• Hardware Kit with square bit driver (incl. Screws / tape / strain relief for interlock)
• Digital Touch Controller package—including one Digital Touch controller, one wall mounting bracket, mounting screws and 50 feet of red shielded CAT5 cable.

Once all received parts are verified, perform an operational test BEFORE installing it in the attic.
See pages 9 and 10 for connections to be made.
This is a good time to write down the serial number(s) on this IOM, which will save you a trip to the attic if you require Tech Support.

REQUIRED TOOLS & SUPPLIES NOT INCLUDED

In addition to the included items listed above, the following tools and supplies are required to install the fan:
• Safety Glasses
• Gloves
• Drywall Cutter
• At least 8 wood screws (1½" min. length) and washers sized to fit.
• Cordless screwdriver with Phillips head and miscellaneous drill bits
• High quality caulk
• AirScape MAF (Metal Adjustable Framing 2x4, 2x6, Purchased Seperately) or Lumber matching dimensions of the attic joists (e.g. 2"x6", 2"x8", etc.) and cut to fit according to the instructions in the Installation section
• Fishing tape or similar tool (to pull control cable through the wall)

ELECTRICAL REQUIREMENTS

The 3200 Ventura model requires a 120 volt, Single Phase, 60 Hz, 15A uninterrupted power supply. These specifications must be taken into account when allocating power from existing circuits. We strongly recommend providing a dedicated circuit.
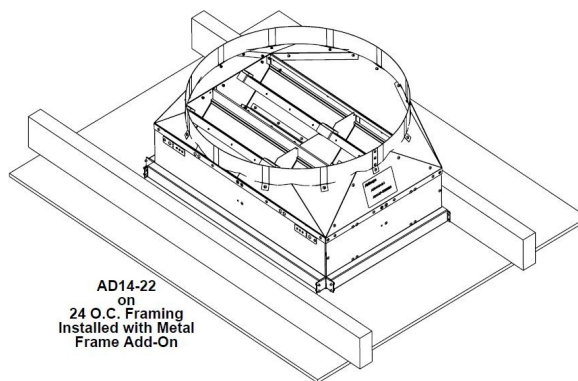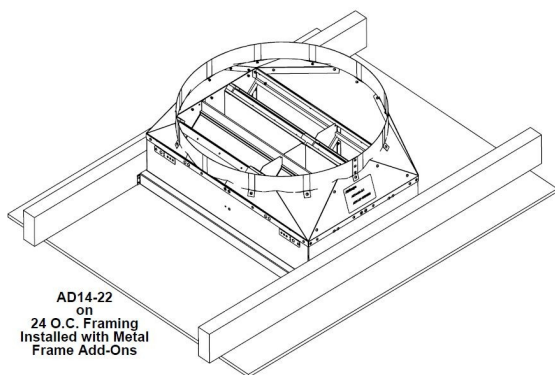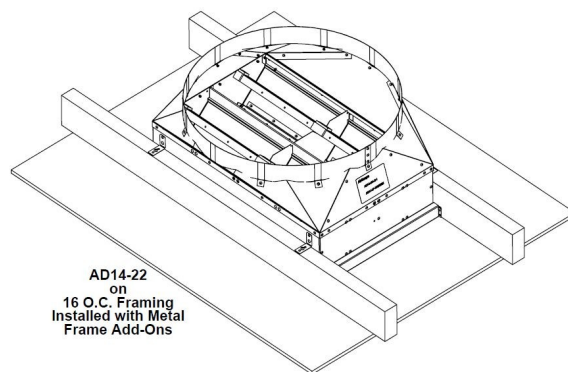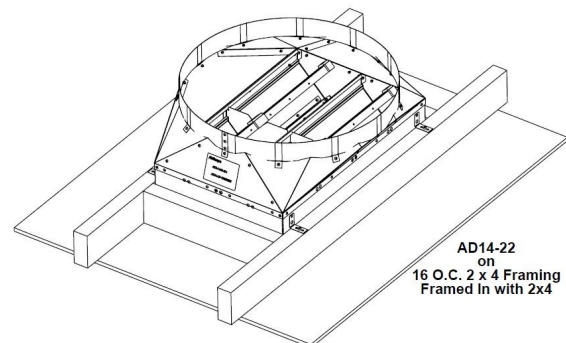This Circuit *MUST* be Ground Tested.
This can be done easily using a receptacle tester available at most hardware stores.

This fan has a factory-installed, 20 ft. power cord. Consider this length when choosing a location for this fan. Depending on the location of existing outlets in the attic, the installation of an additional outlet may be required.
All wiring and connections must be made according to this manual and acceptable wiring standards. All local codes must be followed. Consult an electrician if necessary.

Begin by familiarizing yourself with the system. Plan the install in the attic, keeping an eye on the space required for the components.

AirDoor Install Options:

AD14-22
on
16 O.C. 2 x 4 Framing
Framed In with 2x4

AD14-22
on
16 O.C. Framing
Installed with Metal
Frame Add-Ons

AD14-22
on
24 O.C. Framing
Installed with Metal
Frame Add-Ons

AD14-22
on
24 O.C. Framing
Installed with Metal
Frame Add-On

Ceiling or Wall?

AirScape doors can be mounted horizontally or vertically. We recommend installing this fan's door in the ceiling in a horizontal orientation, keeping in mind that locating the fan as high as possible helps exhaust the hottest indoor air from the home. It is wise to check the units placement and fit with the framing *before* cutting the opening.

The Unit can be installed in a wall, however **MUST** be oriented as shown in Fig. 1

The Air Door 14 (see fig. 1.)
MUST be oriented this way for the gravity doors to function
Note: the angle, not over 40 degrees.

If you choose a wall install we recommend bracing the underside of the unit with additional framing, leaving enough room to access the electronics on the top of the unit.
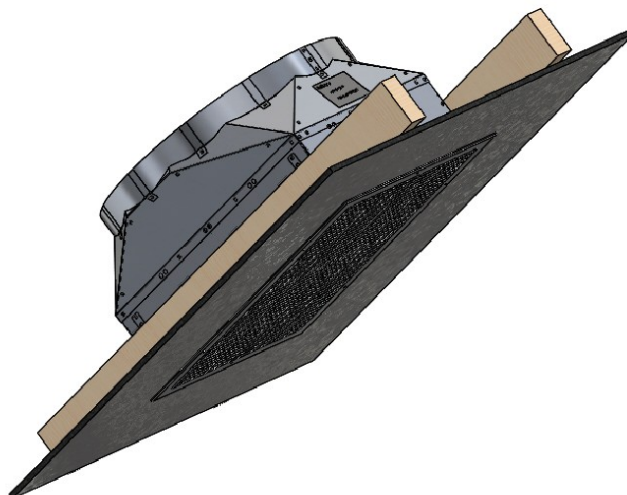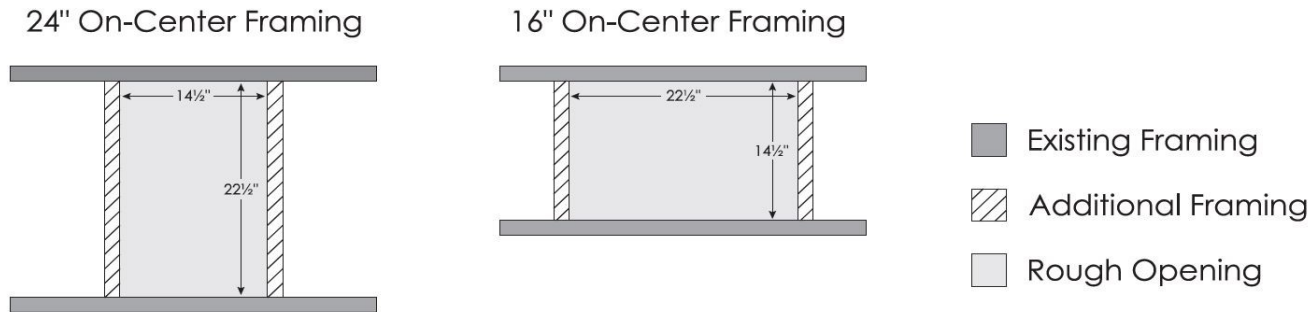
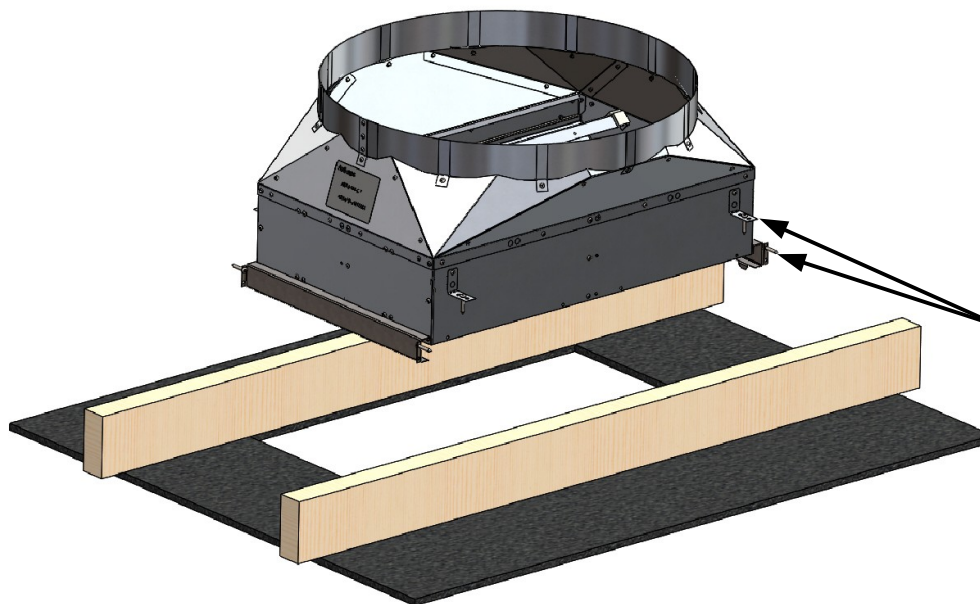**Fig.1**

Frame in the opening yourself:

Although the design facilitates full install (without having to frame the opening), if this does not work for you, you can frame the opening yourself.

First, using appropriately sized lumber (e.g. 2" × 6", 2" × 8", etc.) cut to fit, frame in a rough opening from the living space into the attic as shown below. Make sure framing is installed square on the framing. Cut out the drywall inside of the framing to create the rough opening. Best method is to drill holes in the inside corners of the created framing and then saw out the piece from the living space. Clean-up can be made much easier by using a tarp and/or box to catch the falling debris.

To ensure that all air drawn in by the fan will be from inside the house, use a good quality caulk to seal all wood-to-wood and wood-to-metal joints to create an air-tight enclosure.

INSTALLING THE GRAVITY AIR DOOR (AD14-22) ASSEMBLY

Depending on the configuration chosen, remove the metal frames from the Air Door Bottom edge as needed. (see Image)
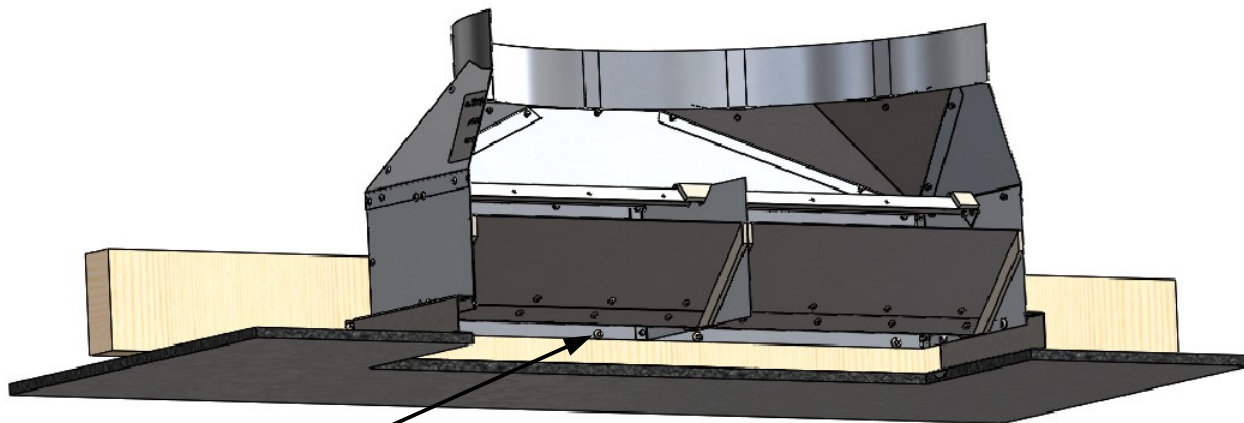
Position the Air Door centered over the opening.

Fasten the unit to the framing *with the included mounting screws. (8x)*

Mounting Screws only need to "hold" the unit in place, do not over-tighten which may distort the door unit.

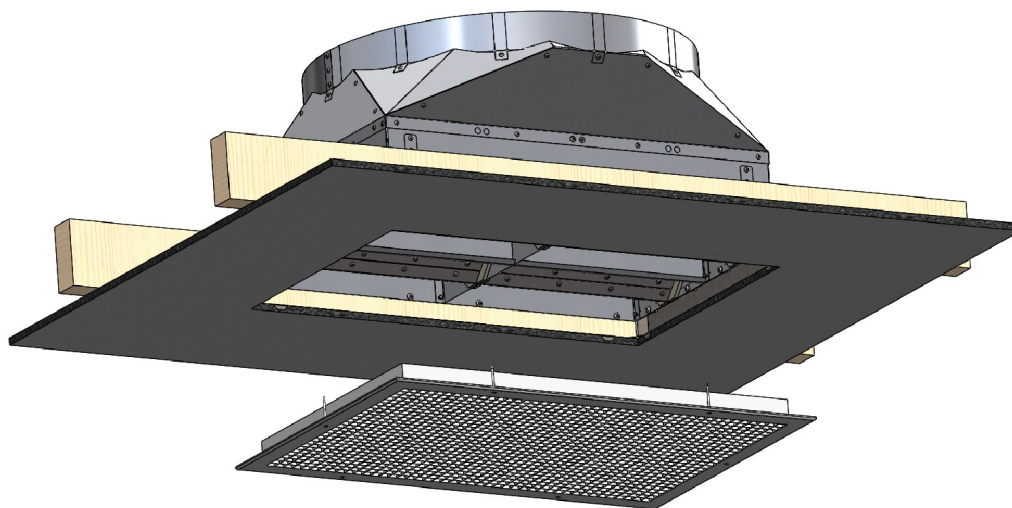*NOTE: Your Configuration may look different due to installation options*

Mounting Screws

From the living space install the mounting screws
Mounting Screws only need to "hold" the unit in place, do not over-tighten which may distort the door unit.

INSTALLING THE CUBE CORE GRILLE

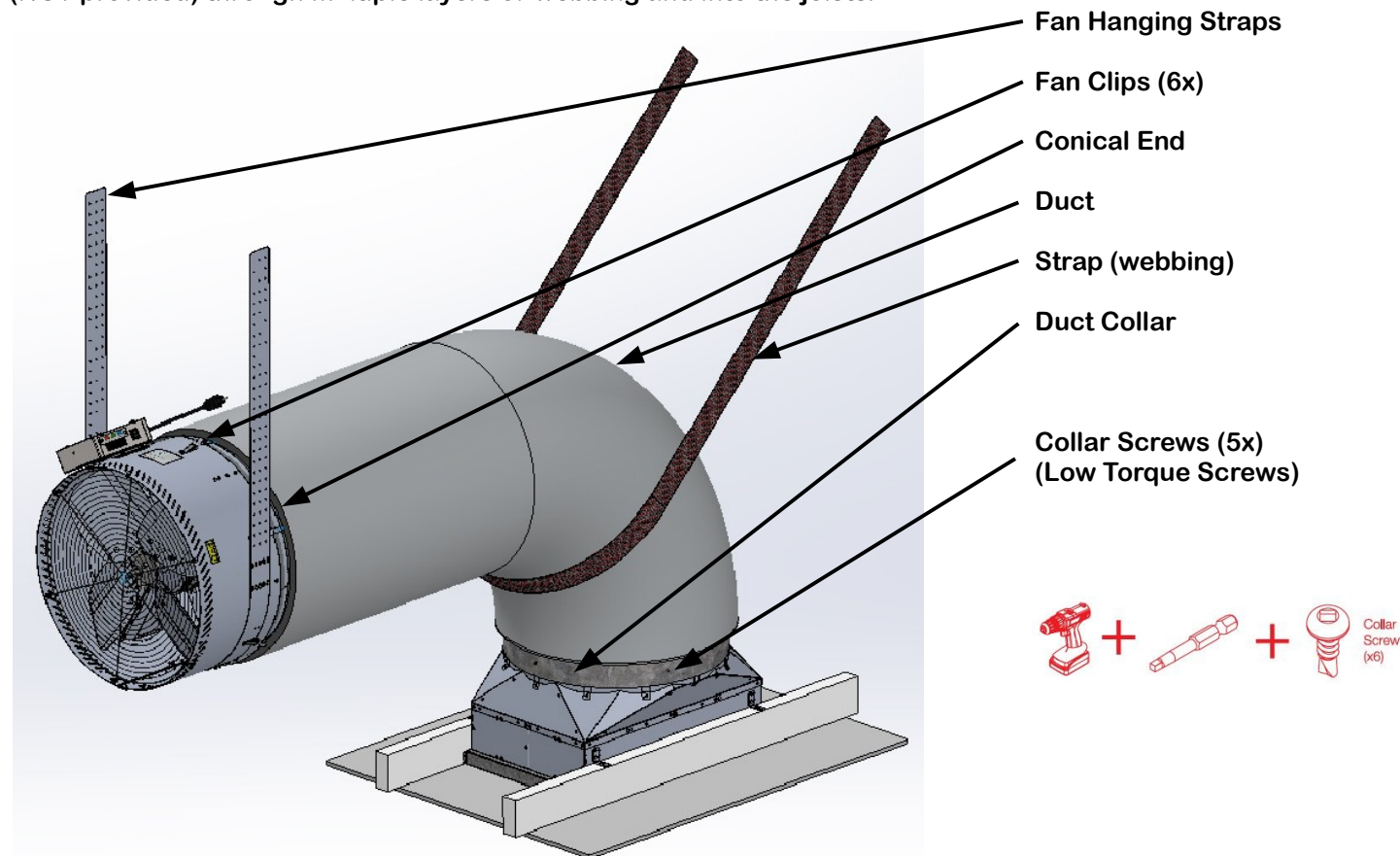Place the Grille in the opening and mark the mounting holes with a marker.

Pre-Drill ALL the Grille mounting holes.

Install the Grille with the included screws.

The supplied Duct has two ends, one is Conical and the other has a straight Collar. Place the Conical side over the Fan's rear edge and secure using the latches mounted on the Fan. Place the Collar side of the Duct over the Duct Adapter on top of the Air Door and secure in place using the self-drilling screws as shown.

Routing of the Duct and the Support of the bend in the Duct influences the performance. A collapsed throat (bend in the duct) can reduce Airflow substantially. This can be avoided by properly supporting the throat with the supplied webbing (see image). *Avoid contact between the duct and any metal fixtures, pipes or conduits.*

Support the Duct under the bend using the provided polypropylene webbing. To fasten the webbing to the attic joists, fold over the end of the webbing and screw at least two 1½" or longer wood screws include washers (NOT provided) through multiple layers of webbing and into the joists.

Fan Hanging Straps

Fan Clips (6x)

Conical End

Duct

Strap (webbing)

Duct Collar

Collar Screws (5x)
(Low Torque Screws)

Put on Gloves and move the fan into the best possible position in your attic and as far away from the Air Door as possible *while still allowing proper routing.*

Note; Face of the Fan MUST remain unobstructed, 24 inch minimum clearance required. Route all wiring away from the face of the Fan to prevent entanglement

Suspend fan from rafters using hanging strap. Secure hanging strap to rafters using wood screws
(at least 6 x 1½" (minimum length), NOT provided) through the pilot holes on the straps; washers recommended between screw heads and straps. USE BOTH STRAPS AND KEEP FAN AS LEVEL AS POSSIBLE.

Once the Fan and Duct have been hung, seal the joint between the Fan and the Duct with the aluminum foil tape provided. It is acceptable to mount the wiring to the Duct with a small piece of tape. If the Duct's Mylar cover was torn, a piece of tape can be used to seal the tear to seal the duct again.

The Digital Touch Controller provided with this fan is necessary
for operating it, and must be connected to it regardless of
whether the controller will be installed in a wall.
This fan will not function if not connected to a digital touch controller!

If it is not desired to be installed in a wall, the controller can be connected to the fan and kept in the attic with the CAT5 cable kept spooled. *Note: you will need a remote to operate it.*
The standard control package included with this fan contains 1 wall-mounted Digital Touch Controller plus screws; 1 mounting bracket for the controller; and 50 ft. of Red Shielded CAT5 cable.

First, locate the desired location for the Digital Touch controller.
Install the mounting bracket according to figures A–C below.
Return to the attic and connect the red CAT5 cable to the RJ45 port on the control box labeled W/S.
Run this cable from the electrical box to the location of the controller.

NOTE: this is a low-voltage cable, DO NOT RUN IT PARALLEL TO HIGH-VOLTAGE WIRING; building codes generally require low-voltage cable to be run through shielded conduit.

NOTE: Carefully unwind and run the CAT5 Cable down the wall, AVOID kinks as this can damage the Cable conductors!

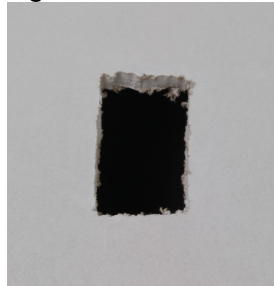Connect the CAT5 cable to the RJ45 port on the back of the Digital Touch controller.
Mount the controller to the mounting bracket with the provided white screws, *DO NOT OVER-TIGHTEN* (figure D)
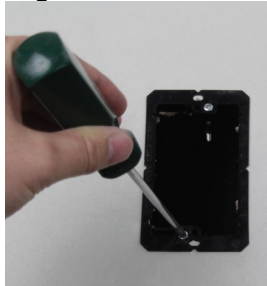
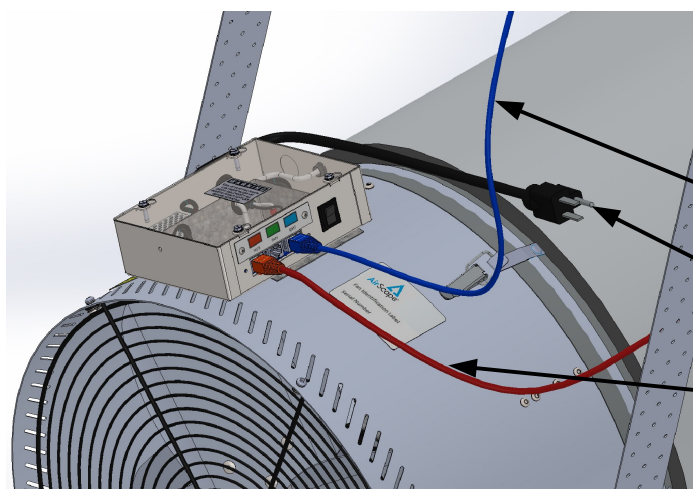| Fig A:	Fig. B:	Fig. C:	Fig. D:
Use the mounting bracket as a template to mark the hole location.	*Cut out the hole.*	*Place the mounting bracket and secure its locking tabs by tightening the silver screws*	*Connect the CAT5 cable. Mount the face plate to the bracket with the provided white screws (see Note 2:)*

All wiring connections to the fan assembly are made at the fan-mounted electrical box. These are a 20 ft, black, factory-installed power cord, and two RJ45 ("Ethernet") ports for connecting the fan controls and accessories (see below) *Color Match Cable and Jack Identification*

W/S   FAN   RMT

Blue 5 ft CAT5 Ethernet Cable
Connect to RMT and Receiver

20 ft Power Cable Connect to Wall Outlet

RED 50 ft, CAT5 Shielded Ethernet
Cable Connect to W/S and DTC

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PURCHASE OPTIONS (not included)

A wireless remote is an available accessory option for this fan. The wireless remote is **NOT** included as part of this fan's standard control package. The yellow manual included with these accessories provides specific instructions for the installation and operation of the remote.
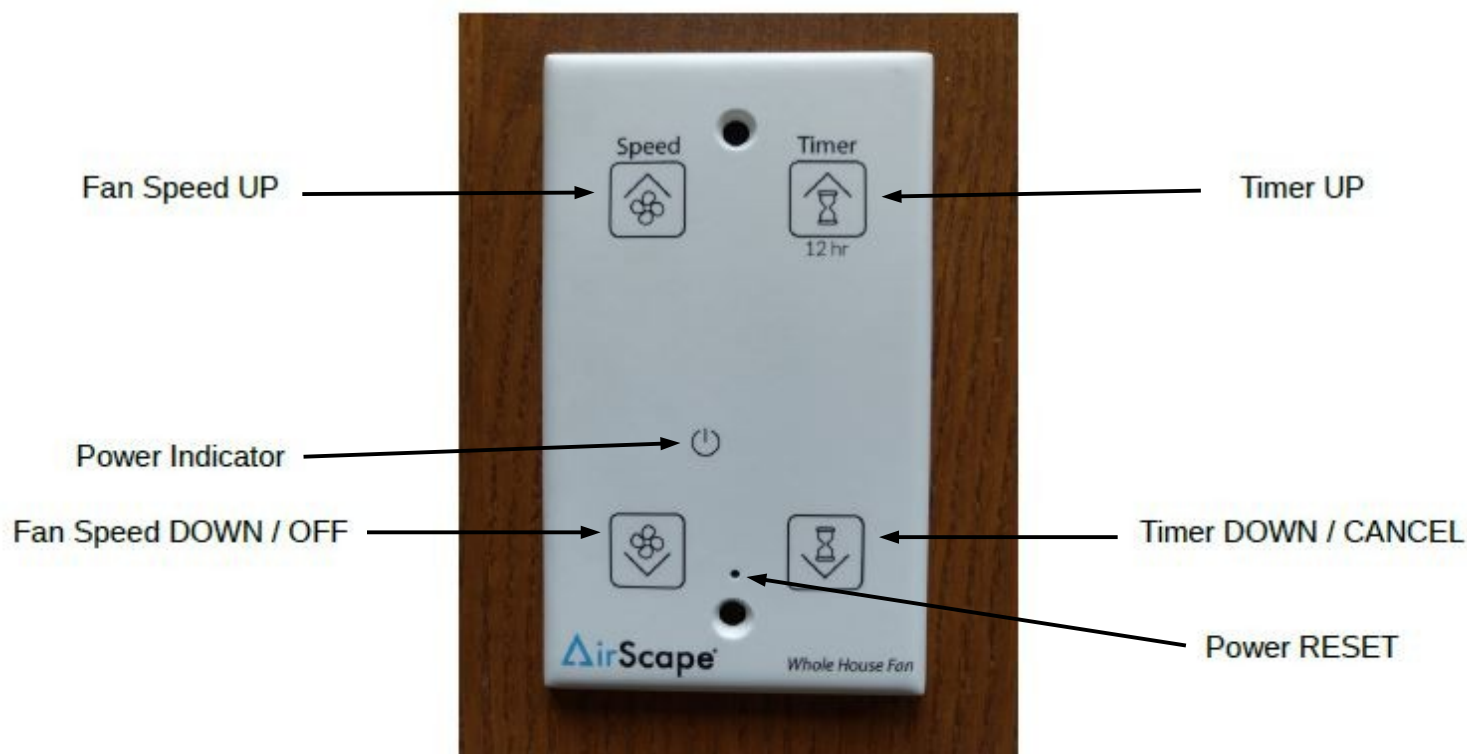*If purchased*, the wireless remote receiver is connected to the fan-mounted electrical box at the blue RMT RJ45 port. (see Image above)

START-UP AND OPERATION

Before starting this Fan for the first time, verify that:

1. All wiring and connections have been made according to this manual and acceptable wiring standards, and that this manual and all local codes and standards have been followed in this fan's installation.

2. No tools or construction debris have been left in, on, or around the fan.

3. The fan's power cord has been plugged into a <u>ground tested</u>, 120-volt outlet with uninterrupted power.

4. The area in front of the fan's outlet is as unobstructed as possible, with no object closer than 24" to the face of the fan.

When running this fan for the first time, make sure to observe it turning on, running at all of its speed settings, and turning off. Observe from both the attic (to observe the fan(s) itself) and the living space (to observe its damper door(s)), also verify Timer works at 1 Hour Setting.

As shown, there are four buttons on your fan's control interface:
When the Digital Touch Controller (DTC) is connected to the fan, and the fan to power, a red LED will illuminate.
See the Power Indicator shown above. If the Power Indicator is not illuminated; double-check the connections between the fan and the controller, between the fan and the power outlet and power at the outlet.

The AirScape Unit has ten speed settings. Turn on the Fan by touching FAN UP or TIMER UP. The fan will start at minimum speed. Green LED's will illuminate to indicate the speed setting.
Note: there is no delay on a unit with gravity doors.

If the Fan was turned on by TIMER UP, the timer will be set to one hour and blue LED's will illuminate to indicate the timer setting. Press or hold FAN UP to increase the fan's speed to maximum. Press or hold TIMER UP to increase the length of time the Fan stays on in one hour increments until the desired time, or the maximum time of 12 hours, is achieved.
If the fan is already operating at minimum speed, touch FAN DOWN/OFF to turn off the fan; any time remaining on the timer will be canceled. If the fan is at maximum speed, press or hold FAN DOWN/OFF to decrease the speed to minimum and once again to turn the fan off.

Press or hold TIMER DOWN/CANCEL to reduce the time on the timer by one hour increments until the desired time is achieved or the timer is canceled. When the timer expires, the fan will turn off automatically. If the timer is canceled, the fan will remain on at its current speed.

* Note: If untouched after a moment the selection LED's will dim.
** Note: If the Fan is on without a timer, the fan will run indefinitely.
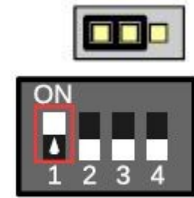

OPERATING TIPS

• Never operate your whole house fan without also opening a window or door.
  Doing so can excessively depressurize your home.

• Only operate your whole house fan when the outdoor air temperature is cooler than the
  indoor temperature.

• Make sure your air conditioner and furnace are <u>off</u> before you turn on your whole house
  fan. Running either of these together with your whole house fan wastes energy and money
  because the fan will force expensively conditioned or heated air out of your home.

• Use your whole house fan's higher speed settings to cool your home quickly in the evening.
  Then, switch to its lower settings to run it quietly and efficiently through the night.

• We recommend you run your whole house fan through the night.
  Here's why: The goal of using a whole house fan is to cool your entire home, not just the air inside it.
  Once heated, your home's structure and contents continue to radiate heat until reaching the
  temperature of the surrounding air. By running your fan through the night, you speed up this cooling
  process and can then further "pre-cool" your home, reducing or eliminating the need to use air
  conditioning the next day. AirScape fans are extremely efficient, so operating your fan in this
  way is very inexpensive, especially compared to the cost of air conditioning.

• If your home has a basement, extra cooling can be achieved by drawing in air through the
  basement windows.

• You can control where your fan's cooling effect is concentrated by adjusting the location of
  the windows you open. Visualize the path air will travel from the windows to your fan's opening.
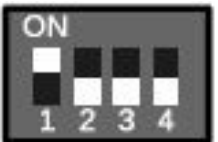 Generally, the longer the path, the more cooling.

The function of the Digital Touch Controller is dependent on the configuration of the DIP switches and pin jumper located on the back of the PCB. The jumper pins are located to the left of the RJ45 port, and the DIP switches are immediately below it.

The jumper is configured by placing it to connect two of the three pins, as shown. *

The DIP switches are configured by switching them to the ON or OFF position, depending on the switch number. A DIP switch in the ON position is set away from its number, and towards the side labeled ON, as shown.

MODEL	JUMPER SETTING	DIP SWITCH SETTING
3200 Sierra (PAL)	Pin 1-2*	1: ON 2: OFF 3: OFF 4: ON (time delay**)
3200 Ventura (AD14-22)	Pin 1-2*	1: ON 2: OFF 3: OFF 4: OFF (direct start)

*Pin 1-2 = 24VDC 80 Hz, PWM Control Signal / Pin 2-3 = 0 – 10 VDC Control Signal
** Time delay allows the door(s) to open before the fan starts

Rear View of the Digital Touch Controller

RJ45 Jack

Jumper

Dip Switch

MAINTENANCE

There is no routine maintenance required for the Fan other than making sure the Fan and its damper door(s) remain clear of dust or debris, and that the <u>area in front of the Fan remains as unobstructed</u> as possible, <u>with no object closer than 24" to the face of the Fan</u>.

A re-settable circuit breaker is located on the Fan-mounted electrical box to protect circuit boards from power surges. In the case of a power surge, this breaker can be reset by simply pushing the button back in.

TROUBLESHOOTING

Before servicing your whole house fan, turn off power to it at your home's electrical panel to reduce the risk of electrical shock, injury, fire, and/or circuit board damage.

Your AirScape Whole House Fan has been factory tested. If you encounter problems with the unit, please take a few minutes to run through the following troubleshooting procedures *before calling for technical support.*

NOTE: a "kinked" CAT5E Cable may cause all of the listed symptoms. Use a second short cable and plug the wall switch (controller) directly into the W/S port on the fan to rule out a cable issue before proceeding.

Symptom: Unit does not start
Possible causes: No power to unit or kinked Ethernet Cable
Suggestion 1: Is the Red LED on the DTC** on? Reset the DTC Power (see Start-Up & Operation).
Suggestion 2: Check the re-settable circuit breaker on fan's electrical box.
Suggestion 3: Take DTC into the attic and connect it to the W/S port using another CAT5 Cable.
Suggestion 4: Check power (115VAC) at the electrical outlet, inside the fan's electrical box wiring at both the power supply (115VAC) and the SCAB* (24VDC inside the fan's electrical box).
** DTC = Digital Touch Controller

Symptom: Door(s) does not open, but Fan starts ((PAL) actuated units only).
Possible causes: No power to damper, or damper shaft loose.
Suggestion 1: Operate door(s) manually using the <u>Actuator Clutch</u>. Verify that the Actuator rotates with the door shaft and that the shaft rotates with the door.
Suggestion 2: Check for 24VDC at the actuator(s) harness and at the SCAB* (fan's electrical box)

Symptom: Door(s) open but Fan does not start ((PAL) actuated units only).
Possible causes: Wiring issue between SCAB* and Fan
Suggestion 1: Open Fan's electrical box and check for power (115VAC) at the fan's power wires.
Suggestion 2: Check for pwm (control 0-24VDC, 80Hz PWM) signal at fan's control wire connections on the SCAB*.

* SCAB = Simple Controller Attic Board / FAN BOX MOUNTED BOARD

Symptom: Wireless remote does not Operate.
Possible causes: Battery, RF interference.
Suggestion 1: Check transmitter's battery for power. Replace if necessary.
Suggestion 2: Check to see if LED on the remote receiver in the attic is lit.
Open the cover and see if internal LED's respond by pressing a button on the remote.
Suggestion 3: Temporarily replace the CAT5 Ethernet cable.
Suggestion 4: Check for red LED response on DTC when pressing the remote buttons.

If problems are encountered, please take a few moments to run through the troubleshooting procedures described on the blue Warranty Card. If these suggestions do not work, contact AirScape technical support *at* <u>1.866.448.4187</u> *or by email at* <u>experts@airscapefans.com</u> *for further assistance.*

SPECIFICATIONS – 3200 VENTURA WHOLE HOUSE FAN SYSTEM

Dimensions Fan:	Ø 21.5" × 11" (diameter × depth)
Weight Fan:	25 lbs
AirDoor14-22:	14.25" x 22.25" x 11.25" (WxLxH)
Weight AD14-22:	6 lbs
Acoustical Duct:	Ø 20" x 7 foot long
Duct Weight:	11.5 lbs
Tested Airflow*:	9 / 3217 CFM (Low / High)
Tested Power*:	14 / 310 Watts (Low / High)
Tested Noise:**	43 / 60 dBA (Low / High)
Rough Opening:	14.5" × 22.5"
Electrical:	120 VAC, 60 Hz, 15 amps
Installation:	16" or 24" O/C joists
Controls:	Low Voltage, Digital Touch Controller, optional wireless remote
Speed Settings:	10
Warranty:	3 years parts; 1 years controls

* *Actual performance will vary from installation to installation.*
** Tested at 45° and 1 meter from source.
Due to continual product improvement, performance ratings and specifications are subject to change without notice.

NOTES:

Digital Touch Controller

Optional Remote

Speed

Timer
12 hr

AirScape

Optional Remote
Receiver

Fan Motor
(incl. Wiring)

Optional Blue CAT5E Cable (5ft)

Motor Control Harness (24V PWM)

Red CAT5E (Ethernet) Cable

FAN BOX

L N (AC)

Power Supply
120VAC IN,
24VDC OUT

N ⏚ -V +V

RMT

FAN

W/S

120 VAC

EL-204
Shunt/Jumper
(actuator power)

24VDC

FAN BOX BOARD

Resetable Circuit Breaker

20 foot Power Cord
120VAC, 60Hz, 1 Phase, 2.5A