# Installation, Operation and Maintenance Manual

Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.

Ceiling Exhaust Fan

Designed for clean air applications where low sound levels are required. Many options and accessories are available such as lights, motion detectors, humidity sensors, CO_2 sensors, and night lights.
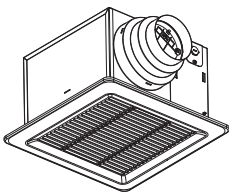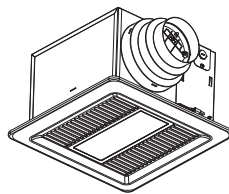
SP-AP0511W   **SP-AP0511WL**

General Safety Information

Only qualified personnel should install this fan. Personnel should have a clear understanding of these instructions and should be aware of general safety precautions. Improper installation can result in electric shock, possible injury due to coming in contact with moving parts, as well as other potential hazards.

1. Do not install this ventilation fan where interior room temperature may exceed 104°F (40°C).

2. Make sure that the electric service supply voltage is AC 120V, 60Hz.

3. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the National Fire Protection Agency (NFPA), where applicable. Follow the Canadian Electric Code (CEC) in Canada.

4. Always disconnect the power source before working on or near the fan, motor, light fixture, or junction box.

5. Protect the power cord from sharp edges, oil, grease, hot surfaces, chemicals or other objects.

6   Do not kink the power cord.

7. Do not install the unit where ducts are configured as shown in Fig. 2.
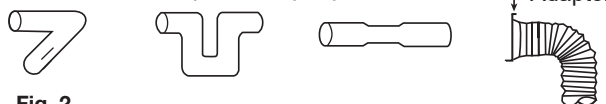
8. Provide make up air for proper ventilation.

Fig. 2

Table of Contents

CAUTION!

*   For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.
*   Not for use in cooking areas (Fig. 1)
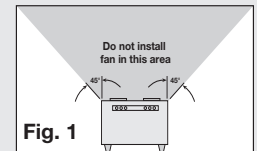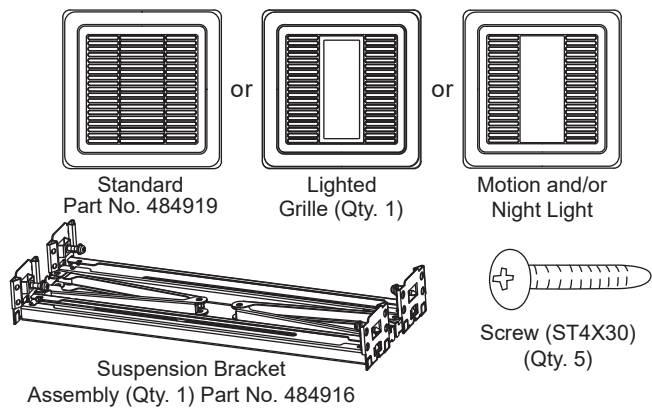*   This product must be properly grounded.

Do not install fan in this area

Fig. 1

WARNING!

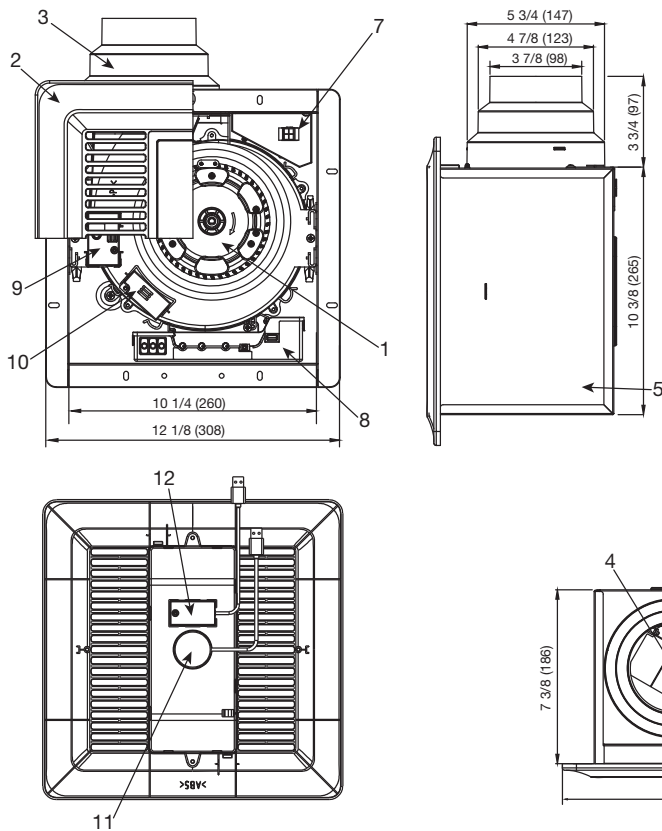*To reduce the risk of fire, electric shock, or injury to persons, observe the following:*

*   Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

*   Before servicing or cleaning unit, switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

*   Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.

*   Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and the local code authorities.

*   When cutting or drilling into a wall or ceiling, do not damage electrical wiring or other hidden utilities.

*   Ducted fans must always be vented to the outdoors.

*   Do not use this fan with any solid state speed control.

*   If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a Ground Fault Circuit Interrupter (GFCI) protected branch circuit.

*   These models are ETL listed for tub and shower enclosures.

*   These fans are not to be installed in a ceiling thermally insulated to a value greater than R40.
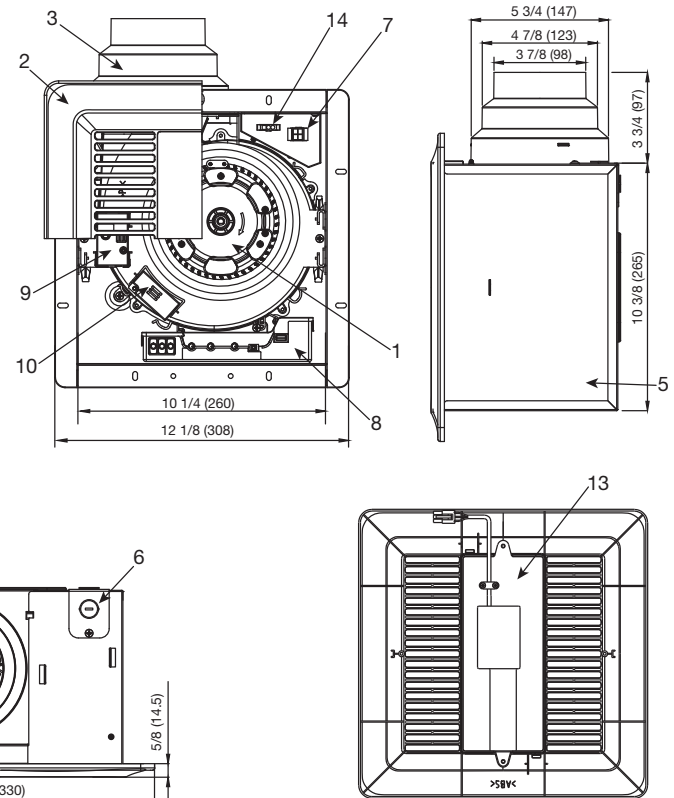
Supplied Accessories

Standard
Part No. 484919

or

Lighted
Grille (Qty. 1)

or

Motion and/or
Night Light

Suspension Bracket
Assembly (Qty. 1) Part No. 484916

Screw (ST4X30)
(Qty. 5)

Dimensional Data

SP-AP0511W (shown with optional sensor insert)

SP-AP0511WL (shown with light)

Unit dimensions are inches (mm)

| No.	Description	Part No.	No.	Description	Part No.
1	Wheel	484920	8	Control box	484920
2	Grille	484919	9	Humidity sensor module	386691
3	Duct adaptor	484918	10	CO_2 sensor module	386693
4	Damper	484918	11	Night light module	386692
5	Housing		12	Motion sensor module	387323
6	Knockout plate	484917	13	LED light (includes night light)	483965
7	Junction box		14	LED light receptacle	483953

Wiring Diagrams

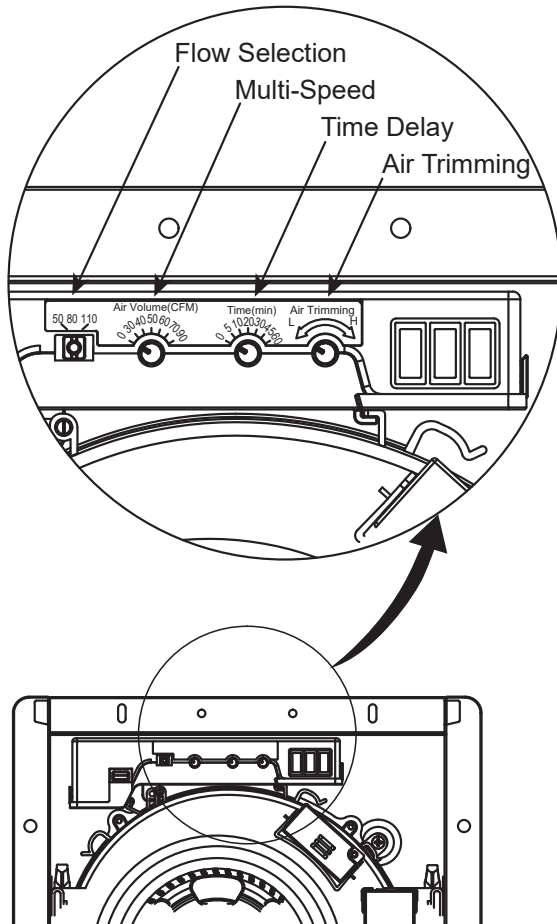## Fan only model
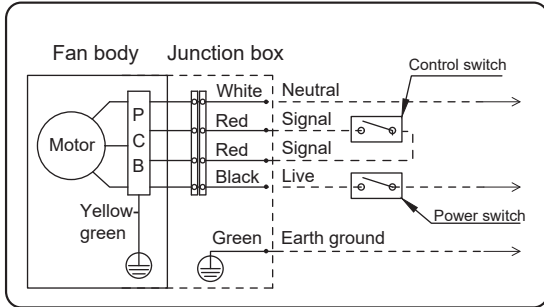
CAUTION

Do not apply 115V to red wires.

With light model
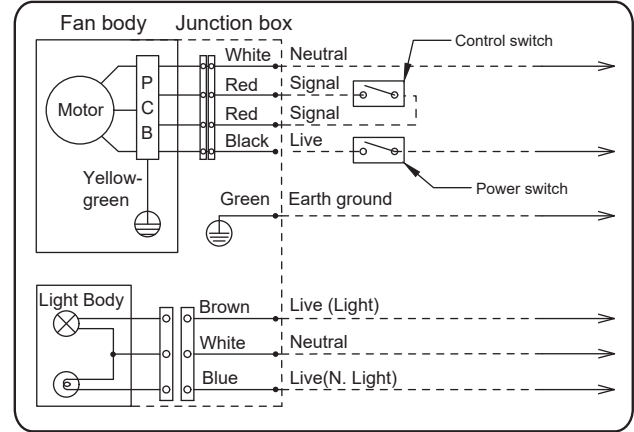
Features

All fans are supplied with flow selection switch, multi-speed dial, time delay dial and air trimming dial.

- **Flow Selection**: The switch chooses 50, 80 or 110 cfm and is the default high speed.
- **Multi-Speed**: The switch allows the fan to run continuously at low speed.

  Example: Flow Selection setting is 110 cfm, Multi-Speed can be chosen 0, 30, 40, 50, 60, 70 or 90 cfm as a low speed
- **Time Delay**: This sets the time required to return to low speed after high speed input is completed. Setting range is 0, 5, 10, 20, 30, 45 or 60 minutes.
- **Air Trimming**: Allows for adjustment of the airflow up to 70 cfm. Dial adjustments impact high and low speed.

Plug and Play Accessories

Humidity Sensor: The fan runs at or boosts to high speed when humidity value exceeds user selected set point. The fan returns to low speed after a period of time delay or when humidity value is lower than set point. Humidity detection value setting range: 30%-80%.
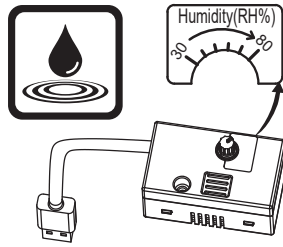
CO_2 Sensor: The module begins to detect environmental CO_2 concentration when fan has been on for 2 minutes. The fan runs at or boosts to high speed when concentration level is over 1000 ppm. The fan returns to low speed after a period of time delay or when concentration level is less than 800 ppm.
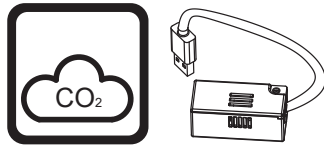
Motion Sensor: The fan runs or boosts to high speed when motion sensor is activated. The fan returns to low speed after a period of time delay or when you are out of detection range. The range is limited to 10 ft. height and a 90° field of view.
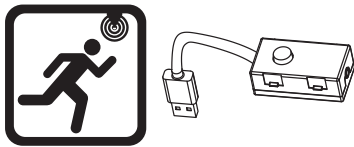
Night Light: Night Light module automatically turns on according to environmental brightness. The night light automatically turns on when the environment is dark, and turns off when the environment is well lit.
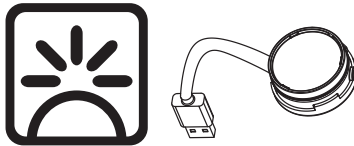
NOTE
All accessories are sold separately and are not included in base fan model.

A maximum of three accessories can be used. Optional accessories and model compatibility are listed as follows.

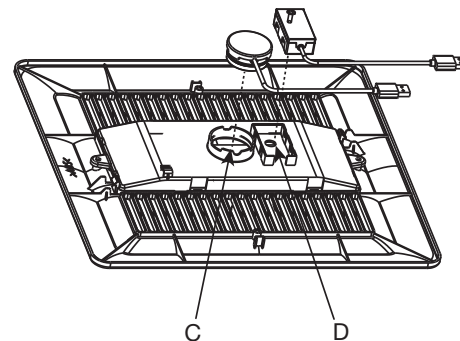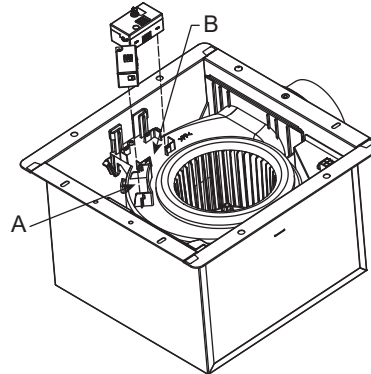| Model	CO$_2$ Sensor	Humidity Sensor	Motion Sensor	Night Light	LED Light
SP-AP0511W	X	X	X	X	
SP-AP0511WL	X	X		Included	X

Installation of plug and play accessories

You can purchase the specified devices described. Install into the corresponding position:
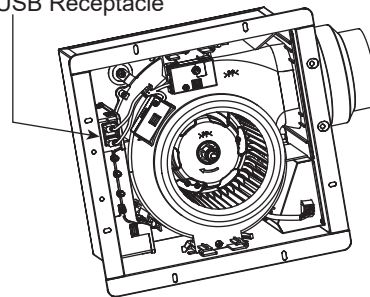
Position **A** is for CO_2 Sensor
Position **B** is for Humidity Sensor
Position **C** is for Night Light
Position **D** is for Motion Sensor

Attach the specified devices to the slot, until you hear the device click into place.

Access USB interface, insert the connector of the accessory into USB receptacle.

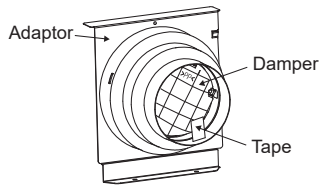# Installation for New Construction

IMPORTANT
Remove the tape from the damper and adaptor before installation. Adaptor — Damper — Tape

Joist Information

• 12 inches (305 mm)

If the spacing of L is 12 inches (305 mm) on center, follow the installation as shown in Fig. 1.

Secure four screws (ST4X30) at flange of frame to the joists.

Then follow steps 6 through 9 on (pages 6 through 7) to complete the installation.
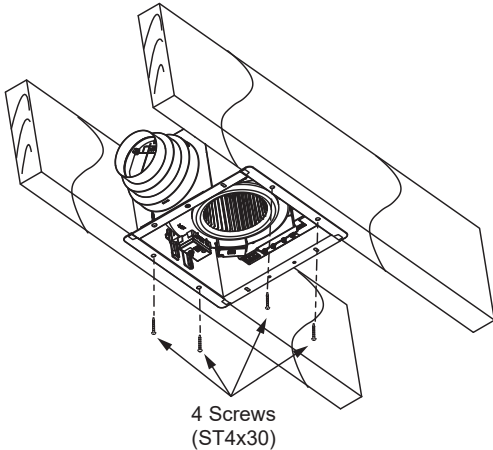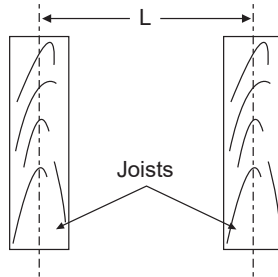

L — Joists

4 Screws (ST4x30)

Fig. 1: 12 inch On Center Joists

• 16 to 24 inches (406 to 610 mm)

If the spacing of L is 16 to 24 inches (406-610 mm), please use the suspension bracket assembly as shown in Figures 2a and 2b.
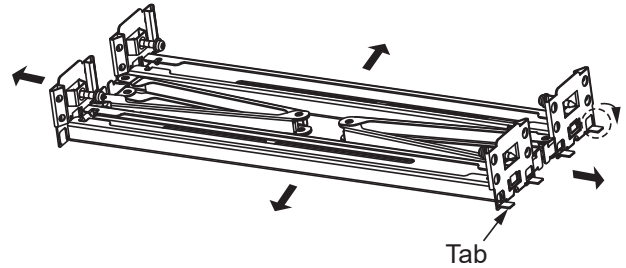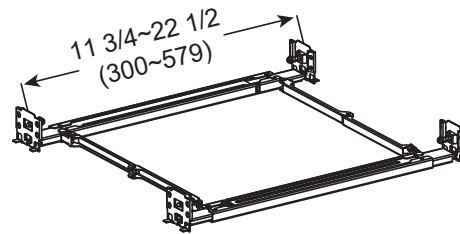

Tab

Fig. 2a: 16 to 24 inch On Center Joists Suspension Bracket Assembly

11 3/4~22 1/2 (300~579)

Unit: inches (mm)

Fig. 2b: Suspension Bracket Assembly

Suspension Bracket Installation, Steps 1 through 11

1. Bend down the eight tabs for positioning as shown in Fig. 2a and unfold the bracket assembly, Fig. 2b.

2. Attach one side of the bracket assembly to the joists by drilling 2 captured self-tapping screws (ST4X20). See Fig. 3.

3. Adjust the length of the bracket assembly by pulling the unsecured end of the bracket assembly towards the joist. Attach the unsecured side of the bracket assembly to the joist by drilling the (2) captured, self-tapping screws (ST4X20) to the joist. See Fig. 3.
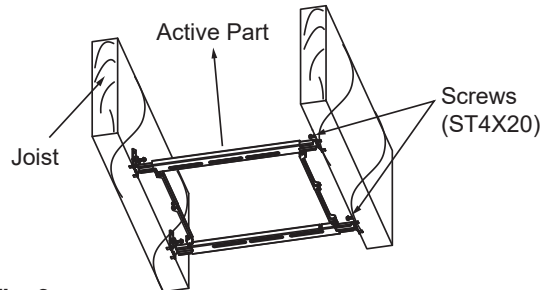

Active Part

Screws (ST4X20)

Joist

Fig. 3

4. Place the adaptor on the bracket assembly as indicated and install it by using 2 self-tapping screws (ST4X30). See Fig. 4

Fig. 4

2 Screws (ST4X30)

Position of adaptor

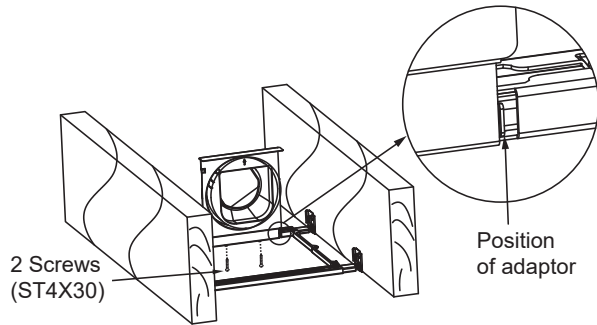5. Push the fan body upwards until the fan body engages the buckle on the adaptor and secure the fan body by using the other 3 self-tapping screws (ST4X30). See Fig. 5
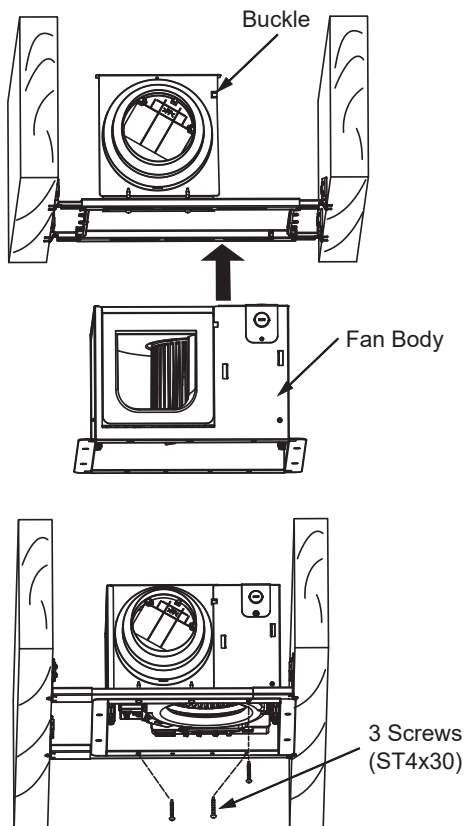

Buckle

Fan Body

3 Screws (ST4x30)

Fig. 5

<div>

CAUTION

Hold the fan body to prevent falling before installing the screws.

</div>

6. Install circular duct and secure it with clamps or ties and seal it with mastic or approved duct tape. Duct adaptor can accept 4, 5 or 6 inch (101.6, 127 or 152.4 mm) circular duct. See Fig. 6
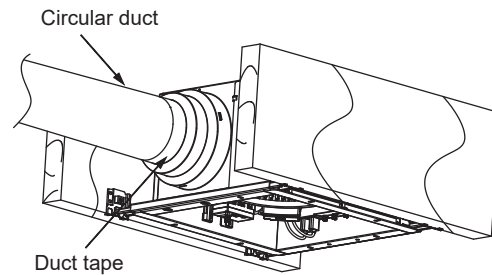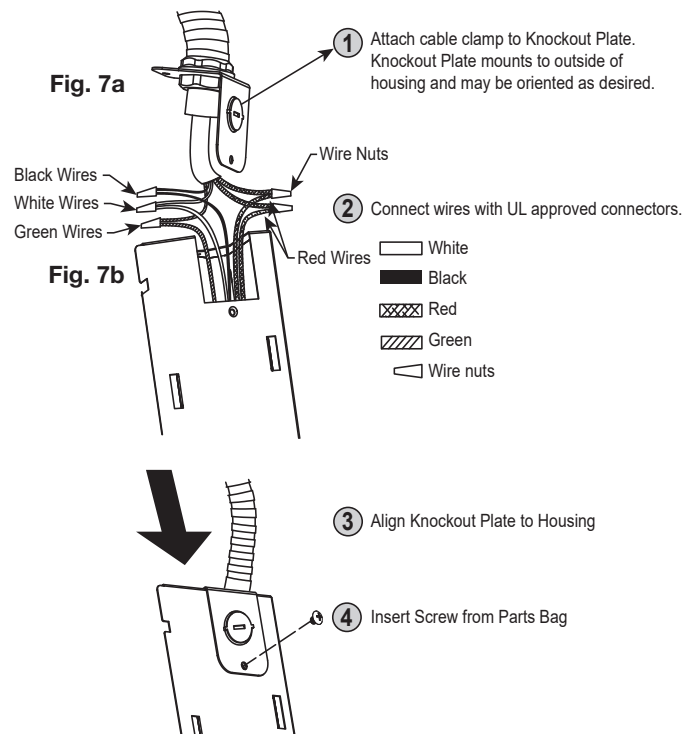

Circular duct

Duct tape

Fig. 6

<div>

IMPORTANT

Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the National Fire Protection Agency (NFPA), where applicable. Follow the Canadian Electric Code (CEC) in Canada.

</div>

7. Remove the knockout plate and secure conduit or stress relief to knockout hole. See Fig. 7a.

Refer to wiring diagrams on page 3. Use UL approved connectors to connect the incoming power wires to the ventilation fan wires, see Fig. 7b. Then attach knockout plate to the fan body.

Fig. 7a

1 Attach cable clamp to Knockout Plate. Knockout Plate mounts to outside of housing and may be oriented as desired.

Wire Nuts

Black Wires
White Wires
Green Wires

Red Wires

Fig. 7b

2 Connect wires with UL approved connectors.

White
Black
Red
Green
Wire nuts

3 Align Knockout Plate to Housing

4 Insert Screw from Parts Bag

8. Finish ceiling work. Ceiling hole to be aligned with the inside edges of the flange. See Fig. 8

10-3/8 (265)
10-3/8 (265)
Caulk
Ceiling

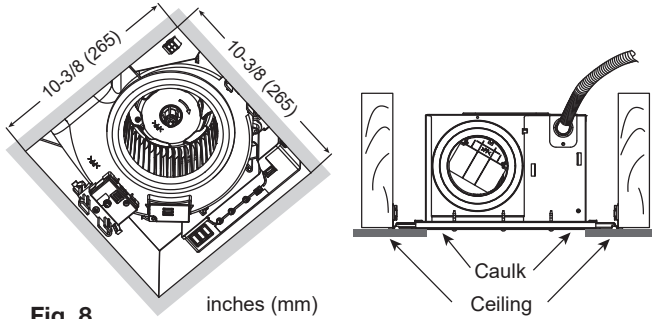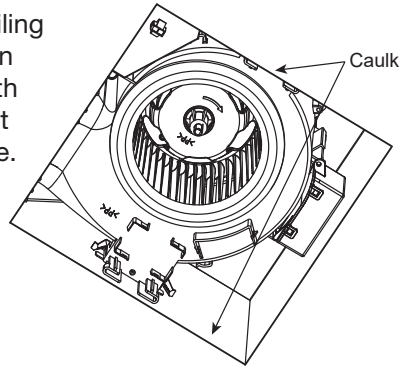**Fig. 8**   inches (mm)

IMPORTANT

After finishing the ceiling work, fill gap between flange and ceiling with caulk or other sealant to prevent air leakage.

Caulk

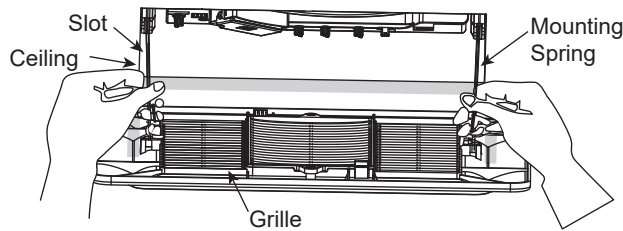9. Insert mounting springs into slots and mount grille to fan body. See Fig. 9

Slot
Ceiling
Mounting Spring
Grille

Fig. 9

10. **For model SP-AP0511WL, with light**

CAUTION

• Before turning on the light, make sure the plug is fully engaged.

Fig. 10

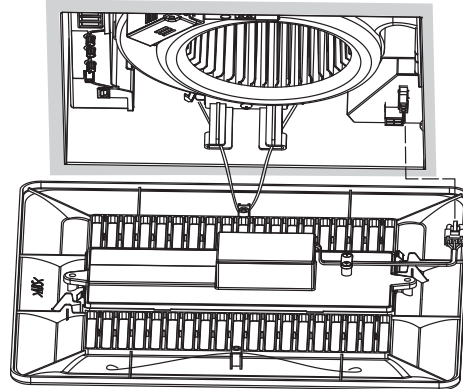a. Insert the grille mounting spring on the wiring side into the slot. See Fig. 10

b. Insert the plug into the receptacle in the housing and insert the other mounting spring into the slot as shown and mount grille to fan body.
See Fig. 10 and Fig. 11

CAUTION

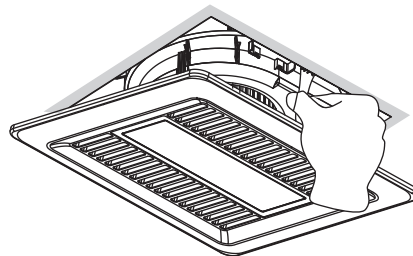Mount carefully so that light wiring is not pinched.

Fig. 11

11. For grille with a module, refer to the following installation method.

   a. Insert the grille mounting spring on the wiring side into the slot.

   b. Insert the USB connector into the USB receptacle (see page 4 for appropriate USB port configuration) and insert other mounting spring into the slot as shown and mount grille to fan body. Avoid pinching module wires. (Fig. 12)
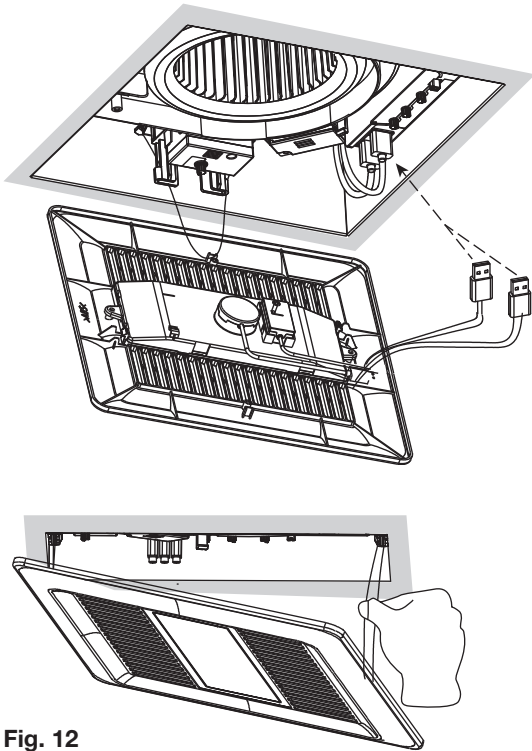
Fig. 12

Retrofit Installation

1. Insert the collapsed bracket into ceiling from roomside, then follow steps 3-4 of Installation for New Construction (page 5-6) to complete the bracket installation work. See Fig. 13 and Fig. 14
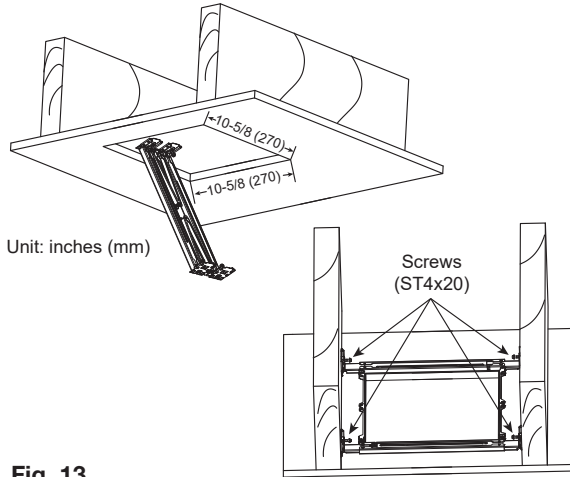

Unit: inches (mm)

Screws (ST4x20)

Fig. 13

2. Install circular duct and secure it with clamps or ties and seal the joint/seam with mastic or approved duct tape. Duct adaptor can accept 4, 5 or 6 in. (101.6, 127 or 152.4 mm) circular duct. See Fig. 14
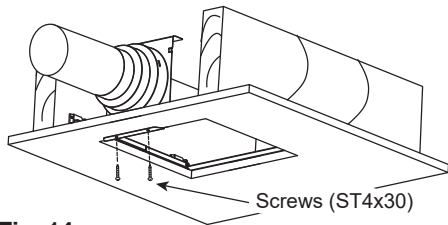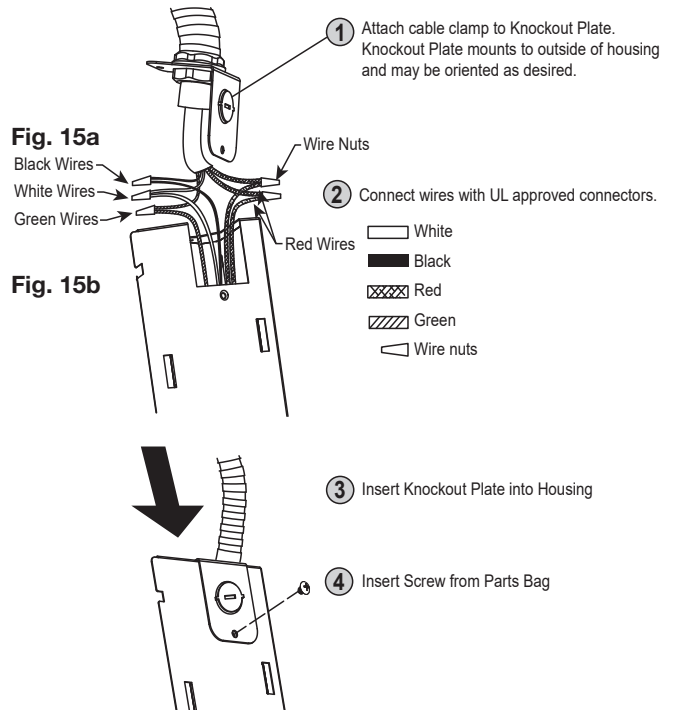

Screws (ST4x30)

Fig. 14

3. Remove the knockout plate and secure the conduit or stress relief to knockout hole. See Fig. 15a.

   Refer to wiring diagram on page 3. Using UL approved wire nuts, connect incoming power wires to the ventilating fan wires, see Fig. 15b, then attach knock out plate to the fan body.

① Attach cable clamp to Knockout Plate. Knockout Plate mounts to outside of housing and may be oriented as desired.

Fig. 15a

Wire Nuts

Black Wires
White Wires
Green Wires

Red Wires

Fig. 15b

② Connect wires with UL approved connectors.

▭ White
▬ Black
▨ Red
▨ Green
◁ Wire nuts

③ Insert Knockout Plate into Housing

④ Insert Screw from Parts Bag

4. Push the fan body upwards until the mounting flange is flush with the joint and secure by using the other 3 self-tapping screws (ST4X30). See Fig. 16

Fig. 16

3 Screws (ST4x30)
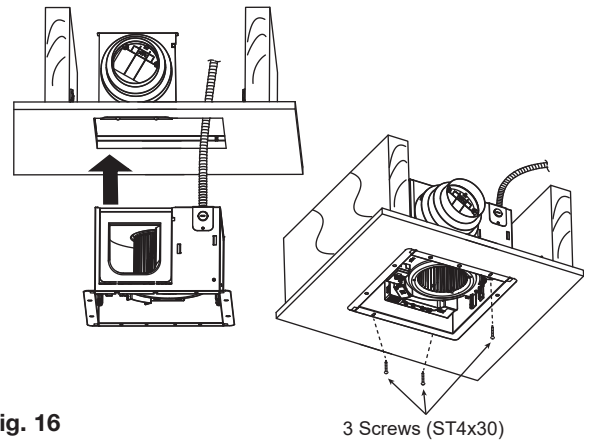
5. Follow step 8 of installation (New Construction) (page 7) to complete the installation.

Maintenance

Cleaning

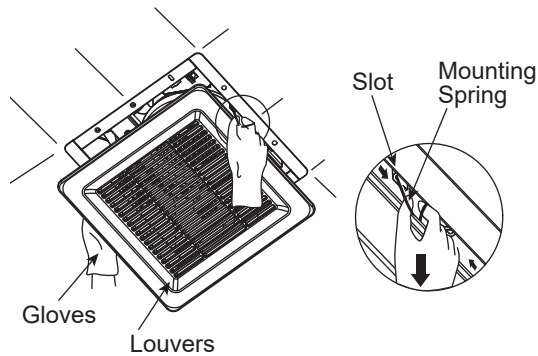1. Remove grille. Squeeze mounting spring and pull down carefully. See Fig. 17

Fig. 17

2. Clean grille. Do not put into hot water. Use non-abrasive kitchen detergent, wipe dry with clean cloth. See Fig. 18
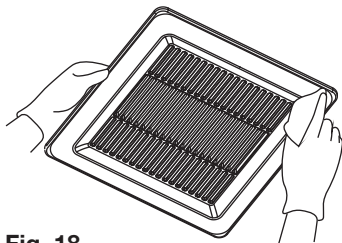

Fig. 18

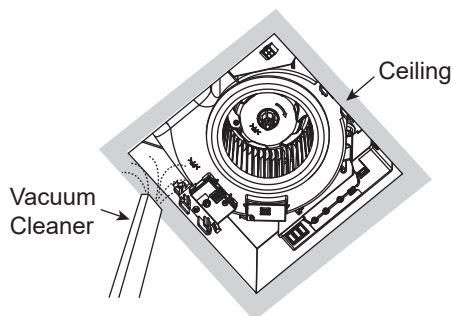4. Remove dust and dirt from fan body using a vacuum cleaner. See Fig. 19

Fig. 19

5. Using a cloth dampened with kitchen detergent; remove any dirt from fan body. Wipe dry with clean cloth. See Fig. 20
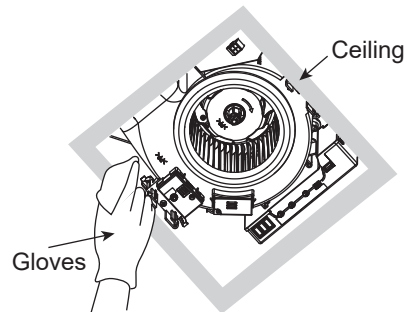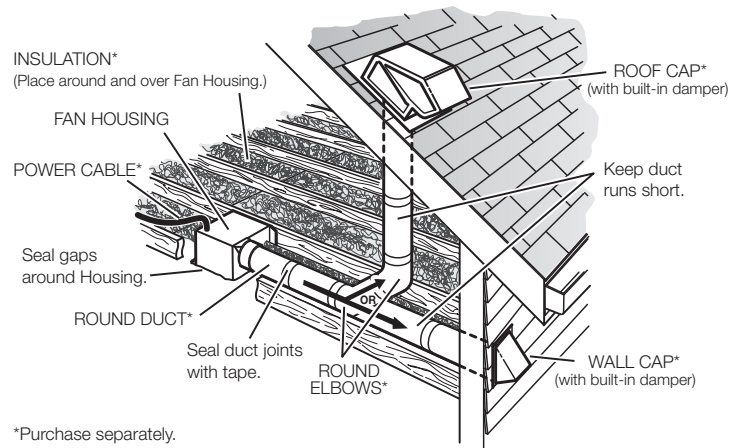

Fig. 20

6. Reinstall grille.

Typical Installation

The ducting from this fan to the outside of the building has a strong effect on the airflow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated airflow.

Rigid metal duct is recommended for optimal fan performance.

Ensure duct joints and exterior penetrations are sealed with caulk or other similar material to create an air-tight path and to minimize building heat loss and gain and reduce the potential for condensation.

Place/wrap insulation around duct and/or fan to in order to minimize possible condensation buildup within the duct, as well as minimize building heat loss and gain.

INSULATION*
(Place around and over Fan Housing.)

FAN HOUSING

POWER CABLE*

Seal gaps around Housing.

ROUND DUCT*

Seal duct joints with tape.

ROUND ELBOWS*

ROOF CAP*
(with built-in damper)

Keep duct runs short.

WALL CAP*
(with built-in damper)

*Purchase separately.

Our Commitment

AMCA Publication 410-96, Safety Practices for Users and Installers of Industrial and Commercial Fans, provides additional safety information. This publication can be obtained from AMCA International, Inc. at www.amca.org.

GREENHECK

Building Value in Air.