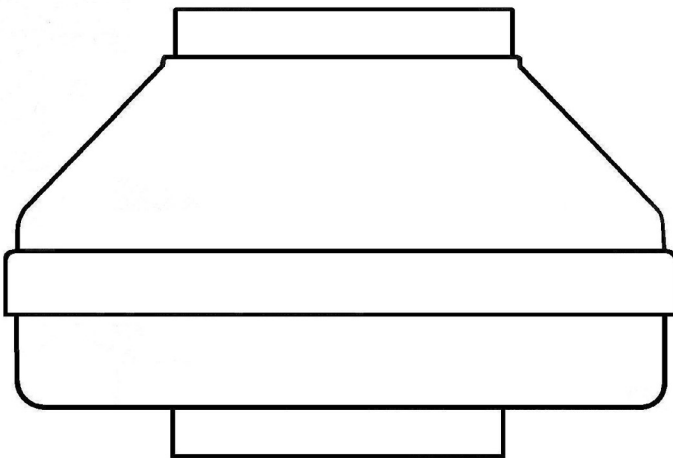


# RB Series Installation Instructions

by



RB110  
RB275  
RB300  
RB350  
RB400  
RB500

Spruce Environmental Technologies, Inc.  
Ward Hill, MA P/N IN018 Rev H

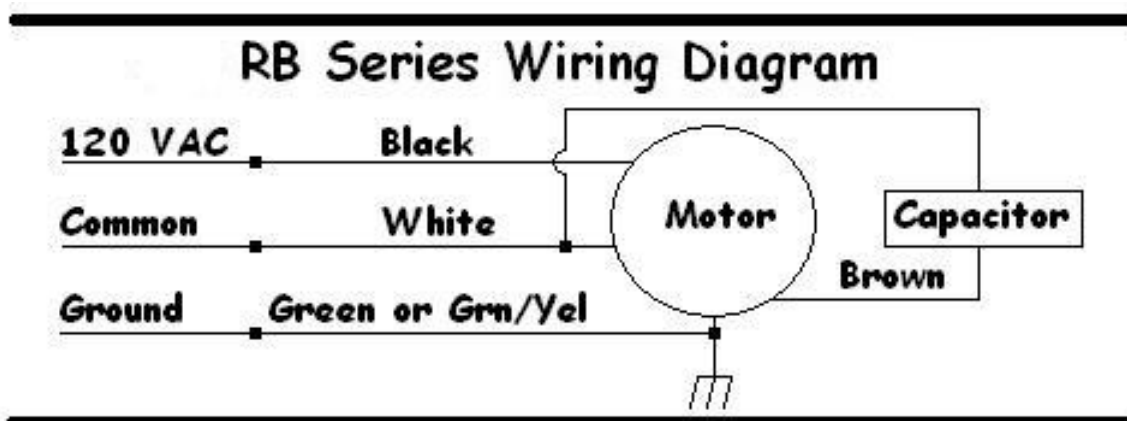


**Please Read And Save These Instructions.**

**WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**

- a) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- b) 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.
- c) When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- d) Ducted fans must always be vented to the outdoors.
- e) 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 GFCI (Ground Fault Circuit Interrupter) - protected branch circuit.
- f) NEVER place a switch where it can be reached from a tub or shower.
- g) Use this unit only in the manner intended by the manufacturer. If you have any questions, contact the manufacturer.
- h) Before servicing or cleaning unit, switch power off at service panel and lock the service connecting 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.
- i) Fan is suitable for use with solid-state speed controls.

**CAUTION: For General Ventilating Use Only. Do Not Use To Exhaust Hazardous Or Explosive Materials And Vapors.**





## INSTALLATION INSTRUCTIONS IN018 Rev H

### RB Series

RB110	P/N 23046-1, 28128
RB275	P/N 23034-1, 28115
RB300	P/N 23022-1, 28088
RB350	P/N 23023-1, 28261
RB400	P/N 23052-1, 28206
RB500	P/N 23053-1, 28207

### 1.0 Mounting

The Spruce RB Series fans may be mounted at any angle without affecting performance although the vertical mounting position shown in Fig. 1 is **highly recommended**. If the vertical mounting position is not possible, care should be taken to avoid creating a low spot in the fan/duct system where condensation might accumulate in the fan housing as shown in Fig. 2. In situations where horizontal mounting is desired and condensation is likely to occur (bathroom ventilation in cold climates) this problem might be avoided by mounting the fan 30 degrees beyond horizontal as shown in Fig. 3.

Fig. 1

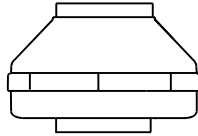


Fig. 2

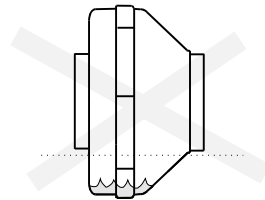
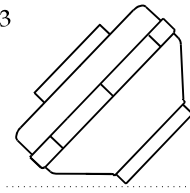


Fig. 3



### 2.0 Ducting

Any type of ducting is acceptable, however, flexible nonmetallic ducting is recommended for easy installation and quieter operation. Insulated flexible ducting is **highly recommended** in cold climates to prevent the warm bathroom air from forming condensation in the ducting where it is exposed to colder attic air. The outlet of the fan should always be ducted to the outside. Avoid venting the outlet of the fan directly into an attic area. The excess moisture from the bathroom can cause damage to building structure and any items stored in the attic. Multiple venting points may be connected together using a "T" or "Y" fitting. Ideally Duct should be arranged such that equal duct lengths are used between intake and "T" or "Y" fitting, this will result in equal flow rates in each intake branch. If adjustable intake grilles are used on multi-intake systems then the opening on each grill should be equal in order to minimize noise and resistance. Straight smooth runs of ducting will present the least resistance and maximize system performance. Flexible ducting must always be as close to being fully extended as possible.

For quietest performance, the fan should be mounted further away from the inlet duct, near the outside vent. A minimum distance of 10 feet is recommended between the fan or T/Y of a multi-intake system and intake grille(s).

### 3.0 Backdraft Dampers

Backdraft dampers allow airflow in only one direction preventing cold/hot drafts from entering the vented area and minimize possible condensation and icing within the system while the fan is not operating. Backdraft dampers are **highly recommended** at each intake grille for bathroom ventilation in all cold climate installations. Installation instructions are included with Spruce back draft dampers.

### 4.0 Electrical Wiring

Electrical connection to the fan should be performed by a qualified person in accordance with all local, state and national electrical codes. A Ground Fault Interrupter (GFI) circuit is not required in most installations, check your local codes.

### 5.0 Applications

Suitable for general ventilation, bathroom venting, fresh air supply, duct boosting, building pressurization, etc. The RB110 and RB350 are suitable for dryer boosting.

**Not suitable for kitchen range hood venting.**

## 6.0 Installation

**Step 1:** Install Mounting Bracket as shown (RB110 & RB 275 Only, separate instructions for RB400 & RB500 are included with Mounting Bracket Kit). Insert Grommets into slots in mounting bracket. Orientate the Electrical Box relative to Mounting Bracket as required. Attach the fan to the mounting bracket with (3) #10 self-tapping screws, provided. Avoid over tightening screws.



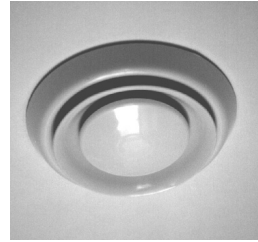
**Step 2:** Select location for fan mounting. A location 2/3 along the ducting, a minimum of 10 feet away from the inlet vent to the fan or the Y/T of a multi-intake system will provide the quietest operation. Fan should be mounted vertically to prevent moisture from accumulating in the fan housing. Attach bracket to mounting structure with the 1 1/4" screws provided.



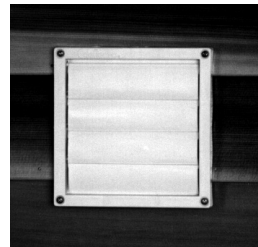
**Step 3:** Connect ductwork between fan inlet and area to be vented through inlet grille. Flexible, nonmetallic ducting is recommended for quietest operation and easiest installation. Insulated flexible ducting is **highly recommended** for bathroom ventilation in all cold climate installations. Metal worm drive clamps, spring clamps, adjustable plastic ratchets are recommended for connection of ducting. Duct Tape should be used to retain insulation.



**Step 4:** Connect inlet grille(s). An optional backdraft damper may be installed in the inlet grille to prevent cold air from backing into the inlet and also prevent condensation from forming inside the ductwork. Backdraft dampers are **highly recommended** at each intake grille for bathroom ventilation in all cold climate installations.



**Step 5:** Connect outlet of fan to outside vent. The outside vent may go through the roof, sidewall or soffit as desired. Flexible, nonmetallic ducting is recommended for quietest operation and easiest installation. Insulated flexible ducting is **highly recommended** for bathroom ventilation in all cold climate installations.



**Step 6:** Make electrical connection to fan.

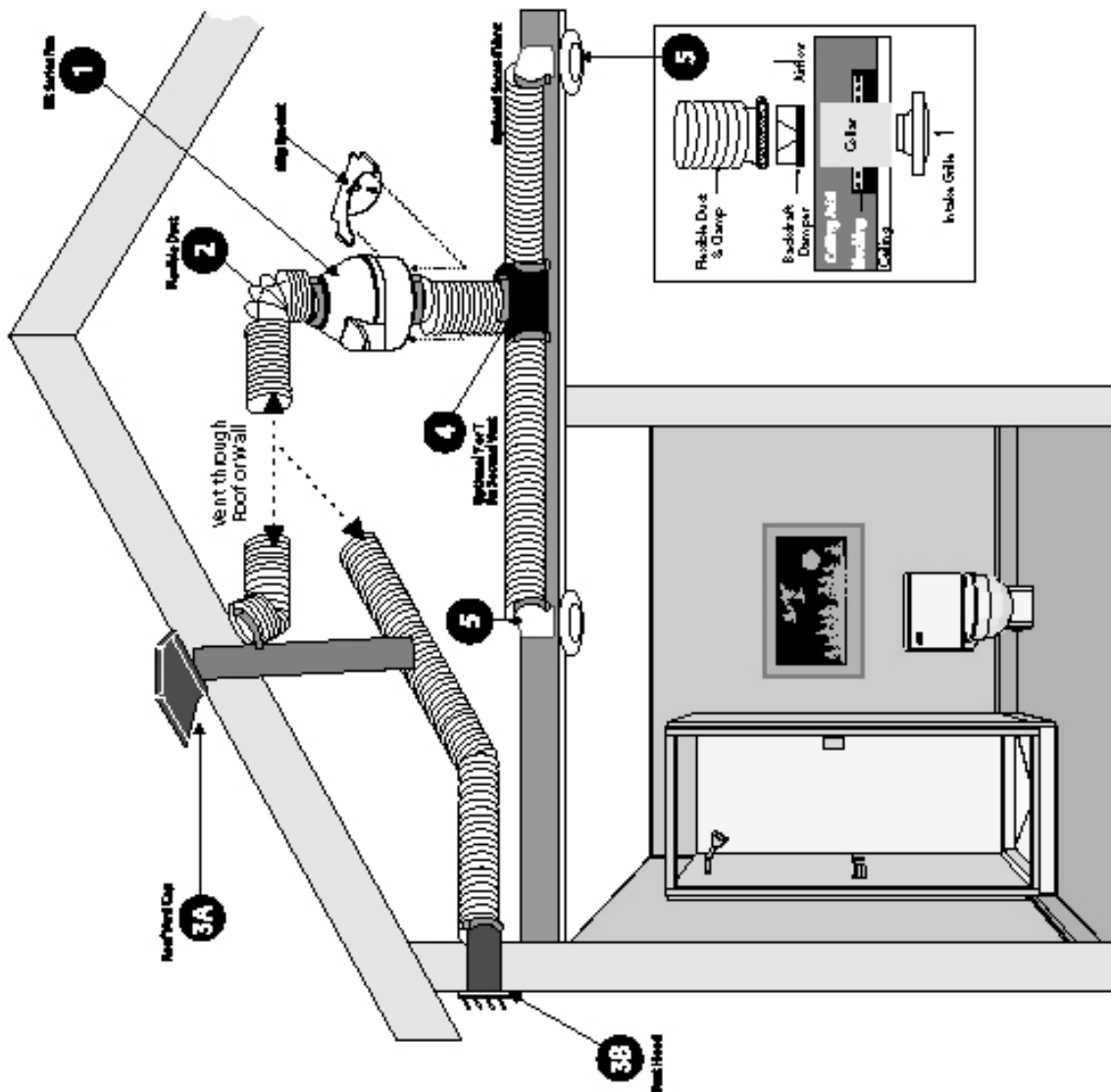
Insure any metal fitting used in the installation is properly grounded. A plastic cable connector such as a T&B #3300 may be used to avoid any fitting-grounding problem. Observe the proper wiring connections:



RB Series Wire	AC Connection
Black	AC Line
White	AC Common
Green or Grn/Yel	Ground



# Typical RB Series Fan Installation



**1**

RB Series Fans

- RB110 - P/N 23046-1, 281.28
- RB275 - P/N 23034-1, 281.15
- RB300 - P/N 23022-1, 280.88
- RB350 - P/N 23023-1, 282.61
- RB400 - P/N 23052-1, 282.06
- RB500 - P/N 23053-1, 282.07

Mounting Bracket included

**2**

Flexible Duct

Insulated Ducting is strongly recommended in colder climates

**3A**

Roof Vent Cap

or

**3B**

Vent Hood

**4**

YorT for Optional Second Vent

**5**

Vent Details

Deluxe Metal Backdraft Damper Duct Grille & Collar

Backdraft Dampers are strongly recommended in colder climates.