

**Skill Level: INTERMEDIATE** Give these projects a try if you're a confident DIYer with a good working knowledge of a variety of tools. They can take a day or more to complete. If you can build a birdhouse or install a ceiling fan, your skill level is probably appropriate.

### ✓ MATERIALS

- New Exhaust Fan
- Screwdrivers (Slotted/Standard and Cross-head/Phillips)
- Drill with Bits
- Pliers
- Keyhole Saw or Reciprocating Saw—if enlarging the size of the hole
- Wallboard Repair Supplies—if reducing the size of the hole
- Dust Mask
- Duct Tape
- Electrical Tape
- Masking Tape
- Circuit Tester
- Wire Connectors—if not included with fan
- Wire Strippers
- Utility Knife
- Pencil
- Marker
- Work Light
- Drop Cloth
- Safety Glasses
- Plywood—if needed for attic floor support

Moisture in a bathroom is expected. But too much moisture can lead to problems—like mold. That's why it's important to have an efficient exhaust fan to remove humid air from your bathrooms. If your fan is old, noisy, or inefficient, it's time to replace it.

### GETTING STARTED

#### 01 Select a replacement exhaust fan.

- Modern bathroom exhaust fans are available with heaters, decorative lights, nightlights, and automatic humidity-sensing controls.
- Fan sound levels are rated in Sones—the lower the Sone number, the quieter the fan. A fan with a Sone of 2.5 or lower is considered quiet.
- Fan airflow is rated in cubic feet per minute (CFM). To determine the minimum CFM of airflow needed in a bathroom, multiply the room length times the width to get the square footage. Then multiply the square footage by a factor of:
  - 1.1 for an 8' ceiling
  - 1.25 for a 9' to 12' ceiling
  - 1.5 for a cathedral (over 12' high) ceiling.

For example, a 10' x 12' bathroom with a 10' ceiling requires a minimum 150 CFM (10 x 12 x 1.25) of airflow. Check the package or ask a Lowe's associate if you need additional help.

#### 02 If possible, purchase a new unit that is approximately the same size as the one being replaced. The steps for enlarging or reducing a fan opening are explained later in these instructions.

- **TIP:** If you purchase an exhaust fan unit that is identical to the existing unit, you may not need to replace the housing—saving you time and effort. Simply swap out the fan and motor assembly.

#### 03 Read the manufacturer's installation instructions.

#### 04 Cover the work area with a drop cloth to keep cleanup to a minimum.

#### 05 Remove the new fan unit from the box and prepare it for installation following the manufacturer's instructions.

#### IMPORTANT

Before you begin this project, read the manufacturer's instructions for your exhaust fan unit. Also follow all local building codes. If you're not comfortable working with electricity, on a ladder, or in an attic, discuss the job with a Lowe's associate or call a professional for help.

## REMOVING THE OLD EXHAUST FAN

- The removal of your fan may be different from the instructions below. Read your manufacturer's instructions for proper removal.
- If you have access to the fan from an attic, consider doing the removal from there. Use a small piece of plywood to kneel on the ceiling joists.

**01 Turn off power to the fan at the main electrical box by turning off the appropriate circuit breaker or removing the fuse.**

**02 Remove the fan grill cover.**

- **WARNING:** Wear safety glasses when working on a ceiling fan as debris can fall in your eyes.
- Fan grills typically are held in place by pressure springs or by screws.

**03 Check the electrical wires with a circuit tester to make sure the power is off.**

**04 Remove the old motor.**

- Most are held in place with screws.
- Make sure to detach the wiring harness, if applicable.

**05 Remove the housing mounting screws.**

**06 Slide the housing to one side to disconnect the vent duct.**

- Ducts are held in place by duct tape or a screw-on adapter.

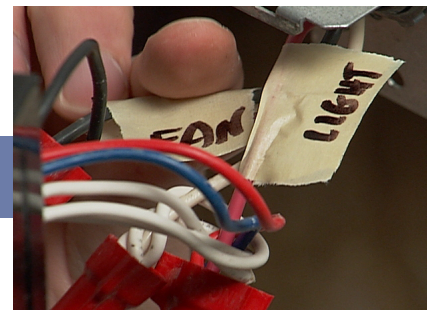
**07 Lower the housing through the hole.**

**08 If the existing fan unit is separately wired for a light, mark the wires "Fan" or "Light", as appropriate.**

**09 Disconnect the electrical wires.**

- Most existing fan units use wire connectors, also known as wire nuts, to join wires with a locking twist.

**10 Pull the wires through the strain relief hole to free the housing.**



### INSTALLING THE NEW EXHAUST FAN

#### 01 Hold the new housing against the opening to ensure that it is of the correct size for the replacement.

- To enlarge the hole:
  1. Set the new fan housing against the hole and mark the outline.
  2. Cut the excess ceiling with a keyhole or reciprocating saw.
  3. Install the new support and housing unit through the new hole following the manufacturer's instructions.
- To reduce the hole:
  1. Cut a new piece of wallboard to cover the ceiling hole.
    - Ceiling wallboard typically is 5/8" thick. You may be able to cut a small piece of wallboard to reduce the size of the hole.
  2. Cut a small wood cleat slightly longer than the new piece of wallboard.
  3. Attach the wallboard to the middle of the wood cleat with screws.
  4. Position the wallboard in the hole.
  5. Secure it in place by driving screws through the existing wallboard into the wood cleat.
  6. Apply joint compound as needed on seams to blend the edge of the existing wallboard and the new wallboard.
  7. When the joint compound is completely dry, sand as necessary.
  8. If the old ceiling has a textured surface, apply matching ceiling texture patch to the new wallboard surface following manufacturer's instructions.
  9. Repaint the area as needed.
  10. Install the new fan support and housing unit through the new hole following the manufacturer's instructions.

#### 02 Place the fan housing in the ceiling hole.

#### 03 Slide the housing to one side and pull the electrical wires through the unit's strain relief hole as needed. Tighten the clamp.

#### 04 Slide the housing to the other side to connect the duct with duct tape or a clamp.

- Some fans may require an adapter.

#### 05 Now the housing can be attached to the joists. Position the fan so the bottom of the housing is flush with the ceiling.

- If you're working from the attic, it may help to have a friend down below to tell you when the unit is flush with the ceiling.

#### 06 Fasten the housing to the ceiling joist with screws.

#### 07 If your new fan needs to be mounted away from the joist, use the included metal brackets to secure it to the joists on both sides.



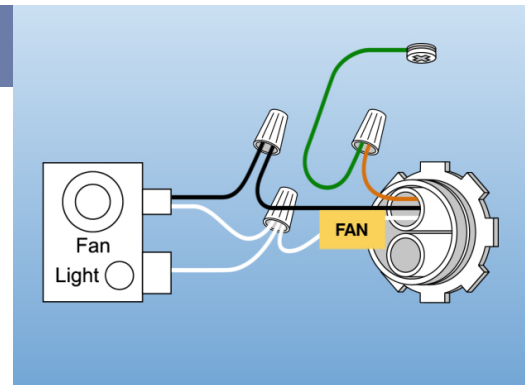
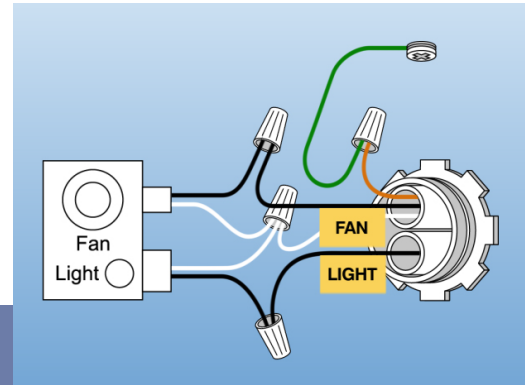
**INSTALLING THE NEW EXHAUST FAN (cont.)**

**08 Connect the fan's ground and neutral wires to the house ground and neutral wires with wire connectors and/or electrical tape.**

- The ground wires are typically green or bare copper. The neutral wires are white.
- If necessary, use a wire stripper to remove the insulation cover from wire ends as directed by the fan manufacturer.

**09 Connect the fan's black wire to the house black wire with a wire connector and/or electrical tape.**

- If the unit also has a light on a separate switch, connect the unit's "Light" wire to the house "Light" wire, as previously marked.
- If the fan and light are on the same switch, connect both wires from the fan and light to the single black house wire.



**10 Install the wiring cover plate with screws or clips provided.**

**11 Connect the fan motor and position it inside the housing as directed by the manufacturer.**

**12 Secure the motor with the included screws.**

**13 Turn on power to the fan at the main electrical box.**

**14 Turn on the fan switch to test operation.**

1. If the fan does not work, turn off the power.
2. Use a circuit tester to make sure that the power is off, then recheck all the connections.

**15 If your fan has a light or other fixture, install it now following manufacturer's instructions.**

- For most models:
  1. Remove the mounting nuts from the motor.
  2. Connect the wiring harness to the cover plate.
  3. Slide the light unit in place and secure with the mounting nuts.
  4. Install the light bulbs.
  5. Line up the glass cover and attach the unit.
  6. Heater units are installed similarly.

■ **TIP:** Remember to clean your new fan with a vacuum cleaner on a regular basis



Used regularly, excess moisture should no longer be a problem in your bathroom. And you've taken a step toward preventing mold. For more bathroom renovations, installing electrical fixtures, and other home improvement projects, visit [Lowe's.com/Videos](https://www.lowes.com/Videos).

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