

Install a Basement Exhaust Fan

Keeping the basement fresh and odor-free can be a challenge. A typical basement has just a few small awning or hopper-style windows that only open about half way. Replacing one of those windows with an exhaust fan will provide positive air circulation and rid a damp basement of musty odors, chemical fumes, or air made dusty by woodworking, sanding, or other workshop projects. Here are the basics for installing an exhaust fan.

- Jigsaw (rental item)
- Electric drills and bits (rental item)
- Wrench or pliers (rental items)
- AC plywood
- Exhaust fan with exterior louvers
- Tape measure
- Paint
- Paintbrush
- Screwdrivers
- Flat-head machine screws, nuts, and locking washers
- Siliconized acrylic-latex caulk
- Caulking gun
- Utility knife
- Long-nose pliers
- Switch box and switch
- 14-2 cable with ground
- Wire connectors
- Wire stripping tool
- Neon circuit tester

1. Replace Sash

Remove the operable window sash (not the frame). Measure the opening on a piece of AC grade plywood, an exterior grade of plywood that has one good side (A) that will be facing outdoors and a rougher side (C) that will face inside. Cut the wood to fit within or over the frame, whichever seems easier. Bore clearance holes in the panel for mounting screws.

2. Mark and Cut Fan Opening

Trace the perimeter of the fan housing onto the C side of the plywood and use a jigsaw to cut the opening. Drill a 3/8-inch starting hole for the saw at each corner. Prime and paint the plywood on both sides and all edges.

TIP: You want the A side of the plywood facing down when you cut it, because a jigsaw cuts on the upstroke and you don't want to splinter the good side of the wood. And to avoid having the drill bit chip the wood's veneer as it exits, place a block of wood under the plywood at the hole location before you drill.

3. Mount Fan

Position the fan to mark the mounting holes on the plywood; bore clearance holes for the mounting screws. Mount the fan with exterior machine screws that are inserted from the outside (A side) and secured with nuts and lock washers on the inside (C side). Then caulk the joint between the louver housing and the plywood panel with a siliconized acrylic caulk. Secure the panel to the window frame with screws or bolts as required.

4. Wire the Fan

Extend power to the fan from a nearby junction box. Run 14-2 with-ground cable from the junction box to a switch box and from there to the fan. Then make the wiring connections at the fan wiring box by connecting like-color conductors with twist-on wire connectors and securing the bare ground wire to the grounding screw.

TIP: All of the wiring instructions and illustrations give an overview only. Do not attempt wiring unless you are familiar with basic wiring techniques and have checked with your local building department to determine applicable codes. Be sure to shut power off to the circuit at the circuit panel or fuse box before you open and wire the junction box.

5. Wire the Switch

Position the fan to mark the mounting holes on the plywood; bore clearance holes for the mounting screws. Mount the fan with exterior machine screws that are inserted from the outside (A side) and secured with nuts and lock washers on the inside (C side). Then caulk the joint between the louver

housing and the plywood panel with a siliconized acrylic caulk. Secure the panel to the window frame with screws or bolts as required.

6. Wire the Junction Box

Position the fan to mark the mounting holes on the plywood; bore clearance holes for the mounting screws. Mount the fan with exterior machine screws that are inserted from the outside (A side) and secured with nuts and lock washers on the inside (C side). Then caulk the joint between the louver housing and the plywood panel with a siliconized acrylic caulk. Secure the panel to the window frame with screws or bolts as required.



CAUTION: Remember that a fan or appliance like a clothes dryer pulls air out of the basement. A supply of fresh air must be provided for the furnace or gas hot water heater to prevent back drafting. Without a supply of air, the exhaust gases from the furnace or water heater may be pulled back down the chimney into the basement area.