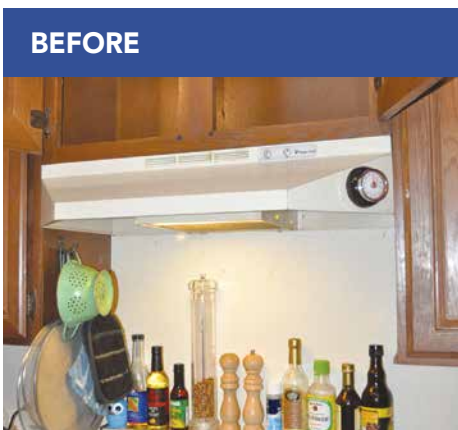




# Install a Hard-Ducted Exhaust Vent

Job Aid for Install Ducting for Bath or Kitchen Range Fan Badge

Aligns With Standard Work Specifications 6.0101.1, 6.0101.2, 6.0201.1, 6.0201.2



Kitchens and bathrooms must be ventilated to control moisture, vapor, and combustion gases.



Fasten rigid duct using three equally spaced screws. Ducting should be 28-gauge or thicker.



Keep duct run as short as possible with few turns, and run to exterior, either via roof or sidewall.



Wrap seams with mesh.



Cover mesh with a layer of mastic to seal all joints. Alternatively, the seams can be sealed with UL-listed foil tape.



Locate exterior vent based on duct run and size hole less than 1/2 inch larger than duct.



Choose appropriate exterior termination to match size of duct while minimizing water and pest intrusion. Seal around exterior termination as needed.



Insulate ducting that runs through unconditioned space to R-8.



Checklist

# Install ducting for a bath or kitchen range fan

## DESIRED OUTCOME

Installed ducts effectively move the required volume of air and prevent condensation.<sup>1</sup>

- Duct run is as short, straight, and smooth as possible.
- Ducts are at least as large as the connections they're attached to.
- Ducts are supported as needed to prevent bending and sagging:
  - Flexible and duct board ducts and plenums are supported every 4 feet using a minimum of 1½ inch wide material.
  - Metal ducts are supported by 1/2 inch or wider 18-gauge strapping or 12-gauge or thicker galvanized wire no more than 10 feet apart
  - Support materials do not cause the interior dimensions of the ductwork to be smaller than specified.
- All connections are sealed and fastened according to the EXHAUST FAN DUCT CONNECTIONS table at right; in addition to mechanical fasteners, duct connections are sealed with UL 181B or 181B-M listed material.
- Fan is ducted to exterior. (This does NOT include unconditioned attics, crawl spaces, and other areas that are ventilated to the outdoors.)
- Duct connectors or other fasteners will not obstruct exhaust flow.

- Where they run through unconditioned space, ducts are insulated to at least R-8 (as required by the authority having jurisdiction [BATH FANS only]).
- Work area is clean.

EXHAUST FAN DUCT CONNECTIONS	
CONNECTING DUCTS	APPROVED MATERIALS/ TECHNIQUES
Metal-to-metal (round) Metal-to-PVC (round)	Minimum of three equally spaced screws
Other metal-to-metal connections	Fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, or tapes
PVC-to-PVC connections	Approved PVC cement
Flexible duct-to-metal or flexible duct-to-PVC	Tie bands, using a tie band tensioning tool
Other specialized duct fittings	In accordance with manufacturer specifications

1. Relevant Standards: 6.0101.1, 6.0101.2, 6.0201.1, 6.0201.2

For more information, visit: [energy.gov/eere/wap](https://energy.gov/eere/wap)

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