

A simple solution for meeting Title 24 ventilation requirements

Meeting Title 24's retrofit ventilation requirements doesn't have to be complicated. The simplest solution is to upgrade a bath fan to serve as an exhaust fan and whole-building ventilation fan. Here's an example of how to design and install a retrofit ventilation system to meet Title 24 requirements.

Sample House: 1500 SF house with 2 bedrooms, 1 bath

Step 1. Assess for ventilation needs and limitations

What HVAC equipment is currently installed?

Electric wall heaters provide heating. No fans in kitchen or bathroom. No air conditioning equipment.

What combustion appliances are present?

None, so no safety testing is required.

How tight is the house? (optional step)

Blower door test results: 5 ACH50, fairly tight

Step 2. Meet local exhaust ventilation requirements

Kitchen Use any certified range hood providing at least 100 cfm at low speed with sound rating of no more than 3.0 sones at low speed.

Bathroom... Upgraded bath fan meets local exhaust requirement of at least 20 cfm of continuous exhaust.

Step 3. Determine the air flow needed for whole-building ventilation

$$\text{cfm} = \frac{(\text{floor area of dwelling})}{100} + 7.5 (\text{number of bedrooms} + 1)$$

$$\text{required cfm} = \frac{1500 \text{ sq ft}}{100} + 7.5 (2 \text{ bedrooms} + 1) = 15 + (7.5 \times 3) = 37.5 \text{ cfm}$$

Step 4. Choose the whole building ventilation system type to provide a minimum of 37.5 cfm of airflow calculated in Step 3

Exhaust-only system: 40 cfm quiet bathroom fan will meet requirements for both whole-building ventilation and bathroom local exhaust. Fan must be certified 37.5 cfm or more at 0.25 in. w.c. with sound rated at 1 sone or less.

Step 5. Choose a whole building ventilation control strategy

Continuous operation: Fan operates 24/7

Step 6. Design the duct system

Use ASHRAE 62.2 Prescriptive Duct Table to determine the allowable duct length for the upgraded bath fan and the kitchen range hood. For a fan up to 50 cfm, use the 50 cfm column.

Step 7. Install the equipment according to manufacturer's recommendations

Step 8. Commission the ventilation equipment

Use a flow hood or other airflow measuring device to:

- Verify that the kitchen range hood exhausts at least 100 cfm at low speed
- Verify that the bath fan exhausts at least 37.5 cfm

Provide ventilation system information to occupants and/or building owners.

For more information on using exhaust-only ventilation systems, see **Indoor Ventilation Minimum Best Practices Guide** published by the California Energy Commission.