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Professional Property Inspections and Much More...

Bathroom Ventilation Fans

Bathroom ventilation systems are designed to exhaust odors and moist air to a dwelling's exterior.

Basic Function and Control

Typical systems consist of a ceiling-mounted fan unit connected to a flexible or rigid duct that terminates at one or more exterior areas (soffit vents are one of the most common termination points).

The fan itself may be controlled in several ways:

- Most are controlled by a conventional wall switch.
- A timer switch may be mounted on the wall.
- A wall-mounted "humidistat" can be pre-set to turn the fan on and off based on different levels of relative humidity.

Most new fans available for purchase are extremely quiet and have a very good rate of airflow for exhausting moist air and odors.

The airflow specifications are usually stamped on the box label.

If a dwelling has an older model fan installed, it is important to make sure that it is exhausting air sufficiently for the size of the room it is in. The rate of airflow of exhaust fans is rated in CFM (Cubic Feet per Minute). There are many sources available online that can help in determining square footage / CFM requirements for bathroom exhaust fans and ducts.



Installation and Basic Maintenance

Ventilation systems should be installed in all bathrooms. New-construction building standards now require ventilation systems to be installed *even in bathrooms with windows*, since many homeowners will not open bathroom windows during extremes in outside weather conditions (Very hot or very cold outside).

Bathroom ventilation fans should be periodically inspected for dust buildup that can impede air flow. Airborne particles of moisture-laden animal dander and lint are attracted to the fan because of the static charge that electric fan creates when operating.

Common Exhaust Fan Defects and Operability Issues

The following conditions may possibly be an indicator of insufficient bathroom ventilation:

- Moisture stains on walls or ceilings
- Visible corrosion at metal surfaces in the bathroom
- Visible mildew growth on interior bathroom surfaces
- Peeling paint or wallpaper
- Musty smell in bathroom and / or high humidity levels during normal / “static” conditions (With no shower or bath hot water operating).

The most common defect related to bathroom ventilation systems is improper termination of the duct. Vents must terminate to the exterior of the dwelling.

Ducts that leak, or are not terminated to the dwelling exterior, can cause moisture problems due to the buildup of condensation. Warm, moist air will condense on interior surfaces, exposed attic framing, insulation and other materials.

This condition has the potential to cause health and / or material decay problems from microbial growth, as well as damage to building materials, such as drywall. Moisture also tends to reduce the effectiveness of thermal insulation.

Microbial Growth

Perhaps the most serious consequence of an improper ventilation setup is the potential accumulation of microbial and / or fungal growth in bathrooms, attics and crawlspaces. This type of growth may appear as a fuzzy, thread-like, cobwebby fungus, although it can never be identified with certainty without being lab-tested.

Health problems caused by toxic microbial / fungal growth can often be attributed to high concentrations of spores in indoor air. Spores are like microscopic seeds, released by fungi when they reproduce. Every home has a certain minor level of microbial presence in it, which, for the most part, is a harmless condition, provided it is not toxic.

Quick Fact

Continuous interior moisture levels of about 20% or greater can cause microbial and / or fungal colonies to grow and multiply. Inhaling toxic fungal spores can cause health problems in people with asthma or allergies, and can cause serious or fatal fungal infections in people with lung disease or compromised immune systems.

IMPORTANT!!

It is IMPOSSIBLE to classify "Mold" by visual means only. Should you ever receive an inspection report that indicates the presence of "Mold", a written report by a certified laboratory MUST accompany it. PERIOD!

Improper Ventilation

Ventilation ducts must be made from appropriate materials installed in a manner that ensures that moist air is properly exhausted.

Ventilation Ducts Should Always:

- Terminate to Exterior. Ducts should never terminate within the building envelope;
- Have a screen or louvered cover at its termination point. This is to prevent birds, rodents and insects from entering the duct;
- Be as Short and Straight as Possible. Long, curving ducts allow more time for vapor to condense in the duct and also make the exhaust fan work harder;
- Be insulated. Excessively hot or cold ducts encourage condensation.



Above all else, a bathroom ventilation fan should be connected to a duct capable of venting moist air and odors to the outdoors. Visible evidence of moisture buildup within a bathroom, attic, or crawlspace is a clear indication of improper ventilation, and should be corrected as soon as possible in order to prevent potential structural decay of building materials, as well as to prevent potential respiratory health issues to the dwelling's inhabitants.