INDOOR AIR QUALITY AND HOME HEALTH

Rollex

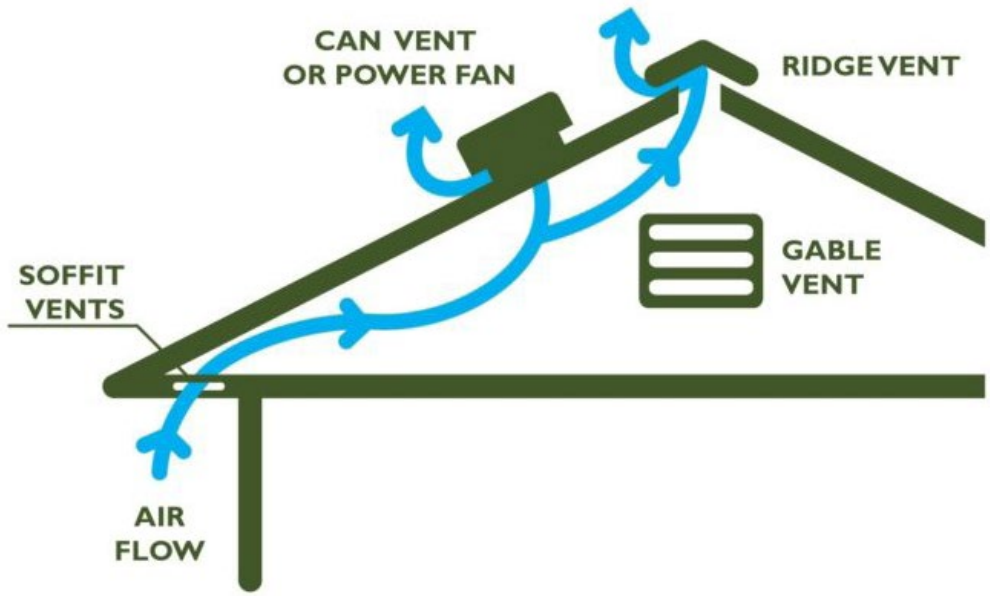
Indoor air quality is often one of those intangible things that people talk about without really understanding what it means or how it impacts their day to day lives. A home doesn't have significant ventilation needs the way a factory or hospital might, but poor residential indoor air quality can have a significant negative impact on homeowners' health and wellbeing.

Poor indoor air quality in a home can lead to a variety of symptoms, including:

- Fatigue
- Headaches
- Respiratory problems
- Skin rashes

If a home feels stuffy or still, it's probably not properly ventilated. Not only can poor ventilation impact human health but it can also affect the health of the home itself – moisture can accumulate, leading to mold and mildew growth or frost and ice accumulation. And if hot air isn't properly directed out, it can dry and prematurely age building materials like roofing shingles.

SOURCES OF HOME VENTILATION



Building codes include standards for ventilation and the number of regular air changes a home needs to maintain proper indoor air quality. Depending on where a home is located, the climate and the time of year, these air changes can be accomplished through a number of active and passive sources of ventilation

Active ventilation is ventilation produced through mechanical means forcing air in and out of locations as needed. This is achieved through means such as fans, exhausts, HVAC systems, etc. Passive ventilation is produced through wind and thermal buoyancy. This is achieved through means such as opening windows and strategically placed exterior vents on roofs, walls and soffits.

Sources of ventilation in a home include:

- **Windows.** This one probably seems pretty self-evident. Assuming it's not too cold or too hot outside, every homeowner knows to open a window in order to freshen up a room.
- **Doors.** These are probably not a regular source of ventilation unless sliding screen doors are installed, but it's important to remember that even opening and closing an exterior door as homeowners go in and out affects a home's ventilation and air balance.
- **HVAC.** Since the V in HVAC stands for ventilation, it's safe to assume this is a fairly clear source of home ventilation. Furnaces and air conditioners draw in fresh air from outside, heat and cool it to the desired temperature, and help circulate it throughout the home.
- **Exhausts**. Every home has a variety of mechanical and passive exhausts. These could include a stovetop hood fan, bathroom fan or a fireplace chimney. Some need to be turned on, but all serve as a way to vent out air from inside the home.
- **Roof and gable vents.** Hot air rises, so it's unsurprising that the hottest air on a summer day travels up to the highest part of a home's attic. Roof and gable vents help this air escape, reducing the cooling load on the rest of the house.
- **Soffits.** Soffits also help with attic and gable ventilation. They keep air circulating, help moisture escape and, as a result, reduce the chance of water damage, ice build-up, and mold and mildew growth.

ASSESSING VENTILATION NEEDS

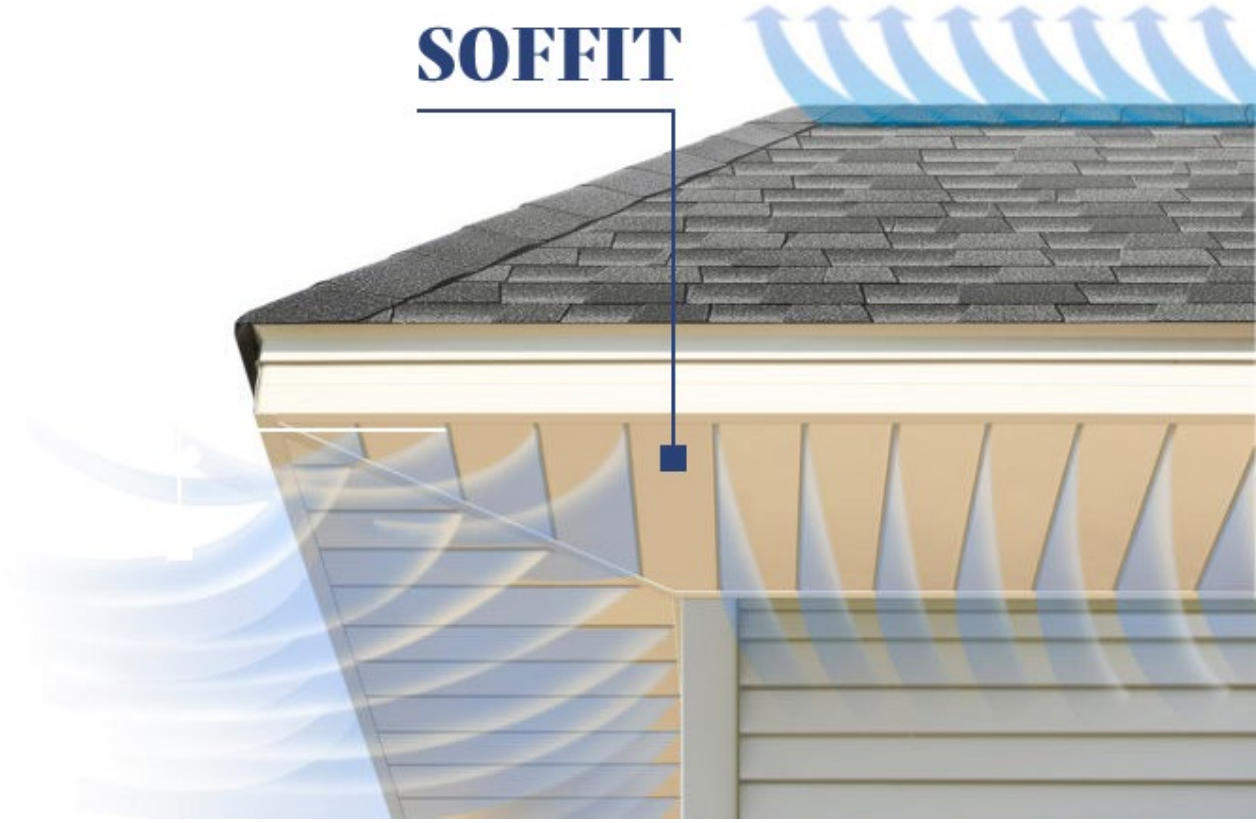
If a home is fully equipped with modern HVAC systems but still feels stale and stuffy, has trouble maintaining heat on the upper floor, or if there is evidence of condensation or ice build-up near the roofline, then you may need to consider improving ventilation in the attic and upper floors.

If the issue is identified in summer, then poor attic ventilation can be identified by touching the ceiling of the top occupied floor. If it feels warm, despite proper attic insulation, then this is a sign the attic is storing excess warm air.

If the issue is identified in winter, the tell-tale sign of poor ventilation is ice build-up along the roof line. This means warm air is trapped in the attic which then heats up the roof, melting snow and ice into water that then flows down the roof and refreezes when it hits the cold edge. These are known as ice dams.

When poor attic ventilation is identified, it's typically managed with a combination of roof vents, gable vents and soffits. Roof and gable vents are effective but can be labor-intensive to install, as they usually involve working through multiple layers of roofing, walls, insulation and underlayment. By comparison, improving ventilation through updated soffits is relatively straightforward.

WHAT IS SOFFIT?

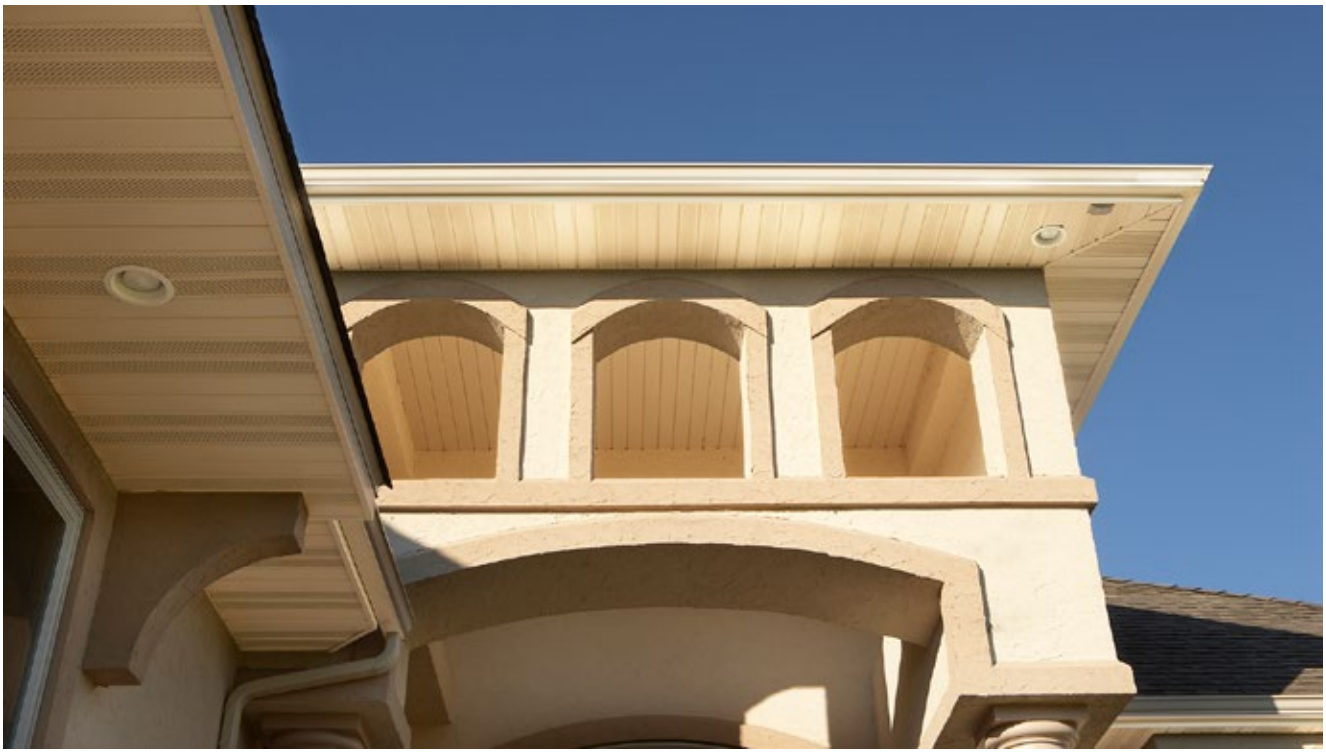


Soffit is the horizontal paneling that sits under the roofline, between the eaves and the wall. It acts as a physical barrier, keeping water and pests out of a home, but, when ventilated, also functions as a critical component of a home's ventilation system.

Soffit is designed as interlocking panels. Some panels are ventilated which allows air to pass through. Vented soffits look like soffits, and fit together in the same way, but contain small perforations to allow for regular air exchanges inside and out.

In general, contractors need to include a square foot of ventilation for every 150 to 300 square feet of attic floor space. The hotter the climate, the more ventilation a home will need. As a result, depending on the size of the house, ventilated soffit can be very effective in achieving the necessary ventilation, without needing to add too many components to your roof system.

OTHER ADVANTAGES OF SOFFIT



In addition to achieving code-compliant ventilation, soffit offers a number of other benefits to homeowners. These include:

- **Extending the life of roof shingles.** Shingles take a lot of wear and tear, as they are exposed to the elements regularly. But increasing that wear by heating them unnecessarily from the inside can cause premature aging. In fact, many shingle manufacturers will not honor warranties where there is inadequate attic ventilation.
- **Energy savings.** While proper insulation is critical in keeping hot air out of a home in the summer, proper soffit ventilation helps move warm air that gets into the attic, out, which keeps it from leaking back into the house. As a result, homeowners will spend less on air conditioning through the warmer months.
- **Reduced moisture accumulation and mold growth.** Mold loves to grow in warm, dark places, and many unfinished attics are the perfect growing ground, especially if a little moisture from a bathroom exhaust leaks in. Keeping air flowing helps move moisture out before it can settle, and prevents mold from forming on rafters, walls and any personal belongings stored in the attic.

CHOOSING THE RIGHT SOFFIT

Soffit comes in a variety of materials, and choosing the right soffit for a home will depend on factors like aesthetics, climate and the homeowner's readiness to maintain their soffits. Most commonly, soffits are available in wood, vinyl and aluminum.

AESTHETICS

Choosing soffits based on look will depend in large part on whether they are being installed as part of a new build or as an addition to an existing roof and home.

Wood soffits bring a traditional look, and go well with other wood facades and cedar or cedar-look shingles. They can also be painted or stained to match any existing trim. Soffits like vinyl and aluminum bring a more modern look than wood to a home. They typically come painted but can be made in nearly any color a homeowner would like. Rollex's aluminum soffit is available ready-to-install in 25 different colors.

CLIMATE

While wood is classic, it also brings all the classic problems of a natural product, particularly susceptibility to rot. Given that, wood soffit may not be the best choice for wet climates with frequent rainfall.

On the other hand, vinyl is rot-proof, so it does well in high-precipitation climates. It can expand and contract in extreme temperatures but for most regions, it's a great, budget-friendly choice.

Aluminum soffit is a stable, long-lasting option. It's corrosion-resistant and won't rust in wet weather. And as a metal, it won't crack or warp in extreme temperatures, making it the perfect choice for any climate.

MAINTENANCE

The most high-maintenance soffit option is wood. To protect it from the environmental factors above and to keep it looking good, wood soffit needs to be regularly cleaned and repainted or re-stained, and rotten soffit panels need to be replaced to prevent mold growth and keep pests out.

By comparison, vinyl and aluminum soffit are virtually maintenance-free. They need to be inspected periodically, and any warped or cracked panels will need to be replaced, but otherwise, vinyl and aluminum soffit should not need painting throughout their lifetime. However, you should wash them out with a hose and clean with water to remove any dust or debris about once a year.

USE SOFFIT FOR PROPER VENTILATION

Proper ventilation is key to maintaining the health of both a home and its occupants, and soffit is a critical part of keeping air flowing. Without it, indoor air quality can deteriorate, energy bills go up and building materials age too quickly. To find out more about choosing the right soffit for your next project, visit the Rollex website.