

# continuous air barrier

Without an airtight, continuous air barrier, warm air seeps out during the winter and in during the summer, resulting in uncomfortable occupant spaces, issues with moisture and condensation, and unnecessarily high heating and cooling bills.

Airtightness starts at the design phase for gut renovations and new construction projects alike. Building plans should incorporate air barrier materials at every point along the envelope assembly and specify how these materials will be joined up to create an unbroken, airtight layer. While this whole-building approach may not be possible for retrofits, sealing major points of air leakage—such as windows and doors, air conditioners, and vents—can provide substantial energy efficiency gains.

**Ventilation Systems**  
Seal ductwork and connections around air vents to control interior airflow.

**Continuous Air Barrier**  
The air barrier must wrap continuously around the entire perimeter of the building. Gaps or interruptions in the barrier will cause drafts, energy loss, and compromise an otherwise high performance envelope.

**Doors**  
Ensure exterior doors are properly caulked and weatherproofed.

**Windows**  
Ensure window frames are properly sealed against the building opening.

**Air Conditioners**  
Properly seal Packaged Terminal Air Conditioning units (PTACs) and remove or weatherize window Air Conditioners (ACs) in the colder months.

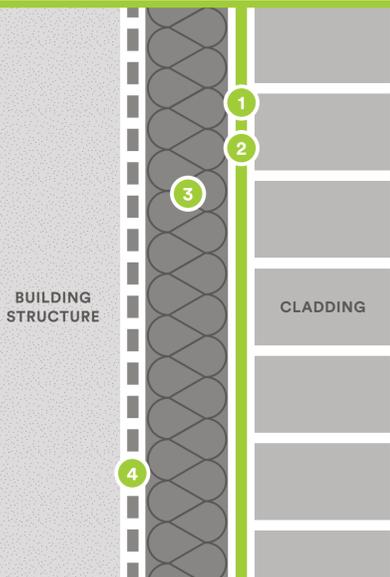
*There was a block party last night? I had no idea—this building is so quiet that I slept right through it.*

WARM AIR

COLD AIR

## basic wall construction

A series of control layers between the building's structure and exterior cladding regulates the transmission of air, water, heat, and vapor.



**1 Air Barrier**  
A combination of materials that prevents the movement of air across a continuous, defined boundary. The air barrier typically includes windows, gaskets, sealants, membranes, and weather-stripping.

**2 Water Barrier**  
Water-resistant materials that prevent water from moving across a defined boundary. Many air barriers also function as water barriers.

**3 Thermal Barrier**  
A combination of materials, including insulation, that prevents heat loss and gain between conditioned and unconditioned spaces.

**4 Vapor Barrier**  
Controls water vapor diffusion, defined as the movement of vapor through permeable materials.