Attached Garages

Air Seal to Keep Car Exhaust and Fumes Out of the House

**SKILL SET**
Be sure you have the experience needed for these maintenance tasks. If you are in doubt, hire a contractor.

**SAFETY**
These upgrade tasks may require working in tight clearances and under task lighting. Exercise common sense when working on a ladder.

**TOOLS**
Utility knife, drywall saw/zip saw for cutting drywall

**MATERIALS**
Rigid foam board, caulk, spray foam sealant

**COST BENEFIT**
Increased energy savings and improved comfort and indoor air quality

**PRIORITY LEVEL**
LOW MED HIGH

**SKILL LEVEL**
DIY PRO

Air sealing garage penetrations can present a challenge. Easy tasks involve caulking obvious penetrations such as electrical outlets, the drywall perimeter and bottom plates of the foundation. More difficult tasks involve cutting away ceiling drywall in the garage to check for and provide blocking between the garage and the floor system adjacent to the garage.

**Attached Garages**

Many homes feature an attached garage which is usually adjacent to a conditioned living space and may have living space above it. While certainly a convenience, an attached garage often has poor insulation and air sealing details that lead to energy waste and comfort issues for the entire home, and can even lead to health and safety hazards for the occupants. The home’s thermal enclosure should always be designed to exclude an attached garage since vehicles can be significant sources of carbon monoxide (CO). Also, items commonly stored in garages such as gasoline-powered appliances, paints and stains, pesticides and fertilizers can contaminate a home. HVAC units and ductwork located in a garage should be carefully sealed to prevent drawing these contaminants into the house.

**Air Sealing Attached Garages**

Air sealing the conditioned area walls adjacent to an attached garage is an important first step. Start by using caulk or spray foam to seal penetrations such as for electrical and plumbing. Since many garage slabs are at a lower elevation than the connected home, carefully seal the bottom portion of any drywall that abuts conditioned space. If the garage slab is on the same level as the house, focus on the wood bottom plate connection to the slab. If the garage drywall has baseboard consider removing it, sealing the bottom portion of the drywall, and replacing the trim. Sometimes it may be easier to seal the wall from inside the house.

For the garage ceiling, if there is a conditioned floor above, use caulking or foam to seal penetrations such as for light fixtures. Although it is significantly more effort, it may be desirable to cut a hole in the garage ceiling drywall to...
Also, a garage may be an ideal location for attic access since the details.

In some climates, adding bubble-wrap radiant insulation to the garage.

Garages are not a good location for HVAC systems, including air.

For homes located in high wind zones – areas with greater risk of
tornados and hurricanes – consider reinforcing the current door or
replacing the standard garage door with a reinforced one. Garage roll
up doors have been shown to be a home's weak link in high wind events
and their failure can cause further damage to the remainder of the
home. Check with insurance companies or www.fema.gov for additional
details.

Exhausting Air Out

Even with the garage door open to outdoors and especially at startup, a car
produces major amounts of poisonous exhaust, including carbon monoxide
(CO) that can leak into the home. If the house is under negative pressure
(such as from operating a clothes dryer) and there are leakage pathways
between the garage and house, the CO can make its way into the home and
poison the occupants inside. Even a slight breeze blowing against the garage
can drive CO into the home.