SHEET METAL | AIR | RAIL | TRANSPORTATION
SMART
International Association of Sheet Metal, Air, Rail, Transportation Workers
LOCAL UNION NO. 16
2379 N.E. 178th AVE., SUITE 16
PORTLAND, OREGON 97230-5957
PHONE: (503) 254-0123 • FAX: (503) 254-0157

- **Start with a tight building envelope**. Because a building operates as a system, the first step in optimizing the heating and cooling system is to insulate and air seal as much as possible. Advanced framing techniques, continuous air barriers, and high efficiency windows are a few ways to reduce leakage and ensure that hot or cold air stays inside where it belongs. Leaky buildings will increase operational costs and dramatically shorten the estimated life span of air handling equipment.
- **Properly size equipment and ductwork based on SMACNA standards**. Accurate calculations of the buildings heating and cooling load is critical to a systems efficiency and room comfort. A unit that is too large will not operate efficiently in normal outdoor temperature levels and adequately remove humidity, and a unit that is too small will not be able to maintain a comfortable temperature on the hottest and coldest days. Most professionals use SMACNA's Manual on load calculation, which determines the system size on a wide range of factors such as the air change requirements CFM (cubic feet per minute) per occupant, to avoid infectious disease spread, high CO2 levels, as well as the local climate, window orientation, and insulation levels. Gone are the days of sizing a unit based on square footage or other "rules of thumb."
- **Focus on ductwork design.** Experts believe that ductwork design is just as important as equipment choice when it comes to heating and cooling system efficiency. Minimize the length of flexible duct runs, use 45 degree take offs as required by SMACNA standards, along with turn veins, and full radius elbows. In unconditioned spaces like basements, it is critical to insulate ductwork to maintain the air temperature from the Air Handling equipment to the room that it is servicing. Maintaining air temperatures has a direct impact on operating costs, efficiency, and life expectancy of the Air Handling equipment.

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- **Duct sealing is also critical.** According to research, in a typical house, about 20 percent of the air moving through the duct system is lost due to leaks, holes, and poor connections. Be sure that HVAC contractors properly seal and pressure test ductwork to avoid dust and dirt contamination into the air supply from attic and ceiling spaces. Airtight duct can have a substantial impact on the energy costs and efficiency of a HVAC system. especially at connections to air inlets and registers where air can seep into walls and create moisture problems.

- **Tie into National Standards.** As the state moves forward and continues to strive for new and efficient systems, tying into National Standards such as ASHRAE is critical to stay ahead of the curve and in line with the latest tech.