The Commercial Inspector

A Monthly Newsletter From National Property Inspections

VOLUME 15 ISSUE 11

ask the inspector

Q. What does a commercial HVAC inspection entail?

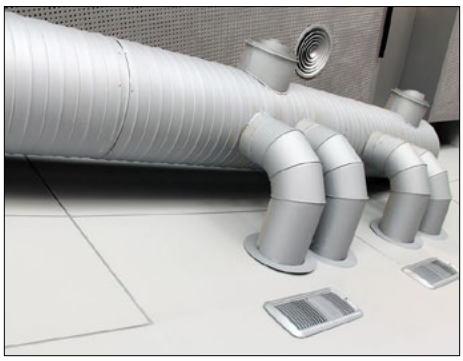
A. During the walkthrough survey of the commercial building, the inspector will typically check the heating, ventilation and air-conditioning (HVAC) system. A commercial building inspector will provide a general description of the HVAC system and its condition by documenting the following items:

- Identify the type of heating and air-conditioning equipment, such as boiler, package unit or chiller.
- Describe the type of air distribution systems present — for example, ductwork or steam pipes.
- Document the tag information to determine the age of the heating and cooling equipment. If this information is unavailable, then the inspector may estimate age.
- Observe and note evidence of equipment upgrades or replacements.
- Identify the apparent level of preventive maintenance on the equipment using visual observation of readily accessible items.
- By interviewing a person with knowledge of the building, the inspector may be able to determine whether a maintenance contract is in place and if manufacturer warranties are applicable and transferable.
- If the heating or cooling equipment is shut down for the season or not operational at the time of the walkthrough, the inspector may provide an opinion of the equipment's condition based on his/her observations.
- Identify any special heating or cooling systems and describe the condition of them in general terms. These specialty systems may be solar panels, ice rink refrigeration equipment or special computer cooling equipment.
- Testing the air flow and interiors of flues, plenums or chimneys is typically not included in the scope of work for a commercial building inspection.

snapshots from the field

Chiller Compressors Vary in Size

The photos above show the variance in the size of chiller compressors in commercial buildings. Photo A is the compressor of a smaller, older style of chiller. Also notice the oil leaking from the older compressor in Photo A. Photo B is the compressor for a newer, much larger chiller.



The inspection process for HVAC equipment can be challenging because of the placement and size of some systems. Thus, an HVAC specialist may be subcontracted to provide an in-depth assessment of the HVAC equipment. As with any part of the inspection process, the scope of work can be modified to meet the client's needs.

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maintenance matters

Commercial Building Energy Tips

Commercial building owners and tenants are always eager to reduce their costs. But reducing costs that in turn affect the quality of your products or services is not the way to go. One responsible way to cut costs, and also help the environment is to save energy.

According to some sources, lighting, heating and cooling represent 72 percent of total energy used in a commercial building. Energy experts estimate that around 25 percent of all energy in commercial and industrial buildings is wasted because the building owners forego energy efficiency upgrades.

So, how can commercial building owners reduce energy use and costs? Here are five key areas:

» **Install occupancy sensors.** These systems automatically turn lights on when motion is detected and turn lights off when no motion is detected.

» **Upgrade lighting.** High-efficiency lighting systems can save as much as 30 to 50 percent on lighting costs.

» **Enhance HVAC systems.** On average, HVAC systems account for 52 percent of annual energy consumption in commercial buildings. The most cost-effective ways to enhance HVAC performance is by upgrading HVAC controls and systems.

» **Focus on energy-efficient operations and maintenance (O&M).** Building owners can save 5 to 20 percent annually by implementing operations and maintenance best practices. Implementing energy-efficient O&M can help reduce the risk of early equipment failure and unscheduled downtime.

» **Form energy teams.** A building's energy team should include representatives from accounting, operations and upper management. American Foods Group in Green Bay, Wisconsin, created an energy-management team to seek out energy saving opportunities. The team completed 16 projects in 2006 that translated into $143,000 in energy cost savings with a half-year payback.

By applying these savings methods, commercial building owners have enormous potential to save a significant amount of money.

did you know?

Benefits of a Geothermal Heat Pump

Geothermal heat pumps exchange the warm temperature from the ground source, which is at a more constant temperature than the outdoor air that a standard heat pump uses. Geothermal heat pumps are installed by placing coils or pipes underground and transferring the heat. This type of transfer allows for multiple benefits:

» **Air Quality:** Geothermal heat pumps do not produce carbon monoxide or other hazardous greenhouse gases.

» **Cost Savings:** Utility costs are reduced because air is not heated; heat is instead transferred from the ground. This type of heating can reduce the monthly heating bill by as much as 70 percent.

» **Efficiency:** Geothermal heat pumps are 300 to 600 percent more efficient than the traditional heat pumps.

» **Longevity.** Geothermal piping often carries 25- to 50-year warranties. The average lifetime is 20 years.

So, how much can you save in dollars and cents? To get an idea of the amount that you can save each year, try the geothermal calculator.