

The Commercial Inspector

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ask the inspector

Q. What is an HVAC package unit, and how is it inspected by my commercial building inspector?

A. Unitary or packaged unit systems include all of the components required to deliver heating and/or air conditioning to a space or a building in a single unit. The system includes the following components:

- » A fan for moving air
- » An indoor cooling coil (the evaporator)
- » An electric heating coil or gas furnace
- » Air filters
- » Refrigeration compressor(s)
- » A condensing coil for rejecting heat
- » Dampers to regulate airflow to different areas and to mix fresh air with return air



Most package units are installed on the roof or exterior of a commercial building. They are exposed to the elements constantly, so

snapshots from the field

Which Would You Prefer on Your Building?



The photo on the right shows a well-maintained rooftop HVAC unit. The photo on the left, however, is a commercial building owner's nightmare!

hail and wind can damage the units' exterior cases, bend the fins and even cause damage to interior elements. Common maintenance problems that you may encounter with these units are dirty condenser and evaporator coils, improper refrigerant charge, dirty filters and fan blades, air leaks, air leaks, and damper operation.

A typical HVAC package unit inspection will involve a visual inspection of the cabinet exterior and condenser. If the filter and interior components are easily accessible, then the filter and other interior elements will be visually inspected. If possible, the inspector will run the units using normal operation controls in the heating or cooling mode, depending on the exterior air temperature. Because these units are typically out of sight, out of mind, we recommend that building owners and managers follow a regular maintenance schedule.

for your information

LED Lights: A Bright Idea

LED lighting is not only poised to take over the home lighting sector, it also offers great benefits for commercial building owners.



According to recent research, many projects to install LED lighting yield a return on investment within two to three years — and incentives and rebates can accelerate the payback by six months.

maintenance matters

Extend RTU Life With Proper Maintenance

Rooftop units (RTUs) are often the most neglected system of a building. Well-maintained RTUs have an average life expectancy of 15 years, and that drops to about 11 years without maintenance. At a cost of around \$1,200 per ton, these units can be costly to replace, so most commercial building owners want to keep them working for as long as possible. Below, we offer some maintenance tips to help keep your RTUs healthy:



- » Conduct a thorough operational check of all controls and components.
- » Clean the area surrounding the unit.
- » Clean and inspect air filters and inlet screens regularly.
- » Inspect the fan, housing and motor.
- » Inspect belts for wear, condition, tension and alignment. Belts should be replaced annually.

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- » Inspect the heat exchanger. A rusty or cracked heat exchanger could cause gases to leak into the building's air supply.
- » Clean the condenser and evaporator coils.
- » Clean drainage.
- » Check the refrigerant pressure and oil levels.
- » Check for voltage imbalances. Imbalances should not exceed 1 percent.
- » Check the amperage. If a high amperage draw shows, it could signal a mechanical or refrigeration problem.
- » Check for loose wiring and connections, and corroded or frayed wires.

did you know?

What Are the Benefits of Gas-fired Infrared Heaters?

Heat sources in commercial buildings vary by the use and occupancy of the building. When sizeable open spaces require heat, a large forced-air unit suspended from ceiling

that blows hot air is one way to provide heat. Another, more efficient option is a low-intensity gas-fired infrared heating system, which generates radiant heat energy. Independent reports have recorded 20 to 50 percent reductions in gas use when heating with gas-fired infrared heaters.



Just as the sun heats the earth, infrared heaters heat people and objects directly, which produces three key benefits:

- » Warmed objects in turn create a heat sink that allows for quick heat recovery and greater comfort at lower air temperatures
- » Lower fuel and electricity costs
- » No blowing dirt and dust, helping to provide quiet and clean comfort