

Replacement of
Heating, Ventilation, Air Conditioning (HVAC) Units
In Apartments Located at 641 Fifth Avenue

Photo Essay

Original HVAC Units:

One fan motor draws air from the lower section of the unit, through a filter, blowing air across a heating coil and cooling coil, discharging the air from the upper section of the unit into the living space. The fan motor has a speed control knob (low-med-high).

The user can set the temperature selector scale from cold to hot. The selector sends a signal to two motorized valves (110 volt AC); which open or close to allow hot water to run through the hot water coil (for heat) or chilled water to run through the cooling coil (for A/C) as required to achieve the selector setting.

The photos below show typical, original HVAC units prior to any work.



Protection – The contractor must protect the premises for the duration of the project.



Pre-Demolition – The contractor must schedule a riser drain down with the Chief Engineer of the building. This requires a minimum of two staff members dedicated to draining the hot and chilled water risers serving the other 29 HVAC units located immediately above and below the HVAC unit to be replaced (30 floors in all).

Demolition – Once the risers are drained, it is safe to cut the existing HVAC unit out of the wall.

In some instances the risers are located on the left side of the HVAC unit (see below left photo) and in some instances the risers are located behind the HVAC unit (see below right photo).



Installation of New Shut-Off Valves – Once the unit is cut out of the wall and removed; new shut-off valves are installed (four/unit). The photo below shows a corner location where two HVAC units were located.



The photo below shows a close-up of new shut-off valves. Each HVAC unit requires four shut-off valves (hot water supply, hot water return, chilled water supply, chilled water return). Once the new shut-off valves are installed, a minimum of two staff members must supervise the re-filling of the risers the valve installation work must be checked for leaks.



Inspection and preparation of space where HVAC unit will be installed – The contractor must ensure that the space is properly fire stopped to prevent the spread of fire and smoke.

The photo below, looking up to the ceiling slab, shows old pipe insulation (white in color) and old fire stopping around the risers where they penetrate the ceiling slab (floor of the above apartment). As you can see, the risers in the right side of the photo didn't even have insulation.



Fire stopping and new insulation of all risers and supply lines – The contractor must remove any wet or otherwise damaged fire stopping and replace, or add additional UL rated materials to seal all surrounding wall openings and slab penetrations from the ceiling above and from the floor below.

For energy saving purposes, but also to prevent condensation problems from sweating pipes, all old insulation is removed and new insulation is installed. The photo below shows new fire stopping on the floor (pink in color) and new pipe insulation (black and white, in color).



At left, close-up of newly installed valves and newly installed pipe insulation (white & black in color).

Installation of new HVAC unit – Once the fire stopping and insulation is complete the stand for the new HVAC unit is installed (photo immediately below). The stand is necessary to ensure that the unit fits in the space going over and not interfering with riser clamp, which would cause the unit to stick out into the room too far.



Riser Clamp →



Installation of new HVAC unit (continued) – The photo below shows a new HVAC unit installed into properly prepared space. Part of the installation process requires the contractor to have an air and water balancer complete performance tests on the HVAC unit to ensure that it is operating per its design specifications.



Restoration – Once the HVAC unit is installed, the contractor must start the wall restoration process. In the photo above, the contractor has already framed around the new HVAC unit and installed new sheetrock/wallboard. The next step in restoration is taping, spackling, priming, finish coat paint and/or installation of any other custom finishes.

Project Completed – When the contractor removes the protection in the apartment, you are ready to enjoy a brand new, efficient, quiet, state-of-the-art HVAC unit that has stainless steel condensate pans, leak sensors and a programmable thermostat (see photos below).

