

BUILDING DEPARTMENT

# TOWN OF POUGHKEEPSIE

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## Air conditioner installation requirements

### Heating and air conditioning appliance and equipment performance.

As of January 23, 2006 all Air-cooled air conditioners and heat pumps cooling mode must have a minimum SEER rating of 13 or better.

### Energy Code Requirements:

**N1103.1 Controls.** At least one thermostat shall be provided for each separate heating and cooling system.

**N1103.1.1 Dwelling units.** Each dwelling unit shall have at least one programmable thermostat having the capability to set back or shut down the system based on time of day.

**N1103.1.2 Programmable thermostat.** Each dwelling unit shall have at least one thermostat capable of automatically adjusting the space temperature set point of the largest heating or cooling zone and capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55°F (13°C) or up to 85°F (29°C). The thermostat shall initially be programmed with a heating temperature set point no higher than 70°F (21°C) and a cooling temperature set point no lower than 78°F (26°C).

**Exception:** Thermostats that require manual changeover between heating and cooling modes.

### N1103.2 Ducts.

**N1103.2.1 Insulation.** Supply and return ducts shall be insulated to a minimum of R -8. Ducts in floor trusses shall be insulated to a minimum of R-6.

Exception: Ducts or portions thereof located completely inside the building thermal envelope.

**N1103.2.2 Sealing.** All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.3.1 of this code. **Duct tightness shall be verified by either of the following:**

**N1103.2.2.1 Postconstruction test:** Leakage to outdoors shall be less than or equal to 8 cfm (226.5 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area or a total leakage less than or equal to 12 cfm (12 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

**N1103.2.2.2 Rough-in test:** Total leakage shall be less than or equal to 6 cfm (169.9 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area.

**Exception:** Duct tightness test is not required if the air handler and all ducts are located within conditioned space.

The building duct and plenum system shall meet the requirements above as verified using instruments and procedures specified in ANSI/ASHRAE 152 and ASTM E1554 Test Method A. Tests at other test pressures are permitted to be used if they are converted to equivalent leakage at 25 pascals (Pa) of pressure, and such equivalence is demonstrated to the satisfaction of the code enforcement official. The test shall be conducted by a qualified person, who shall demonstrate competence to the satisfaction of the code enforcement official for the conduct of such tests. For the purpose of this section CFM<sub>25</sub> shall mean the leakage from all ducts and plenums in cubic feet per minute measured at 25 pascals of pressure in accordance with ANSI/ASHRAE 152 or ASTM E1554. Test results shall be provided to the code enforcement official and shall include:

1. Name and place of business of the tester;
2. Address of the building which was tested;

3. Conditioned floor area of dwelling, calculated in accordance with ANSI Z65, except that conditioned floor area shall include areas where the ceiling height is less than 5 feet (1524 mm);
4. Measurement of CFM; and
5. Certification of accuracy of test results and signature of tester.

**N1103.2.3 Building cavities.** Building framing cavities shall not be used as supply ducts.

**\*\*\*\*All new ductwork must be inspected by a BPI Certified or equivalent Tester\*\*\*\***

**Duct Construction:**

**M1601.1 Duct design.** Duct systems serving heating, cooling and ventilation equipment shall be fabricated in accordance with the provisions of this section and ACCA Manual D or other approved methods.

**M1601.3.1 Joints and seams.** Joints of duct systems shall be made substantially airtight by means of tapes, mastics or gasketing.

Ducts shall be supported every 10 feet or in accordance with the manufacturer's instructions.

Cooling ducts with exterior insulation must be covered with a vapor retarded.

Air filters are required in the return air system.

The HVAC system must provide a means for balancing air and water systems.

**Condensate disposal:**

**M1411.3 Condensate disposal.** Condensate from all cooling coils or evaporators shall be conveyed from the drain pan outlet to an approved disposal area outdoors. Condensate shall not discharge into a street, alley or other areas where it would cause a nuisance.

**M1411.3.1 Auxiliary and secondary drain systems.** In addition to the requirements of Section M1411.3, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than  $\frac{1}{8}$  unit vertical in 12 units horizontal (1-percent slope). Drain piping shall be a minimum of  $\frac{3}{4}$ -inch (19 mm) nominal pipe size. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be installed under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A overflow drain line shall be connected to the drain pan provided with the equipment. This overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be installed under the coils on which condensate will occur. This pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line or the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

**M1411.3.1.1 Water level monitoring devices.** On down-flow units and all other coils that have no secondary drain and no means to install an auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. Externally installed devices and devices installed in the drain line shall not be permitted

**M1411.3.2 Drain pipe materials and sizes.** Components of the condensate disposal system shall be cast iron, galvanized steel, copper, polyethylene, ABS, CPVC or PVC pipe or tubing. All components shall be selected for the pressure and temperature rating of the installation. Condensate waste and drain line size shall be not less than  $\frac{3}{4}$ -inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with an approved method. All horizontal sections of drain piping shall be installed in uniform alignment at a uniform slope.

**P2601.4 Evaporators and cooling coils.** Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an approved plumbing fixture or disposal area outdoors.

**\*\*Condensate drains shall not drain into plumbing vent lines.\*\***

**Access to Mechanical Equipment:**

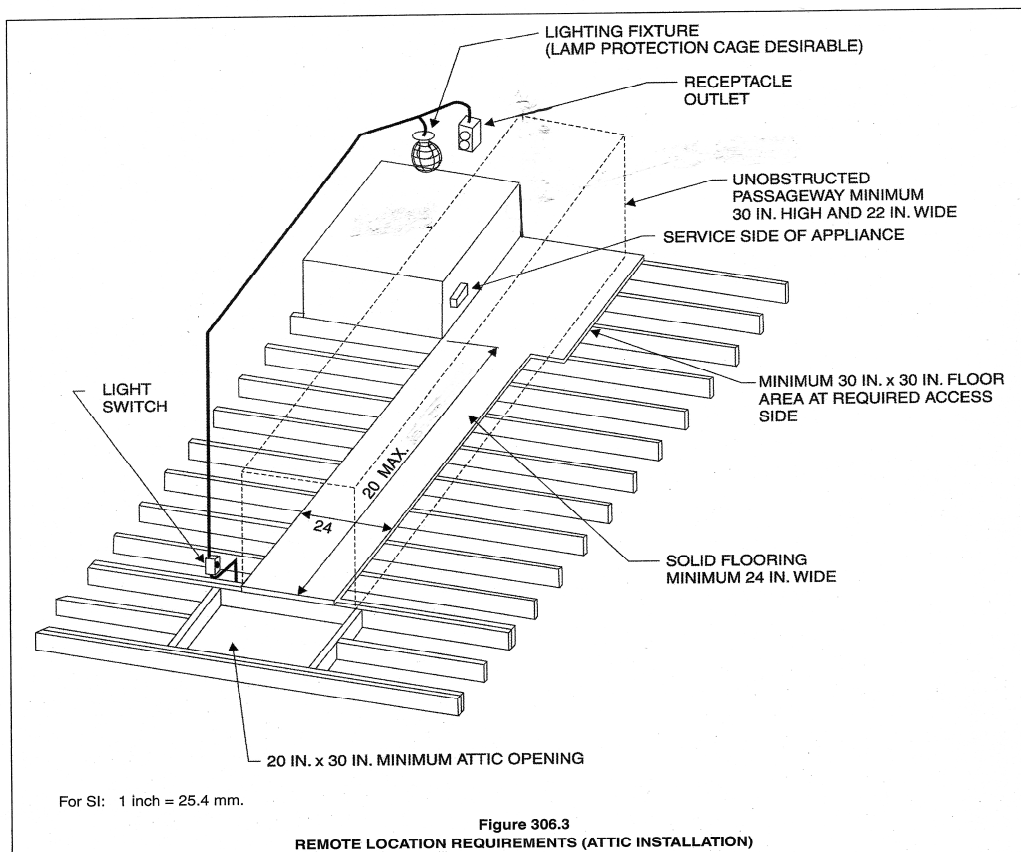
**M1305.1 Appliance access for inspection service, repair and replacement.** Appliances shall be accessible for inspection, service, repair and replacement without removing permanent construction, other appliances, or any other piping or ducts not connected to the appliance being inspected, serviced, repaired or replaced. A level working space at least 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an appliance. Installation of room heaters shall be permitted with at least an 18-inch (457 mm) working space. A platform shall not be required for room heaters.

**M1305.1.3 Appliances in attics.** Attics containing appliances requiring access shall have with an opening and a clear and unobstructed passageway large enough to allow removal of the largest appliance, but not less than 30 inches (762 mm) high and 22 inches (559 mm) wide and not more than 20 feet (6096 mm) long when measured along the centerline of the passageway from the opening to the appliance. The passageway shall have continuous solid flooring in accordance with [Chapter 5](#) not less than 24 inches (610 mm) wide. A level service space at least 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present along all sides of the appliance where access is required. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm) by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

**Exceptions:**

1. The passageway and level service space are not required where the appliance can be serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet (1829 mm) high and 22 inches (559 mm) wide for its entire length, the passageway shall be not more than 50 feet (15 250 mm) long.

**M1305.1.3.1 Electrical requirements.** A luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be installed at or near the appliance location in accordance with [Chapter 38](#).



**M1305.1.4 Appliances under floors.** Underfloor spaces containing appliances requiring access shall have an unobstructed passageway large enough to remove the largest appliance, but not less than 30 inches (762 mm) high and 22 inches (559 mm) wide, nor more than 20 feet (6096 mm) long when measured along the centerline of the passageway from the opening to the appliance. A level service space at least 30 inches (762 mm) deep and 30

inches (762 mm) wide shall be present at the front or service side of the appliance. If the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry extending 4 inches (102 mm) above the adjoining grade in accordance with [Chapter 4](#). The rough-framed access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where the dimensions are large enough to remove the largest appliance.

**Exceptions:**

1. The passageway is not required where the level service space is present when the access is open, and the appliance can be serviced and removed through the required opening.
2. Where the passageway is unobstructed and not less than 6 feet high (1929 mm) and 22 inches wide for its entire length, the passageway shall not be limited in length.

**M1305.1.4.1 Ground clearance.** Appliances supported from the ground shall be level and firmly supported on a concrete slab or other approved material extending above the adjoining ground. Appliances suspended from the floor shall have a clearance of not less than 6 inches (152 mm) from the ground.

**M1305.1.4.2 Excavations.** Excavations for appliance installations shall extend to a depth of 6 inches (152 mm) below the appliance and 12 inches (305 mm) on all sides, except that the control side shall have a clearance of 30 inches (762 mm).

**M1305.1.4.3 Electrical requirements.** A luminaire controlled by a switch located at the required passageway opening and a receptacle outlet shall be installed at or near the appliance location in accordance with [Chapter 38](#).

### **Electrical Inspection**

An electrical inspection is required to be completed by an approved electrical inspection agency and paperwork submitted to Building Department Office prior to scheduling Final inspection.

### **Duct Testing**

A list of qualified testing technicians can be found at the website below:

[http://www.bpi.org/tools\\_locator.aspx?associateTypeID=CTR](http://www.bpi.org/tools_locator.aspx?associateTypeID=CTR)