8.6.9 NJ.5.1 Air Distribution Acceptance

At-a-Glance

NJ.5.1 Air Distribution Acceptance
Use Form MECH-5-A

Purpose of the Test

The purpose of this test is to verify all duct work associated with all non-exempt constant volume, single-zone, HVAC units (i.e. air conditioners, heat pumps, and furnaces) meet the material, installation, and insulation R-values per §124(a) requirements of §144(k), including construction materials, installation, insulation R-values, and that duct leakage does not exceed the maximum allowable leakage fraction per §144(k) for new duct systems or §149(b)1D for existing duct systems.

As detailed in the Standard this test is only required for single-zone units serving 5,000 ft² of space or less where 25% or more of the duct surface area is in one of the following spaces:

- Outdoors, or
- In a space directly under a roof where the U-factor of the roof is greater than the U-factor of the ceiling, or
- In a space directly under a roof with fixed vents or openings to the outside or unconditioned spaces, or
- In an unconditioned crawlspace; or
- In other unconditioned spaces.

Within this criteria, this test applies to both new duct systems and to existing duct systems which are either being extended or the space conditioning system is altered by the installation or replacement of space conditioning equipment including: replacement of the air handler; outdoor condensing unit of a split system air conditioner or heat pump; cooling or heating coil; or the furnace heat exchanger. Existing duct systems do not have to be tested if they are insulated or sealed with asbestos.

Benefits of the Test

Duct construction and insulation can have adverse impacts on energy usage and duct-system durability. These are most acute where the ducts are located in unconditioned spaces or out of doors.

Instrumentation

Performance of this test will require measuring airflow. Equipment used:

- Fan flowmeter (a fan with a calibrated orifice used to pressurize the ducts) accuracy within 3% of measured flow. Contact CalCerts, CBPCA, or CHEERS for proper equipment.
- Digital manometer (pressure meter) accuracy within 0.2 Pascals.

Duct leakage tests must be verified by a certified HERS rating agency certified by the California Energy Commission. There are currently three companies that certify HERS raters. They can be found at http://www.CalCerts.com, http://www.CBPCA.org/ or http://www.CHEERS.org.