FINAL DRAFT - PERSCRIPTIVES
ENERGY STAR DUCT SPECIFICATIONS

1. Leakage

Spec:
Sum of supply and return leakage divided by fan flow shall be no more than 10% or 40 cfm/ton assuming 400 cfm/ton.

For multiple speed and variable speed systems use no less than 400 CFM/ton.

Note: The CEE Specification for Energy-Efficient Installation Practices for Residential HVAC Systems contains guidance on the proper testing and installation of forced air duct systems.

Tests:
- fan/ flow meter device
- digital manometer/ pressure gauge

Test method:
CEC 1998 Low Rise Residential Alternative Calculation
Approval Manual Appendix F, P 400-98-003

all pressure measurement shall be plus or minus .2 pascals
(.0008 inches of water), or 1% of reading, and a resolution of 0.1 pascals (.004 inches of water)

Letters of equivalence will be considered for other tests.

2. Insulation

Spec:
There is no insulation requirement for ducts in conditioned spaces.

If ducts in unconditioned areas are insulated equal to or greater than R-4, no extra insulation is required.

If ducts in unconditioned areas are insulated less than R-4, insulate all accessible ducts to a minimum of R-6.

Tests:
- Visual test

3. Airflow

Spec:
Test after sealing.

Cooling: 350 - 450 CFM/ton wet or dry coils

Forced air gas and electric heating: Use minimum and maximum temperature difference specified by the manufacturer.

For gas and electric heat equipment with no name plate use a temperature difference range of 60-100F.

For heat pumps with no name plate use Delta T of 30-35F.

Tests:
- Fan/flow meter device
- Flow hood
- Thermometer with a radiation shield in the air flow

Test Method:
http://www.energy.ca.gov/title24/residential_acm/index.html go to appendixes and download the .pdf The fan flow measurement info is in appendix F, specifically 4.3.7.2, p103)

4. Materials for Repair or Duct Sealing

Spec:
Use AEROSEAL, mastic, metal-backed tape

No "Duct Tape". Duct tape is defined as vinyl backing with fiber reinforcement and a rubber_based adhesive.

Tests:
- Visual checklist

5. Combustion Safety

Spec:
Conduct Combustion Safety Testing

No testing required for combustion appliances that have direct intake and exhaust from the outside.

Test method:
ASTM E1998

Section H of the National Fuel Gas Code (ANSI Z223.1/NFPA 54)

ASHRAE 62.2 Appendix A, Checking the Venting of Combustion Appliances

Canada General Standards Board - 51.71-95 "The Spillage Test Method to Determine The Potential for Pressure Induced Spillage from Vented, Fuel-fired, Space Heating Appliances, Water Heaters and Fireplaces"

Letter of equivalence will be accepted for test such as: AEROSEAL Combustion Test or the test used by Advanced Energy.

FINAL DRAFT - PERFORMANCE
ENERGY STAR DUCT SPECIFICATIONS FOR EXISTING FORCED AIR DUCTS

FOR EXISTING FORCED AIR DUCTS ELEMENTS SPECIFICATION TESTS
TEST METHOD

1. Efficiency

Spec:
85% duct distribution efficiency in both heating and cooling mode and the sum of the supply and return leakage divided by fan flow shall be no more than 25% leakage.

For multiple speed and variable speed systems use the lowest wired fan speed, but no less than 400 CFM/ton.

Test method:
http://ducts.lbl.gov interactive form

2. Airflow

Spec:
Test after sealing.

Cooling: 350 - 450 CFM/ton wet or dry coils

Forced air gas and electric heating: Use minimum and maximum temperature difference specified by the manufacturer.

For gas and electric heat equipment with no name plate use a temperature difference range of 60-100F.

For heat pumps with no name plate use Delta T of 30-35F.

Tests:
- Fan/flow meter device
- Flow hood
- Thermometer with a radiation shield in the air flow

Test Method:
http://www.energy.ca.gov/title24/residential_acm/index.html go to appendixes and download the .pdf The fan flow measurement info is in appendix F, specifically 4.3.7.2, p103)

3. Materials for Repair or Duct Sealing

Spec:
Use AEROSEAL, mastic, metal-backed tape

No "Duct Tape". Duct tape is defined as vinyl backing with fiber reinforcement and a rubber_based adhesive.

Tests:
- Visual checklist

4. Combustion Safety

Spec:
Conduct Combustion Safety Testing

No testing required for combustion appliances that have direct intake and exhaust from the outside.

Test method:
ASTM E1998

Section H of the National Fuel Gas Code (ANSI Z223.1/NFPA 54)

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