



## Performance Tested Comfort System Specifications for Ducts Inside New Single Family Homes

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Scope: These specifications define “ducts inside” for new single family residences with the purpose of reducing duct system energy losses by designing the duct system to be entirely within the thermal and air barriers of the house.

### 1.0 House Requirements

- 1.1 Houses shall be new construction (occupied within the last year).
- 1.2 Qualifying Foundation types
  - 1.2.1 Homes built on 100% crawl space qualify.
  - 1.2.2 Houses built on basements do **not** qualify.
  - 1.2.3 Houses built where the crawlspace is within the thermal and air barriers of the house do **not** qualify.
  - 1.2.4 EXCEPTION: A house may qualify if more than 50% of the house foundation, by area, consists of any combination of a) slab on grade or b) unheated and ventilated crawlspace. Ducts shall not be in slabs.

### 2.0 Duct System Requirements

- 2.1 All air-handlers and all ducts must be within the continuous thermal and air barriers of the house.
  - 2.1.1 In multi-storied houses, particular attention shall be paid to sealing rim joists between floors.
  - 2.1.2 Where ducts are within a soffit, particular attention shall be paid to sealing the ceiling of the soffit, to ensure the ducts are within the pressure boundary of the house.
  - 2.1.3 Exception: Up to five percent (5%) of the linear feet of the supply duct system and up to five percent (5%) of the linear feet of the return duct system may be located outside the thermal and/or air barriers of the house or in exterior cavities of the house if a PTCS

technician performs a duct leakage to exterior test and the leakage is no more than 40 CFM<sub>50</sub>.

2.2 All duct joints shall be mechanically fastened and sealed with mastic.

2.3 Building cavities shall not be used to transport air.

2.4 Ducts shall not be installed within exterior wall cavities.

**3.0 Verification Requirements** - A visual inspection shall be made to ensure compliance with these "Specifications for Ducts Inside New Single Family Homes". Either "Duct Leakage Test" or "In-Progress Inspections", as described below, are required to verify and document adherence to these specifications. Inspections and test results shall be documented and the documentation shall be submitted to a PTCS Service Provider.

3.1 Duct Leakage Test – The duct system shall be tested and documented using PTCS protocols, by a PTCS Certified Duct Technician, for either a duct leakage to outside test or a total leakage test. Tested duct leakage to exterior shall be less than 30 CFM<sub>50</sub> or total leakage shall be less than the larger of 6% of floor area (CFM<sub>50</sub>/ft<sup>2</sup>) or 75 CFM<sub>50</sub>.

3.2 In-Progress Inspections – The following inspections shall be performed by either a PTCS Certified Duct Technician or a PTCS Certified Duct utility staff member.

3.2.1 An additional In-Progress Soffit Inspection is required where ducts are within a soffit. In-Progress Soffit Inspection: The in-progress inspection shall ensure that a continuous air barrier is in place between the ducts and the unheated space prior to the ducts being enclosed within the soffit.

3.2.2 An additional In-Progress Rim Joist Inspection is required where ducts are located between floors. In-Progress Rim Joist Inspection: The inspection shall ensure that a continuous air barrier is in place at the rim joist prior to the ducts being enclosed between floors.

**4.0 Quality Assurance Requirements** – A duct leakage to exterior test shall be made on 10% of houses by a PTCS Service Provider. Leakage to exterior shall be less than 40 CFM<sub>50</sub>.