

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
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Number of Returns for a Forced Air Heating or Cooling System

Code: 2012 Mechanical Code
Section: 603.18

Date: September 1, 2011

Question:

What is the minimum number of returns for a forced air heating or cooling system in a one-story dwelling?

Answer:

For a non-engineered system, a dwelling with 1600 square feet or less of conditioned area is allowed to have one central return. When the dwelling contains more than 1600 square feet of conditioned area, additional returns shall be provided. Each return shall serve not more than 1600 square feet of area and shall be located in the area it is intended to serve.

Generally, supply registers are located along the exterior perimeter of the thermal envelope of the dwelling as the cooling and heating loads of the dwelling are dominated by the thermal envelope building heating and cooling loads. Returns are then centrally located to provide uniform return of air from the perimeter.