

**NC Office of the State Fire Marshal - Engineering Division  
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**Insulation Placement Between Multi-Family Dwelling Units, including Townhouses**

**Code:** 2018 Residential Code  
**Section:** N1102

**Date:** August 7, 2025

**Code:** 2018 Energy Conservation Code  
**Section:** R402 & C402

**Question 1:**

Is insulation for purposes of energy conservation required between dwelling units such as condominiums, apartments, and townhouses?

**Answer 1:**

No. The NC Energy Conservation Code is concerned with the energy consumption of a building as a whole and not with the energy consumption of an individual unit. These types of buildings are maintained as a whole and the *building thermal envelope* is expected to be maintained as a whole. Although a dwelling unit may lose heat to an adjacent temporarily unconditioned (empty) dwelling unit, the overall energy loss of the building is maintained. For that reason the “*building thermal envelope*” of a building will be the exterior walls, floors, and ceilings/roof that define the interior conditioned space of a building. Walls and floor/ceiling assemblies that divide dwelling units, including townhouses which have property lines, do not define the thermal envelope **because they are not separating conditioned space from the outdoors or from unconditioned space** and therefore do not require insulation for purposes of energy conservation.

**BUILDING THERMAL ENVELOPE.** The *walls, below grade, exterior walls, floor, roof and any other building elements that enclose conditioned space or provide a boundary between conditioned space and exempt or unconditioned space.*

**CONDITIONED SPACE.** A space within a building that is provided with heating or cooling equipment or systems capable of maintaining, through design or heat loss/gain, 50°F (10°C) during the heating season or 85°F (29°C) during the cooling season, or communicates directly with a conditioned space. Spaces within the building thermal envelope are considered conditioned space.

**Question 2:**

Is insulation for purposes of energy conservation required in the walls that separate duplex dwelling units?

**Answer 2:**

No. The NC Energy Conservation Code is concerned with the energy consumption of a building as a whole and not with the energy consumption of an individual unit. Since both units of a duplex are owned by a single owner it is expected that the thermal envelope will be maintained as a whole. For that reason the “*building thermal envelope*” of a duplex will be the exterior walls, floors, and ceilings/roof that define the interior conditioned space of a building. Walls and floor/ceiling assemblies that divide dwelling units do not define the *building thermal envelope* and therefore do not require insulation for purposes of energy conservation.

**Question 3:**

Is the sound attenuation insulation in the walls separating dwelling units required to meet the R-value requirements of the NC Energy Code and Chapter 11 of the NC Residential Code?

**Answer 3:**

No. Insulation only needs to meet the requirements of the NC Energy Code and Chapter 11 of the NC Residential Code when it is located in the assemblies forming the building thermal envelope.