NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
1202 Mail Service Center, Raleigh, NC 27699-1202
919-661-5880

Concrete Masonry Unit Cores Filled with Integral Insulation

Code: 2012 NC Energy Conservation Code **Date:** 07/18/2014

Section: 2012 NCECC Sections 401.2, 402.1.3, 501.1, 502.1.2, 502.2.3

Question:
Does the 2012 NC Energy Conservation Code (2012 NCECC) allow crediting of the thermal performance of concrete masonry unit (CMU) cores filled with integral insulation when determining compliance with the 2012 NCECC for residential buildings and commercial buildings?

Answer:
Yes, the 2012 NC Energy Conservation Code (2012 NCECC) does allow the crediting of the thermal performance of concrete masonry unit (CMU) cores filled with integral insulation when determining compliance with the 2012 NCECC for residential buildings and commercial buildings as noted below.

The 2012 North Carolina Energy Conservation Code (2012 NCECC) allows the contribution of the thermal insulating performance of concrete masonry unit (CMU) cores filled with integral insulation to be considered when determining energy conservation code compliance for commercial building wall assemblies. This is allowed for the prescriptive method when determining code compliance using the U-factor alternative per Section 502.1.2. There is also a special case noted for crediting integral insulation in the CMU cores when using Table 502.2(1), note "c". However, note "c" has no application in our code as no table cells are populated with an R5.7ci value. Credit of thermal insulating performance of CMU cores filled with integral insulation is also allowed using Section 507 "Total Building Performance Alternative" for commercial building walls. Lastly, the NC Comcheck compliance program referenced in section 501.1 also provides a path to compliance with the 2012 NCECC for commercial buildings. The NC COMcheck allows selection among many types of CMU wall construction assemblies, including CMU cores filled with integral insulation. An option is also available in COMcheck for entering calculated U-values for a CMU wall assembly with insulated cores. Any of these methods are acceptable.

The 2012 North Carolina Energy Conservation Code (2012 NCECC) allows the contribution of the thermal insulating performance of concrete masonry unit (CMU) cores filled with integral

insulation to be considered when determining energy conservation code compliance for residential building wall assemblies. This is allowed for the prescriptive method when determining code compliance using the "U-factor alternative" per section 402.1.3 or the "Total UA alternative" per section 402.1.4. Also, credit of the thermal insulating performance of CMU cores filled with integral insulation is also allowed using Section 405 "Simulated Performance Alternative" for residential building walls. Lastly, the NC REScheck compliance program referenced in section 401.2 also provides a path to compliance with the 2012 NCECC for residential buildings. The NC REScheck allows selection from among several CMU wall construction assemblies, including CMU cores filled with integral insulation. An option is also available in REScheck for entering calculated U-values for a CMU wall assembly with insulated cores. Any of these methods are acceptable.

Keywords: