



Manufactured Building

Wayne Goodwin | Commissioner of Insurance
Tim Bradley | Assistant State Fire Marshal

MEMORANDUM

DATE: April 24, 2012 (replaces May 5, 2009 memo)

TO: Manufacturers, Retailers, Set-Up Contractors, Building Inspectors, and Other Interested Parties

FROM: Alan D. Greene, P.E.
Chief Building Code Consultant
Manufactured Building Division

RE: Foundation Design for Modular Structures (Residential and Commercial)

As you are aware, all modular manufacturers are required to submit with the plan set for each building, whether residential or commercial, a typical foundation system (masonry construction) that will work for a relatively flat construction site. In order to standardize the design of these required typical foundation systems, it is the position of this Department that all future designs must be based on a maximum presumptive soil bearing capacity of 2,000 psf. This should result in the acceptance of these systems anywhere in the State provided the site location is relatively flat. *It is required that the following information be indicated on the foundation drawing*

1. *Footings, pier, and curtain-wall locations, specifications, and cross sections.*
2. *Minimum soil bearing capacity of 2,000 psf.*
3. *Minimum allowable concrete compressive strength.*
4. *Allowable mortar type(s).*
5. *Building anchorage (lateral and longitudinal)*
6. *Ventilation requirements.*
7. *Crawl space access requirements.*

Local site conditions which vary substantially from the assumptions noted on the foundation drawing may, at the discretion of the local building official, require a foundation design by a North Carolina professional engineer who is familiar with the specific site conditions.

All foundation designs must be in accordance with either **Chapter 4 or 45** of the *North Carolina Residential Code, 2012 Edition* or **Chapter 18** of the *North Carolina Building Code, 2012 Edition*, as applicable, except surface bonding of masonry piers is permitted per the memo of April 24, 2012 (attached). Note that masonry foundation walls, if present, must be installed in accordance with either **Tables 2109.1a or 2109.1.b** of the *North Carolina Building Code, 2012 Edition*, or **Section R606 or 4507** of the *North Carolina Residential Code, 2012 Edition*, as applicable. Pier and curtain wall systems shall be in accordance with either **Section R404.1.5.3, NC Residential Code, 2012 Edition**, or **Section 1809.10, NC Building Code, 2012 Edition**.

attachment



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DATE: April 24, 2012 (updates May 5, 2009 memo)

TO: Third Party Inspection Agencies, Building Officials, Modular Manufacturers, Modular Set-Up Contractors, and Other Interested Parties

FROM: Alan D. Greene, P.E.
Chief Building Code Consultant
Manufactured Building Division

RE: Surface Bonding Cement / Building Support Piers

This memorandum is to confirm that it is acceptable to the Department of Insurance to use a surface bonding cement to bond masonry piers together in lieu of the normal method of laying the masonry units in mortared joints. The Department's original approval of this method was based on interpretation of Section 1402.16 in the old Volume I, *General Construction Code* (1978 Edition). The only reference to surface bonding in the *North Carolina Building Code, 2012 Edition*, is **Section 2103.9**, which refers to **ASTM Standards C 887 and C 946** for surface bonding mortar and for surface bonding of concrete masonry units, and **Section 2109.2.3**, dealing with surface bonded walls. However, even though the old reference (1402.16) has no equivalent in the current Code, the Department of Insurance still finds this method of bonding masonry piers to be an equivalent and acceptable alternate to bonding masonry piers with mortar joints. Based on **Section 105, Alternate Material, Design or Methods**, of the *North Carolina State Building Code: Administrative Code and Policies, 2012 Edition*, the Department of Insurance accepts the method of bonding masonry piers with surface bonding cement in lieu of bonding with mortared joints on both one and two family residential dwellings and on commercial structures, so long as the referenced **ASTM Standards in Section 2103.9** of the *North Carolina Building Code, 2012 Edition* are adhered to.