

STATE BUILDING CODE INTERPRETATION NO. I-2-06

February 3, 2006

The following is offered in response to your January 23, 2006 letter to me in which you seek a formal interpretation of the provisions of Section R802.3.1 of the 2003 International Residential Code portion of the 2005 State Building Code.

Question 1: A roof-ceiling assembly employs ceiling joists or rafter ties that are located at some distance above the top plate of the wall upon which the rafters bear. The appropriate rafter span adjustments are made in accordance with Footnote a. to Table R802.5.1(5). Is a structural ridge required in accordance with Section R802.3.1?

Answer 1: No. The intent of Section R802.3.1 is to provide for a structural ridge when ceiling joists or rafter ties are omitted altogether. When the ceiling joists or rafter ties are present, but have been raised above the top plate, one must apply the rafter span adjustment factor, but one need not provide a structural ridge in addition.

Question 2: A roof-ceiling assembly employs a structural ridge as well as ceiling joists or rafter ties that are raised above the top plate of the wall upon which the rafters bear. Must the rafter spans be adjusted in accordance with Footnote a. to Table R802.5.1(5)?

Answer 2: No, however the provisions of Table R802.5.1(3) or (5) no longer apply to this situation. While the provision of a structural ridge will reduce the tension load on the ceiling joists or rafter ties and thus reduce the stress on the rafter, the connection of the ceiling joist or rafter ties at a point along the span of the rafter will introduce live and/or dead point loads that the table does not take into account. In the case that you present in this question, the rafters must be designed using a combination of formulae that account for the uniform live and dead loads on the rafter as well as the point live and/or dead loads introduced by the ceiling joist connection with the rafter.