

## ADVISORY COMMITTEE COMMENT FORM FOR PROPOSED CODE CHANGES

(This form must be submitted electronically)

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**1323 CE-29C**

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### **Proposed Code Change - Language**

Please provide your proposed code change in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

2012 IECC Chapter 4 Commercial Energy Efficiency  
Section C402.1 General (Prescriptive).

#### **C402.2 Specific Insulation Requirements (Prescriptive).**

Opaque assemblies shall comply with Table C402.2. Where two or more layers of continuous insulation board are used in a construction assembly, the continuous insulation boards shall be installed in accordance with section C303.2. If the continuous insulation board manufacturer's installation instructions do not address installation of two or more layers, the edge joints between each layer of continuous insulation boards shall be staggered. When components of the *building thermal envelope* do not meet the definition of *continuous insulation*, Table C402.1.2 shall be used and the U-factors of those non-continuous insulation components shall be calculated using ANSI/ASHRAE/IES Standard 90.1 Appendix A.

### **Proposed Code Change – Need and Reason**

Please provide a thorough explanation of the need for this change and why this proposed code change is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

Need:

Table C402.2 describes insulation compliance requirements for opaque assemblies, many of which include “continuous insulation” as an option. A common assumption in the construction industry equates continuous insulation with exterior insulation. But if exterior insulation is interrupted with metal framing members, which is a common method for cladding support, it no longer has the thermal resistance assumed in Table C402.2 and its nominal R-value needs to be de-rated, just as the R-value for insulation between steel studs is de-rated.

Technically this provision is already covered by a careful reading of the code language. It was technically covered by the current building code too but few if any architects are accounting for framing losses in exterior insulation when they are determining energy code compliance. Supporting cladding on steel Z-girts interrupting rigid insulation and not accounting for the thermal bridging is the prevailing practice. I'm guilty of this myself. I didn't understand the definition of "continuous insulation" and I didn't understand how serious the thermal bridging effect was. And no building code official questioned our design. This is why we need to adopt this amendment.

Reason

The distinction between exterior insulation and continuous insulation should not be overlooked. When wood furring strips or studs interrupt exterior insulation, the overall average R-value of the assembly could drop by 10% to 20% compared to the nominal R-value of the insulation. This is significant and should be accounted for. But when metal framing members interrupt exterior insulation on 16” or 24” centers, the R-value is typically reduced by 50% to 70%. Designers need to be aware of this so that they'll take measures to reduce or eliminate the thermal bridging or add additional insulation compensate for it.

**Proposed Code Change – Cost/Benefit Analysis**

Please consider whether this proposed code change will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

Cost/benefit Analysis:

No impact. Table C402.1.2 and C402.2 already refer to ASHRAE 90.1 Appendix A so these provisions are already in the building code. The issue is that they are currently being overlooked and may continue to be overlooked.

**Other Factors to Consider Related to Proposed Code Change**

1. Is this proposed code change meant to:

change language contained in a published code book? If so, list section(s).

change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

delete language contained in a published code book? If so, list section(s).

delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

neither; this language will be new language, not found in the code book or in Minnesota Rule.

2. Is this proposed code change required by a Minnesota Statute or new legislation? If so, please provide the citation to the Statute or legislation. **No**
3. Will this proposed code change impact other sections of a published code book or of an amendment in Minnesota Rule? If so, please list the affected sections or rule parts. **No**
4. Will this proposed code change impact other parts of the Minnesota State Building Code? If so, please list the affected parts of the Minnesota State Building Code. **No**
5. Who are the parties affected or segments of industry affected by this proposed code change? **Architects, Engineers**
6. Can you think of other means or methods to achieve the purpose of the proposed code change? If so, please explain what they are and why your proposed change is the preferred method or means to achieve the desired result. **No**
7. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement. **No**