**Comment/Explanation\*: (Page 26; Section 10.1, Tables 10.1.1, 10.1.2, 10.1.3; Objection; Technical)***Include your justification for your proposed change to the draft standard below.*  
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**Comment #8**: For wood and steel framing applications (exterior walls, roof, and interior construction), Table 10.1.1 Take-off Guidance in some cases references use of default framing factors in Table 10.1.2 and, for steel framing, also default weight of steel framing per square foot of wall area in Table 10.1.3. In other cases, it requires the actual length of framing members of each type/size to be accounted for. The latter is the correct approach for an embodied carbon accounting methodology for a number of reasons. First, regardless of whether a wall has a “declared” lay-out framing spacing (e.g., 16”or 24”oc) or framing “type” (e.g., standard or advanced), it is invariably seen in the field that actual framing factors vary substantially. I have seen some applications of so-called advanced framing that is no better than conventional framing. For conventional framing, I have seen many walls with framing factors exceeding 25% (even as much as 50% or more) because of loading conditions or inefficienty framing practices, the amount of openings in walls with additional opening framing, etc. etc. Furthermore, I have seen applications of advance framing or conventional framing from factory settings (or in highly quality controlled field applications), that have framing factors much better (lower) than the framing factors in Table 10.1.2 that are required to be used and this would effectively penalize those who are actually designing, fabricating, and constructing buildings in a highly resource efficient and controlled manner (including wall elevation framing details in plans or shop drawings as done for trusses).

As a related matter, the framing factor (particularly for steel framing) also relates to impacts on operational energy use and operational carbon emissions for assemblies that are part of the building thermal envelope. Also, by not considering this inter-relationship, the standard’s idealistic treatment of carbon storage in biogenic materials (e.g., wood framing) would encourage or reward use of high framing factors to be able to claim larger negative embodied carbon values due to storage – resulting in inefficient resource use and potential increased operational carbon emissions. Or, at a minimum, this would create a significant measurement bias in claiming benefits of carbon storage relative to the actual amount of storage. These unintended consequences should be acknowledged and addressed.

**Proposed Change to the Draft Standard\***  
*Use “strikethrough” and “underline” formatting to indicate all proposed changes. Changes must be shown with “hard-formatting” strikethrough and underline, not “track changes”.*

*Use a color other than red to indicate proposed changes to the draft.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For Table 10.1.1, revise all cases where framing factor is used to require that the actual (verified) framing factor (or length of each material type/size) be used. Delete Tables 10.1.2 and 10.1.3 and replace with a table that provides unit weight (per length) for each member type (wood or steel) based on the member size, thickness, depth, wood species/density (which like actual framing factors can vary substantially and impact any carbon storage estimate), etc. That data can then be used to easily turn length take-offs of various framing elements into a reasonable estimate of actual weight of framing materials. Alternatively, if default framing factor values are retained (not recommended), they should be for optional use only (not required use) and the reporting requirements in Section 8 should require a statement like: “This assessment is not based on the actual amount of framing materials used and could significantly impact the accuracy of the reported results.”