**SDC 301 CALCULATIONS SC Call Draft Minutes**

November 7, 2022 | 1:00 PM – 2:30 PM Eastern

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**Members Present:** **Dave Roberts (Chair), Brian Christensen, Gayathri Vijaykumar,** **Philip Fairey**, Scott Horowitz, William Ranson **Rob Salcido**, **Neal Kruis (guest)**, Jim Carroll (guest), Daniel Urban (guest), Yatharth

**Members Absent:** Charlie Haack, Nick Sisler

**RESNET Staff Present: Clara Hedrick**

**Minutes Prepared By:** Clara Hedrick

Meeting called to order at 1:06 PM Eastern.

**Approve Agenda**

Brian Christensen made a motion to approve the agenda. Philip Fairey seconded.

**Approve Meeting Minutes from September 12, 2022**

Gayathri Vijayakumar made a motion to approve the minutes as amended. Rob Salcido seconded.

**Approve Meeting minutes from October 10, 2022.**

Brian Christensen made a motion to approve the minutes as amended. Gayathri Vijayakumar seconded.

**Recommending 301-2022 Addendum C PDS-01 to SDC**

SDC 301 Calcs SC began with Philip Fairey’s comments regarding:

**Table 4.2.2(1)**

**Dwelling Unit Mechanical Ventilation System Fan Power (page 9) :**

Brian proposed to change the language in this row of the table and write “Rated Home fan watts per CFM shall be held constant.”. This is meant to accomplish and address what already exists in MINHERS, while also considering fan power rather than just energy. Neal informed the group that another proposed change from SCC is to drop the h (hours) from Wh in the formula in the final column of table 4.2.2. Whatever changes occur here, Neal encouraged us to be sure to reconcile in MINHERS 2022. The group decided to replace the language in this row of table 4.2.2(1) with Brian’s proposed language change.

**Appendix C, note F:**

Philip mentioned that since the document only mentions SLA here and the equations have been removed. It may be best to indicate which equations are to be used in the Appendix rather than only referencing the appendix. The group decided to add “,Equation 3 and 19. to note F to indicate the equations to be used in the Appendix C.

The group further discussed the organization of the definition of terms (C2.1) and the equations themselves (C2.2).

Brian believes its problematic to define conditioned floor area as always in square inches. Neal believes that these equations should not have variables with specific units, but the units should be specified in the coefficients listed in C2.2. This allows simulation tools to use the metrics they natively operate in for calculations.

Neal and Philip discussed the units to be used in equation 3 and 19 listed in C2.2- ***20:06 in the meeting recording.*** ELA is pressure measurement, therefore square inches/CFM50.There are many other references to SLA in this document and if the equations are not well defined then incorrect results will be used in calculations.

Conversion from ACH to CFM was not consistent in software tools, resulting in including specific equations to be used for conversions. These equations are meant to be the single reference source across any implementation of these conversions.

Dave mentioned just one of many further issues is citing average floor to ceiling height with no dimensions.

During this discussion, the group determined many or all of the equations need to be cleaned up and assigned appropriate units to ensure consistency in conversions.

Any references to C.2 must be identified and altered to explicitly mark which equations and units should be used. Equation 14- CFA needs to be divided by 144. Equation 13 needs to be assigned units. **Neal and Philip volunteered to work together on this project offline and bring results to the group. Dave Roberts also willing to assist.**

In **Table 4.2.2(1) Specifications for the Energy Rating Reference and Rated Homes** in the last column, the group discussed how to appropriately reference the ACH to CFA conversion equation regarding residences without Dwelling Unit Mechanical Ventilation Systems or without measured airflow. One option is to completely drop references to C.2 as a whole for now, another is to just note which equation must be used.

SDC 301 returned to the beginning of the document, made several editorial changes such as changing “Carbon Dioxide Equivalence” to “Equivalent” in all instances. Other editorial changes included removing an asterisk from the definition of normalized leakage.

The group also reiterated why strip heating resistance was deliberately excluded from **4.1.1.1.** Backup resistance is not considered a separate system with a different efficiency.

**Battery Storage Losses (4.1.2)**

Brian mentioned that since this is the only location where Battery Storage Losses are mentioned, is it best to explicitly tie the reference to the round trip efficiency which is required in the minimum rated features in inspection protocols? Philip believes the answer to this is already included in Section 4.2.2(9.2). Brian said he would review this section.

**Table 4.2.2(1) Specifications for the Energy Rating Reference and Rated Homes**

Last column under Air Exchange Rate starting with “Or if no mechanical ventilation was specified”- this language does not belong in this section. Changed proposed home to Rated Home. Group agreed to add the following language to the paragraph referring to residences requiring added ventilation: Where the resulting dwelling unit total air exchange rate is less than Qtot = 0.03 x CFA + 7.5 x (Nbr+1) cfm, a supplemental balanced ventilation system shall be added to the Rated Home to meet Qtot.g

Also included a reference to note g as shown above to further clarify.

In another reference to Normative Appendix C on page 10, group decided to add Equation 1.

**Note x (page 13):**

In first paragraph of note x, group included language “if duct leakage testing is not performed,” before it defines which values are assigned in these cases. Included similar language in the paragraph below.

Group continued to make editorial changes such as typos, unbalanced to imbalanced, and other cleanup. **1:03 in the recording.**

**4.2.2.7.1.1 Electric Lighting and Appliances**

Group discussed what version of current language is most appropriate in this section, but determined its acceptable for now. When the rated home has electric appliances, the reference home gets the values here. In gas versions, its the table below it (4.2.2.7.1.2).

Scott believes you can combine both tables into one. The group determined this is another long term project to come back to.

**In table 4.2.2.7(1),** Brian believes that ventless Clothes Dryers should not be given as an option for credit. Should the reference home be ventless, or is this to be used to give credit in cold climates but discourage in other climates? The group agreed this is appropriate, but this means Ventless Clothes Dryer gains need to be taken out of this table and included in a more appropriate section (**4.2.2.7.2.)**. Could be modeled after 4.2.2.7(2), but must be included in section **4.2.2.7.2.**

**Neal will work on including this table and changing the existing one noted above.**

**4.2.2.7.1.(6) Other Internal Gains:**

Group decided to include language: the daily values “*derived using Equation 4.2-28 and the coefficients”* in table 4.2.2.7(3)…..

Some other general concerns of Brian’s include references to the table that existed prior to **table 4.2.2.7.1** largely seen in **4.2.2.7.2.** This impacts multiple appliances.

Also, in almost all rated home appliance sections there previously was a place that outlines internal gains that was deleted. The most important piece to be included in the future is: if the appliance is not actually in the rated home, you cannot count the internal gains as going to the rated home. This addresses multi-family.

This information needs to be included in **section 4.2.2.7.1 Energy Rating Reference Home**

The group can submit further comments on this document to Neal to work on as they’re working on previously determined issues.

Action items for Neal (and Philip):

* Review and update **Normative Appendix C.2** equations to have appropriate conversion units- (discussion begins at 20:06 [in recording)](https://transcripts.gotomeeting.com/#/s/69a3b21317468c19720634e5a67fab3ed1fdd3b94b91d881f737f6cbfcc7ec2c)
* Review possibly combining data from tables in **section 4.2.2.7.1.1** and **4.2.2.7.1.2** into one table to reference
* Ventless Dryer Table to be included in **section 4.2.2.7.2** and removed from **Table 4.2.2.7(1)**
* Include internal gains in rated home appliances clause in **section 4.2.2.7.1**
* Other comments suggested by SDC 301 members.

Meeting adjourned 2:30 ET.