



Minutes
ANSI-GBI Standards Development Committee
American Lung Association Office
Chicago, IL
February 11-13, 2009



Meeting Attendance

Committee Members	February 11	February 12	February 13
Bergmiller, Gregory	✓	✓	✓
Bergtold, Greg	X	X	X
Bertram, Paul	✓	✓	✓
Birkbeck, Peter	✓	✓	✓
Bland, Kenneth	✓	✓	✓
Bryan, Harvey	✓	✓	✓
Carmody, John	X	✓	✓
Coad, William	X	X	X
Collins, David	✓	✓	✓
Crawford, Gregory	✓	✓	✓
Dixon, Chris	X	X	X
Freeman, William	X	X	X
Gardner, Michael	✓	✓	✓
Hubert, Steven	✓	✓	✓
Koeller, John	✓	✓	✓
Lupinacci, Jean	X	X	X
Martin, Shawn	✓	✓	✓
Meadows, Dru	X	X	X
Rogers, Robin	X	X	X
Schenck, Paula	X	X	X
Shymko, Gordon	X	X	X
Smith, Carl	✓	✓	X
Sordyl, Douglas	✓	✓	✓
Subasic, Christine	X	X	X
Sundersingh, David	✓	✓	✓
Taylor, Thomas	X	X	X
Thompson, Mike	✓	✓	✓
Tin, Angela	✓	✓	✓
Viola, Dave	X	X	X
Trusty, Wayne	✓	✓	✓
White, Ron	✓	✓	✓

Staff	February 11	February 12	February 13
Rademacher, Sara (Secretariat, GBI)	✓	✓	✓
Vicha, Chantal (Secretariat, TerraChoice)	✓	✓	✓
Worden, Vicki (Committee Liaison, GBI)	✓	✓	✓

Visitors	February 11	February 12	February 13
Vinod Aranha USGBC	✓	✓	✓
Allan Bilka Int'l Code Council	✓	✓	X
Michael Cudahy PPFA	✓	✓	✓
Elaine Thompson	✓	X	X



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Tyco Electrical Metal Products			
Steven Thorsell ICC Evaluation Sevice	✓	✓	✓
Martha VanGeem (CTL Group)	✓	✓	✓

Wednesday, February 11, 2009

1. Welcome / Introduction of Host

Discussion: Wayne Trusty opened the Meeting with a general welcome to Committee Members, staff and guests. He also introduced Harold Wimmer, President and CEO of American Lung Association of the Upper Midwest, who welcomed the group to his office. With 17 Members present plus the Chair, the meeting reached quorum.

Action Required: None.

2. Minutes from August 2008 Committee Meeting

Discussion: Wayne reviewed minutes from August 2008 meeting
 Approved (Yes – 17, No – 0, Abstain – 0)
 Moved by David Sundersingh and seconded by Doug Sordyl

3. Process Moving Forward

Discussion: Wayne reviewed the agenda for the meeting. Sara Rademacher went over PowerPoint presentation about the process going forward.

Agenda for the Meeting

It was noted that all comments received through the simultaneous Letter Ballot and Public Review process had been sent to the Committee members via email attachment in spreadsheet format. The Committee was informed that for the purposes of organizing the discussion at the meeting, all comments were sorted as follows:

- 1) Editorial Comments – Recommended for Approval
- 2) Editorial Comments – Not Recommended for Approval
- 3) General and Miscellaneous Comments – Recommended for Approval, Not Recommended for Approval and Recommended for Discussion
- 4) Substantive Comments – Recommended for Approval
- 5) Substantive Comments – Not Recommended for Approval
- 6) Substantive Comments – Recommended for Discussion
- 7) Points Related Comments

Process Moving Forward

The presentation included information about second round of Letter Ballots and Public Comments as well as information about the schedule moving forward. The following topics were included:

- 1) Letter Ballots – 23 affirmative, 3 negative and 1 abstained. After negative vote resolution 1 negative vote is now affirmative and two negatives agreed to be resolved by discussion at the Committee Meeting. Letter ballot to resolve negative votes was not necessary.
- 2) Public Comments – 275 public comments were received. Process for resolving comments is to have lead responder write response, Committee reviews response, then votes by consent at



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- the meeting. Next the Secretariat edits responses according to the votes, then notifies the commenter(s) on the results. The commenter(s) has the option of determining if the comment is “resolved” or “unresolved”. Unresolved comments can be appealed. Appeal process follows procedures – informal moving to formal – until a letter ballot is required.
- 3) Schedule Moving Forward –Minutes will be published following the meeting. The public will receive notification of the Committee’s decisions and information on the appeals process. A third limited round of public comments on substantive changes only will occur and a third letter ballot (recirculation ballot) will also occur. Committee meeting via teleconference will be scheduled following the public comment period. Technical work should wrap up in the late summer. Goal is to submit standard to ANSI in the fall.

In addition to the previous items, the Committee was informed that all Public Comments and the agreed upon corresponding responses will be listed on the GBI website once the material has been updated and based on the results of this meeting. There was no discussion from the Committee.

Action Required: None

4. Editorial Comments “Recommended for Approval”

Discussion: The Committee was given a few minutes to review the comments and proposed responses to the editorial comments “recommended for approval”.

Approved (Yes – 17, No – 0, Abstain – 0)

Moved by Carl Smith and seconded by Greg Bergtold

5. Editorial Comments “Not Recommended for Approval”

Discussion: The Committee reviewed, discussed, and voted on all editorial comments “not recommended for approval” including any comments brought forward by Committee members. A summary of discussions, resolutions, and action items are summarized below by comment number.

Comment 157 regarding the definition for “graywater”. The commenter suggested changing the definition slightly. The committee discussed the suggested change and decided to add additional definitions relating to kinds of reclaimed water. (John and Shawn agreed to draft these.) Comment 157 was tabled.

Approved (Yes – 17, No – 0, Abstain – 0)

Moved by Doug Sordyl and seconded by David Collins.

6. General and Miscellaneous Comments

Discussion: The Committee reviewed, discussed and resolved all “general and/or miscellaneous” comments. The comments were reviewed one by one and discussed. A summary of discussions, resolutions and action items is given below by comment number.

#107 Accept recommendation

#110 Amend response to address reason for no intent statements

#131 Amend response to include statement that it will be addressed in future versions of the standard

#132 Amend response to say it’s addressed in materials, energy and site sections

#133 Amend response to say it will be addressed in future versions of the standard

#273 Committee discusses this comment and agrees NRA. Also reviewed revision to the scope and agreed to change

#274 & 280 Agreed NRA

#80 Discussion focused on impact to the PINS and it was decided there would be none. The Committee agreed RA with changed response

#81 Agreed NRA with a changed response



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- #277 Agree NRA. Amend response to include explanation of change to scope – specifically removed reference to existing buildings except for major renovations
- #275, 113, 98, 112, & 160 Discussed and Committee agreed to response as written
- #197 Rejected and amended response to include explanation that “onsite would apply but offsite would not because it would be considered purchased green energy”
- #322 Committee discussed use of hazardous materials and agreed with commenter. Also provided alternate language (e.g. janitorial supplies). Agreed RA
- #324 Discussion centered on whether this should be included in Section 5 of the standard or in the specific sections. The other item discussed was whether or not to include the language “whichever is more stringent”. The group decided this comment was not recommended for approval because it is dealt with specifically in the Energy Section .
- #114 Accepted recommendation
- #115 Accepted recommendation with change to response to be specific that this is defined elsewhere in the standard
- #12 Discussion focused on the section as a whole. Committee agreed to this response but requested to keep only first two sentences with note that it will be addressed more in a future iteration
- #59 Accepted recommendation
- #61 Comment referred back to the subcommittee to review during the meeting and prepare a response
- #62 Discussion about whether or not the standard should include consideration for solar gain (east and west) impact to neighboring buildings. The committee agreed that this should be further looked at in future iterations. They also agreed that the response should be changed to direct the user to the design team when considering solar gain.
- #79 Accepted recommendation with addition of number ranges (25-49 and 50-74)
- #116 Committee agreed that this is meant to be a prescriptive path and not performance based. The Committee changed the recommendation to NRA and the response reflects the previous statement
- #117 Discussion Committee agreed that the section should be renamed but did not agree with the recommended title. Instead the committee agreed this is NRA and the section should be renamed “Storm Water Management”
- #309 Accepted recommendation
- #313 NRA response is the same
- #96 Discussed whether a definition should be included for “mass wall”. Committee agreed that standard language is okay as written. Comment is NRA with response changed to say “Most ICF industry convention is insulation on both.”
- #99 Discussion: comment tabled so subcommittee could review and provide appropriate changes.
- #111 Agreed NRA and amended response to include example in Energy section
- #118 Agreed NRA with change to response to include “ASHRAE Appendix G”
- #119, 120 Agreed NRA and accepted response
- #121 Changed to NRA with amended response
- #122 Agreed NRA with change to response to include references to where air barriers section is in standard
- #124 Agreed NRA with a change to the response
- #125 Discussion focused on whether or not it would be considered bio mass under our definition of renewable energy. Committee agreed this is NRA and the response should refer to the renewable energy definition specific to on-site and off-site in the standard
- #126 Agreed NRA
- #179 Committee agreed to move this comment to the Points section to be addressed on the last day of the meeting
- #180 Committee discussed adding a reference to the response
- #183, 184, & 185 Agreed NRA. One edit to response on 185
- #328 & 329 Discussion focused on whether or not we could include the IECC reference in one location for the whole document. Some members felt it wouldn’t be appropriate in all sections of the standard. The committee decided to move this comment to the substantive change discussion, have the subcommittee review the comments and report back to the full committee the next day.



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- #344, 352, & 24 Acknowledged comments
- #25 Committee changed recommendation to RA –response remains the same.
- #134 & 207 Acknowledged comments
- #208 Accepted recommendation with a change to the response. The response should list a reference not an internet link
- #241 Acknowledged comment and agreed to response.
- #345 Accepted recommendation with change to response to include “As C2C continues to develop this may be changed in a future iteration”
- #102 Acknowledged comment and agreed to response
- #127 Agreed NRA
- #262 Accepted recommendation
- #342 Accepted recommendation – need to change response to explain that this “suggestion has to do with remediation if you find radon in the building. This is not addressed in the standard because the standard is only addressing prevention.”
- #211 Accepted recommendation – change the response to say “some clarifications will be made to the references”

Motion to accept recommendations on General and Miscellaneous comments as discussed and with the understanding that specified comments were tabled until later in the meeting.

Approved (Yes – 17, No – 0, Abstain – 0)

Moved by Greg Bergmiller and seconded by David Sundersingh

7. Substantive Comments Recommended for Approval

Discussion: The Committee reviewed, discussed and resolved all “substantive comments recommended for approval”. The comments were reviewed one by one and discussed. A summary of discussions, resolutions and action items is given below in order of discussion by comment number.

- #317 The committee agreed to change this to NRA
- #320 Committee agreed to change this to NRA and to change response to use same language as previous foreword comment
- #87 Accepted recommendation
- #152 Changed response to NRA with same response
- #153, 321, & 47 Accepted recommendations
- #39 Accepted recommendation but changed to Editorial Comment
- #48, 49, 88 Accepted recommendations and responses
- #158 Committee decided to remove hazardous materials definition and references in the standard. Agreed NRA.
- #159 Committee decided to change to NRA, add VOC to acronyms and delete low-VOC definition from section 5. Definition will be eliminated and “low-VOC” will be removed when it doesn’t refer to a table
- #196 & 199 Accepted recommendation
- #245 Committee changed to NRA and use similar response to other hazardous materials response
- #279 Accepted recommendation
- #281 Accepted recommendation with change to response
- #283, 284, 310, 92, & 93 Agreed RA
- #14 Committee agreed to accept the intent of the comment while changing the language
- #63 Discussion focused on how much is acceptable when determining the appropriate amount of vegetative space for section 7.4. The Committee discussed how to address this concern and decided to refer it to the subcommittee for review and ask for a proposal on day two of the meeting



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- #94 Committee accepted recommendation but changed the response wording to state “Site has dedicated pedestrian access to connect or in the future will connect to community services, public transportation or both.”
- #166 Discussion surrounded the intent of the language in the standard. The committee agreed that the intent was to encourage user to conserve all water use. Therefore the Committee decided to reject this and change the response to NRA
- #247 Accepted recommendation but change response to reflect information in comment #94
- #285 Discussion by the Committee focused on the intent of the comment and the standard. It was agreed that the language in the standard needed to be clarified. It was referred to the subcommittee to review and provide a new proposal on day two of the meeting.
- #316 Committee decided this section needs further clarification regarding when irrigation systems are used. The Committee agreed to refer this to the subcommittee to provide new language
- #8 Accepted recommendation and change response by inserting “all” before exterior lighting
- #29 Committee changed response to NRA stating that the language in the standard is correct as written
- #103 Referred to subcommittee to review language and report back to full committee
- #139 Committee changed response to NRA stating that it’s already addressed in the energy section
- #186 & 188 Accepted recommendation
- #223 Discussion questioned whether or not this section excluded cooling towers. The Committee agreed to change the response to NRA and the response should include language stating “the variable flow should be encouraged for both open and closed hydronic and proper design considerations should be included for either system”
- #286 Accepted recommendation
- #19 Discussion concerned if the wording should be “qualified” or “labeled”. The Committee agreed to change the language to state “qualified or labeled”
- #20 Discussion about the use of two digits for numbers throughout the document. Originally the Committee agreed to two. It was now agreed that significant digits should be used as appropriate.
- #41 & 43 Accepted recommendation
- #174 Agreed NRA. While the Committee agreed to inserting annual and sensible, they did not agree with the suggested deletion. Discussion by the Committee concluded that the second sentence needs to change to “user needs to balance the water savings to energy savings and the design engineer should recognize that regional factors will influence this. Also the additional language will be kept as suggested
- #189 & 192 Accepted recommendations
- #335 Discussion concerned where and how reference should be made within the standard. Committee agreed to intent of comment. Explanation in the response that the definition for graywater will be changed in the definitions section per comment #157
- #67 Accepted recommendation
- #140 Brief discussion by the Committee clarifying that vapor barriers aren’t specific in LCA but are listed in other ways. In addition the LCA does include a vapor retarder upstream film which is all that is needed to address this
- #143 Accepted recommendation
- #206 Discussion by the Committee focused on why we would include any floor finishes in this section. It was discussed whether it should be included for raised floors. The committee agreed that although floor finishes have merit they don’t belong in this section of the standard. Therefore the response was changed to NRA and the written response was changed to reflect the discussion
- #228, 250, 287, 289, 177, 178, & 337 Accepted recommendations
- #338 Discussion concerning what is really being referred to by “hazardous materials” in section 11.3. The Committee pointed out that code covers how materials that fall under this should be handled. The Committee agreed that the title of Section 11 should be changed as well as the title for 11.3. Section 11 will now be titled “Emissions and Storage of Materials” and 11.3 will be titled “Storage for Materials” 11.3.1 will be titled “Janitorial Supplies”. In addition the Committee agreed to remove the definition for “Hazardous Material” and any references to “hazardous material” within the standard. This changed the response to NRA with the written response to reflect the above information



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#15, 16 & 31 Accepted recommendation

#169 Discussion by the Committee resulted in several changes to subsection 12.6.2.4. They felt that additional language was needed to clarify this section. At the end of the first bullet the language “with the exception of sprinklers and radiant heating systems” was added. The Committee agreed to keep the suggested language change of “mitigate” instead of minimize. Also a third bullet was added with the language “Water hammer arrester was used”. The Committee agreed to these changes stating that the key for this section is to do whatever is needed to keep noise down. Accepted recommendation with the above changes

#202 Discussion of this comment surrounded the question of whether the purpose of the language is to ensure the user meets the requirements without being certified. The Committee agreed that the original language in the standard is stronger and preferred. They Committee changed the response to NRA with the response reflecting the above information

#205 Accepted recommendation

#258 Committee agreed that these products had previously been in the standard and need to be included. Accepted recommendation

#261 Discussion determined that “and/or” needed to be added to the response between “office furniture” and “ high performance”. The Committee confirmed that the suggested change to the standard will help limit noise. Accepted recommendation with the above change

#292 Accepted recommendation

#293 Discussion about whether or not draft guides or standards should be referenced. The Committee agreed that they needed to be consistent and that draft material would not be used. They also agreed that the title for this section should be changed to “Measures to Mitigate Potential Radon”. Accepted recommendation

#348 Discussion by the Committee was that the word “or” is used and that it gives the user flexibility. There is not a mandate requiring certification because there is an alternative. The Committee also wanted to ensure consistency referencing their decision on comment #202. The Committee agreed to change the response the NRA and reflect the above information in the reason

#260 Accepted recommendation

#240 Referred to the Secretariat to get additional clarification from the commenter for the Committee. Response required prior to meeting’s end

Substantive Comments Recommended for Approval as discussed, modified and with the understanding that some specified some comments were tabled until later in the meeting.

APPROVED (Yes – 23, No – 0, Abstain – 0)

Moved by Peter Birkbeck and seconded by Michael Gardner

Motion to adjourn for the day.

Approved (Yes – 17, No – 0, Abstain – 0)

Moved by David Sundersingh and seconded by Greg Bergmiller.

Thursday, February 12, 2009

8. Substantive Comments Recommended for Discussion

Discussion: The Committee reviewed, discussed and resolved all “substantive comments recommended for discussion”. The comments were reviewed one by one and discussed. A summary of discussions, resolutions and action items is given below in order of discussion by comment number.

#182 The Committee agreed after a brief discussion on whether or not wet cooling is more efficient, that the response to this comment should be RA and the written response should reflect this

#200 Committee referenced previous day’s discussion about landfill gas. Committee agreed this comment is “NRA”



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- # 221 Committee was informed that this is the definition in ASHRAE 90.1. The Committee was also advised it is used in Section 8 of the standard. The Committee agreed this definition should be included. The comment is RA
- #222 Agreed RA. Agreed with need to add the definition but used alternate definition for the standard
- #246 Committee agreed this comment is NRA. In addition for the written response they referenced the discussion about comment #159 and their decision to remove the definition from the standard
- #282 Accepted recommendation – RA
- #323, 326, 327, & 330 Committee had a brief discussion about these four comments. It was agreed that because they all reference adding the 2009 IECC in different sections of the standard they should be referred to the subcommittee for review and a response prepared for the Committee which will be discussed on day 3 of the meeting.
- #331, 332, 334 Committee agreed to refer these to the subcommittee for review and requested they report back before the meeting adjourns
- #3 Discussion about what % should be used. Committee referenced that a lot of box stores want 6% with lighting controls. It was also discussed whether this was the appropriate section to address the comment. The Committee decided to “RA” the comment with the response referencing points for lighting controls listed in other areas.
- #6 Committee agreed that “controlled areas” were not defined specifically they agrees that the response is NRA because the section itself defines the term – it is evident
- #108 Committee discussed the need to control solar heat gain and agreed that this is addressed in other ways such as the percentage of heat gain through glass is restricted by code. The Committee agreed the response is NRA and the written response should reflect the above information
- #212 Committee agreed that there is not technical justification to add the proposed value suggested in this comment. The response is NRA
- #109 Committee agreed that there isn’t technical justification for the suggested change. They referenced that the bulk of skylights in 1 and 2 have a SHGC of .019. The Committee agreed the response is NRA and the written response will reference a lack of technical justification
- #167 Committee discussed that “potable water” isn’t what they are trying to address here. Therefore the Committee agreed the response is NRA and reference section 9.10.1.1 that covers potable water elsewhere
- #190 Committee agreed this should be RA and the wording for the response should state “ Towers should be equipped with makeup and blowdown meters and equipped with a conductivity controller.”
- #72 Discussion about if there is a concern about gaming as previously written. Committee agreed that the comment is RA and that Appendix O will be reworked accordingly
- #299 Discussion surrounded the LCA and how the changes to it impact the standard. The Committee agreed that because new versions are being released the standard will have to use a specific version reference for the LCA being used. The Committee also agreed that this is NRA because it is being addressed in the new version of the tool. The response will say “we are changing to be consistent with Table 1.4.7”
- #105 The Committee discussed this comment and agreed that it should be NRA
- #106 Committee agreed NRA
- #194 Committee agreed this is NRA. The response needs to be changed to be consistent with previous cooling tower response

Committee accepted recommendations on Substantive Comments Recommended for Discussion as discussed and agreed that certain specified comments were tabled until later in the meeting.

Approved (Yes – 18, No – 0, Abstain – 0)

Moved by Carl Smith and seconded by David Sundersingh

9. Substantive Comments Not Recommended for Approval



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Discussion: The Committee reviewed, discussed and resolved all “substantive comments not recommended for approval”. The comments were reviewed one by one and discussed. A summary of discussions, resolutions and action items is given below in order of discussion by comment number.

#136 Agreed NRA

#1 Agreed NRA but need to change reference in the response

#2 Agreed NRA

#89 Discussion about what time frame would still qualify as “major renovation.” The Committee agreed that this response is NRA and response is fine as written

#90 Discussion about why the definition is included and what is the appropriate definition to use. The committee referred this to the subcommittee for review and asked that they propose appropriate definition.

#91, 198, & 243 Agreed NRA

#244 Discussion by the Committee focused on the previous discussion by the resource subcommittee. The Committee was concerned that the language not encourage buying proprietary products. The Committee agreed this should be NRA with clarification of the response

#137, 163, & 217 Agreed NRA

#73 Agreed NRA with change to the response to reflect meeting outcomes

#312 Agreed NRA

#314 Agreed NRA with slight change to the wording of the response

#271 Discussion by the Committee clarifying the intent of the standard. A USGBC representative pointed out that they believe existing buildings should be evaluated differently. The Committee confirmed that this standard applies to new construction, planning for operations and maintenance, and major renovations. Agreed NRA

#4 & 5 Agreed NRA with slight change to response to state that “we believe it is feasible”

#7 Agreed NRA. Committee pointed out that we are using what is currently in place not proposed

#78 Subcommittee group met briefly during break and recommended adding “IECC” and eliminating stringency wording for this comment. The Committee agreed RA with the changes mentioned

Committee had a brief discussion to determine how to deal with comments received late. The Secretariat informed the group that we received one group of comments from a single commenter less than 24 hours after the deadline. The Committee agreed to accept the comments and resolve them during this review period

#138, 248, 351, 353, & 354 Agreed NRA

Committee took 15 minute break

After the break the Energy subcommittee group reported back that overall they agreed that IECC should be included. The exception is in comments that rely on referencing ASHRAE 90.1’s Appendix G because in those references IECC is not equivalent. The Committee agreed with the recommendations

#323, 324, 325, 327,328, 329, 330, 331, 332, 333 & 334 Agreed RA

#326 Agreed NRA

After the subcommittee reported back and the Committee resolved the above comments they returned to the Substantive NRA comments

#355 Discussion stated that this comment does not make sense for the standard. In addition, ASHRAE has also considered this and made the same decision. Committee agreed NRA

#44 Agreed NRA

#45 Discussion confirmed there are no regulations to back this up. Agreed NRA



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- #46 Discussion advised that some other green building codes have included garbage disposal systems. They argue that it provides useful bio-mass. In addition some schools are doing this as well because it's very efficient and something we should consider. They also discussed how it impacts water treatment facilities and were advised it depends on how the system is set up. Committee agreed to refer this to subcommittee to review further and present to the Committee in the afternoon
- #100 & 104 Agreed NRA and response will be changed to note the issue tradeoffs
- #175 Agreed NRA
- #191 Agreed NRA and will use same "wet cooling" language as in previous responses
- #193 Agreed NRA
- #213 Agreed NRA change response answer to same as comment #100
- #272 Discussion addressed USGBC representative's comment that integration is a good way to go. Committee responded that this assumes there is only one way to approach it and they believe that's not the case. Also confirmed that the points will be refined on the last day of the meeting. Committee agreed NRA
- #27 Discussion was concerning the inclusion of the USDA bio-preferred program similar to how the standard recognizes EPA's Water Sense. Committee confirmed it's a federal preferred program but this doesn't preclude its use in the Standard. Also advised that many universities use it successfully. It was suggested that if this comment is accepted then the language in 10.1.2.2 and 10.2.2 would also need to change. The Committee agreed to change this to RA
- #77 Committee agreed this isn't really a NRA/RA – it is really a "no" and requires an explanation the suggested explanation
- #95 & 141 Agreed NRA
- #144 Agreed NRA with change in response to use "guideline" instead of "standard"
- #145, 146, & 147 Agreed NRA
- #209 Discussion focused on how the credit is done and what it includes. The Committee agreed that the comment would be a fundamental change and should be considered in a future iteration of the Standard. Agreed NRA
- #210, 226, 251 Agreed NRA
- #270 Committee agreed to defer to points discussion
- #276 Discussion clarified how the response was drafted and that there is also an ISO and CSA standard. The Committee agreed NRA and the response is correct as written
- #288 Discussion determined that we will remove line from both 10.1.2.1 and 10.2.2.1. Agreed NRA
- #290 & 291 Agreed RA with change in response to reflect approval

Chair Wayne Trusty turned chair over to Michael Gardner to chair committee discussion on LCA related comments #295-303.

Discussion about whether or not we could address these comments as a whole since they are all about the same section. It was noted that at the last Committee meeting it was agreed that equivalency language would be addressed in a future iteration of the standard. It was again suggested that the comments be addressed as a group but the commenter was present and requested that they be addressed individually. The Committee agreed.

#295 Discussion was focused on whether or not you have to do the whole building and all its interactions for the energy performance to be accurate. The Committee agreed NRA

#296 Discussion surrounded how the calculator deals with different materials. The commenter stated that when you input concrete and 10% is cement then cement overshadows everything by far. Commenter feels there should be a way to add cement to the profile specifically. The Committee clarified that the eco-calculator is a simplified approach so there aren't 100s of product choices – this was intentional because it was not practical to be able to make a lot of product differentiation. The Committee agreed NRA



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#297 Discussion focused on point tradeoffs between sections. For example you get less points for insulation in one section but can't maximize in another because of the additional insulation used. The Committee clarified that this is optimized by the way the points are delivered throughout the standard. Committee agreed NRA

#298 Discussion clarified that the calculator can't make all items used equivalent. The trade-off is between total comprehensiveness and ease of use. If someone is looking for more specifics there are whole building tools available for purchase. The purpose of the calculator is to help the standard user make more educated choices. Committee agreed NRA

#300 The Committee clarified that this comment was addressed by the earlier decision to use the table therefore this comment is no longer relevant. Committee agreed NRA

#301 Discussion focused on where information on steel is obtained. It was confirmed that current data does not distinguish steel from China. It was also pointed out that a table is available which shows which data the eco-calculator uses. While desirable to have exact data travel with products, this is not practical today. The Committee agreed NRA with slight change to response to include reference to the table which provides transparency regarding the data

#302 Committee agreed NRA

#303 Discussion started with commenter voicing her concern about the loss of flora and fauna, loss of habitat when new construction takes place. The Committee agreed that there is no accepted LCA-related measure and that to attempt this would be difficult because measuring the impact of each site specifically would be too challenge. The Committee agreed NRA

#304 Agreed NRA

#305 Discussion by Committee clarified that the data used in the calculator for CO2 is from the international panel on climate change which says be neutral. Committee agreed NRA

#306 & 307 Agreed NRA

Committee had a discussion on changes being made to the eco-calculator. The Committee was informed that there are now 8 indicators and they are consistent with TRACI's formulation of measures specified in ISO21930 in addition to some other changes. The Committee confirmed that the standard references GBI's LCA Green Globes Credit Calculator. The Committee agrees the standards references are appropriate

#308 Discussion started with the commenter stating that she thought there was supposed to be additional work done on this after the last Committee meeting. She also feels that adopting the suggested language would address her concerns to do this and would result in a full performance method. The Committee agreed that this is an alternative equivalent approach but that what is included isn't available in the market. It would work for simple systems but not for a whole building. The Committee agreed that this will have to be reviewed in a future iteration of the standard but for now it is NRA and the response should reflect the discussion

Adjourned for lunch

Reconvened after lunch and started discussion with previously tabled comments



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#46 Discussion based on whether or not garbage disposals should be included in the standard. The Committee agreed the issue is controversial. It was pointed out that in some countries it's actually mandated. The discussion also pointed out that it is also related to water consumption. The Committee did a straw poll and agreed NRA at this time

#83, 84, 85, 348, 349 & 350 Discussion on GreenGuard test protocol and if it should be removed from the standard. The Committee confirmed that although GreenGuard was founded as proprietary it has now had any language related to propriety nature stripped out. In addition the test method goes beyond CA 1350. Additionally it is one possible option of many given in the standard. It was proposed that a footnote be added to tables stating "any other technically equivalent method" The Committee agreed to this change. They also agreed NRA for the comments

#220 Committee agreed NRA but the response needs to say that "high efficiency cooling system would be beneficial but is dealt with in the Energy section"

#17 Committee agreed NRA

#18 The Committee agreed change response to RA. After discussion, it was agreed that an all or nothing change was more appropriate.

#101 Agreed NRA

#148-151 Discussion on whether or not to include European standards as suggested by the commenter. The Committee discussed that none of the programs have visibility in the marketplace. They agreed that going through them and vetting them as a consequence is not reasonable at this time. In addition the ISO test that goes along with these programs is fundamentally different than the ones we talked about in the test criteria. The Committee agreed that these are NRA

#168 Discussion was about relevance of tankless heaters in this section. Committee agreed that this has been discussed in the past. They agreed that because this is to ensure that microbial contamination doesn't occur tankless heaters should be included. The Committee agreed to change the response to RA.

#176 Agreed NRA and to use previous language for cooling towers

#195 & 203 Agreed NRA

#214 & 215 Agreed NRA and to use previous language for cooling towers

#255 & 257 Agreed NRA

#259 Brief discussion on other wording alternatives but the Committee decided to leave it as is. Agreed NRA

#266 Committee agreed to make this RA. Believe that although it is difficult to obtain the 2 points it should be changed based on the commenter's suggestion

#294 Based on previous discussion to exclude research papers and proposed standards, the Committee agreed to remove. Agreed to change to RA

#339 Discussion on if Committee should include the reference to mechanical code. Argument was made that it doesn't really change anything because of existing wording. Also discussed why we would "require the most" every time. Committee decided to refer it to the subcommittee for further review. Tabled until day three

#340 & 341 Tabled until day three

#343 Discussion by the Committee agreed that the suggested language is not equivalent and therefore the comment is NRA

#249 Agreed NRA

#336 Committee agreed to table this until after the break

Adjourn for break

Reconvene. Committee started with comments previously tabled.

#268 Discussion started with USGBC representative explaining that in their opinion this would be difficult to use across the board. They believe you can't use same product in office building and a school. Committee doesn't agree and stated that it's the product itself that deals with this. If used in two different



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buildings there will be different emissions effects. The response is written from a systems standpoint not a building standpoint. Committee agree NRA

#269 Agreed NRA

#339 Committee reviewed ventilation tables and they are identical therefore the Committee agreed to change the response to RA

Committee agreed to accept recommendations on “Substantive Comments Not Recommended for Approval” as discussed and with the understanding that some specified some comments were tabled until later in the meeting.

Approved (Yes – 18, No – 0, Abstain – 0)

Moved by David Collins and seconded by Greg Bergmiller.

Committee took up previously tabled or otherwise held over items

#62 (General Comments) Committee discussed briefly that the decision they made yesterday stands because in principle it is good to use for vertical as well.

#157 (Editorial NRA) This is a rewrite of Section 9.10.1 and definitions need to be added as appropriate. Committee agreed RA

Suggested change to 9.10.1.1

9.10.1 Alternate Sources of Water

9.10.1.1 Non-Potable water applications used alternate sources of water that included, but were not limited to, the following:

- Air conditioner condensate
- Cooling tower blowdown water
- Foundation drain water
- *Graywater*
- Pass-through cooling water
- Rainwater catchment and harvesting
- Municipally recycled, treated wastewater (*municipally reclaimed water*)
- ~~Stormwater harvesting~~
- Swimming pool filter backwash water
- Industrial process water

GBI Definitions

Graywater – Untreated waste water that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Gray water includes waste water from bathtubs, showers, bathroom wash basins, clothes washers and laundry tubs.

Potable Water – (Use existing definition)

Municipally Reclaimed Water – (Use existing definition)

Rainwater – Untreated water from natural precipitation that has not been contaminated by use.

Rainwater Catchment – Collection and conveyance of precipitation from a rooftop or other manmade, above ground collection surface.

Rainwater Harvesting - Using rainwater for potable, non-potable, industrial or irrigation applications.

#90 (Substantive NRA) Discussion on appropriate definition for vegetative roof. Committee agreed to use Green Roofs for Healthy Cities definition with modification and to add citation in the informational reference.

Section 8 Committee agreed to add language back that had been previously deleted in error.



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- The baseline building’s site Energy Use Intensity (EUI) is determined using ENERGY STAR Target Finder.
- The baseline building’s site EUI is 50% better than the Energy Performance Rating (Target Finder) score of 50.
- The annual energy fuel mix for the baseline building is determined from DOE-EIA and reported at the top of Target Finder’s Results page.
- The CO_{2e} emission factor for each fuel in the baseline building’s annual energy fuel mix can be found in Table 8.1.1- A.

Proposed Equivalent Emission Rate (PER) Calculation

PER is calculated using the following formula:

PER = (proposed EUI) X sum of [(percentage of each fuel in the annual energy fuel mix for the proposed building) X (CO_{2e} Emission Factor for each fuel)], where:

- The proposed building’s Energy Use Intensity (EUI) is calculated using a computer-based simulation program that conforms to the requirements outlined in ANSI/ASHRAE/IESNA Standard 90.1-2007, Appendix G, Section G2.2.
- Proposed Building’s Equivalent Emission Rate (PER) shall be determined by performing an EUI calculation for the proposed building using the energy performance requirements specified by Table G3.1 Modeling Requirements for Calculating Proposed and Baseline Building Performance in ANSI/ASHRAE/IESNA Standard 90.1-2007. Only the Proposed Building Performance column shall be used for modeling the PER.
- The annual energy fuel mix planned for the proposed building is what is to be used for this calculation.
- The CO_{2e} emission factor for each fuel in the proposed building’s annual energy fuel mix can be found in Table 8.1.1- A.

#342 Committee agreed to changes in radon section as submitted by subcommittee.

Radon Entry and Control	
<p>12.3.2.1 The following measures were used to mitigate the potential entry of radon:</p> <ul style="list-style-type: none"> • Documenting the regional and local radon potential versus radon action level of the site; • Installing a passive radon mitigation system; • Test for radon prior to occupancy • Install active system, if necessary. <p>Informational References:</p> <ul style="list-style-type: none"> • EPA Map of Radon Zones • International Building Code: Appendix F. • ASTM 1465: Standard Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings 2007 • Large Buildings Characteristics as Related to Radon Resistance: A Literature Review. United States National Risk Management; Environmental Protection Agency Research Laboratory; Research Triangle Park, NC 27711; Research and Development EPA/600/SR-97/051 July 1997 	2 points

#240 Agreed NRA reason “The scope of document is for new construction and this reference is for after a building has been completed.”

#197 Agreed NRA

#335 Agreed NRA

#285, 61, 79, 180, 328, 329, 63, 103, & 316 Referred back to subcommittee for more review

#24 & 25 Agreed RA addressed by previous discussion

Accepted the previously tabled items as discussed (comments 90, 240,198, 342, 157, 62, 335, Section 8, 24 & 25, and Section 12.3.2.1) except for those pending for tomorrow.

Approved (Yes – 18, No – 0, Abstain – 0)

Moved by Doug Sordyl and seconded by David Sundersingh.

Motion to adjourn.

Approved (Yes – 18, No – 0, Abstain – 0)

Moved by Doug Sordyl and seconded by Greg Bergmiller.



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10. Points Comments

Discussion: The Committee reviewed, discussed and resolved all “Points Comments”. The comments were reviewed one by one and discussed. A summary of discussions, resolutions and action items is given below in order of discussion by comment number.

At the start of the discussion the chair reminded the Committee that the Analytical Hierarchy Process -- an ASTM based method -- was used to determine points assigned to the main sections of the standard. The Subcommittees were then responsible for allocating those points within the subsections.

- #86 Agreed NRA – explanation addressed concern
- #238 Agreed NRA
- #154 The Committee agreed that the use of percentages is appropriate here because this ensures the user won’t be negatively impacted by things they didn’t have an ability to do (allows for non-applicables). The Committee did agree that the title language needed to be changed to “Percentage achieved out of applicable points.” Agreed NRA
- #242 Agreed RA
- #130 NRA with note: Secretariat resolved NRA noting addressed in 7.4.1.6 includes constructed wetlands.
- #315 Committee agreed to table this until the end of the points discussion
- #123, 129, 181, 187, 218, & 219 Committee referred these comments to the subcommittee until later in the morning
- #65 & 66 Subcommittee informed the full committee that these changes were necessary to correct the totals in Section 10.1 and 10.2
- #74 Agreed NRA with response to include explanation of point program
- #142 Discussion focused on the difficulty in trying to determine the “right” number of years for a building to be sustainable. The Committee agreed that this isn’t possible and that a service life plan should be used instead. The Committee suggested that a note statement be added that says temporary facilities should not be overbuilt and components can be disassembled. The Committee agreed NRA
- #170 Agreed NRA
- #128 Agreed NRA with change in the response to explain that the comment is accounted for in Section 9.

- #237 Agreed that when the section was deleted after the last Committee meeting the points were redistributed among the remaining subclauses within the section
- #32 Agreed RA
- #36, 37, 38 Agreed NRA
- #76 Agreed RA. Committee agreed that the comment was accepted and that the Committee not only made the suggested change but also went beyond it with the points adjustment
- #171 Agreed NRA
- #256 Committee agreed that the points sidebar will be clarified by including the following statement. "Percentages shall be obtained by dividing the weight or quantity of any listed material (that meets the listed limit), by the weight or quantity of all of the same listed material." Agreed RA

Committee revisited previously tabled comments.

- #123 Committee agreed NRA and change the response to state “the intention is to focus reuse instead of treatment as is reflected in the water section.”
- #129 Agreed NRA
- #181 Committee agreed NRA and the response should say that the energy benefits will show up in the energy calculations



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#187 Agreed NRA. Committee did not agree to make this change because they agree that when it is non-applicable because users are not penalized

#218 Agreed RA

#219 Agreed RA

Revisit Section 12.4.2.1 & 12.4.1.2

Committee agreed that they need to redistribute points within the section. Committee agreed to change language as suggested so that it's an all or nothing section. Points will be redistributed giving daylighting section 12 points and interior space a total of 10 points. Then break up the percentages. For section 12.4.1.1 it should be - 6 points=10%-30%, 9 points=31%-59%, and 12 points=60% or greater. For section 12.4.1.2 it should be - 5 points=10%-30%, 8 points= 31%-59%, and then 10 points=60% or greater. Also agreed to clarify the definition for primary occupied spaces as appropriate for this section. Committee agreed RA

#179 Committee agreed that heating equipment is covered under the energy section. Agreed NRA and response should reference that it's covered under energy use of the building under the 90.1 performance path

Committee agreed to discuss previously tabled items.

#316 Committee agreed there is no way to easily convert this to percentages. Each one is worth 1 point. Agreed to modify language slightly but keep points the same. Agreed NRA

#315 Committee agreed NRA but did change language to clarify

Committee agreed to accept the items as discussed except for those pending that are still pending.

Approved (Yes – 18, No – 0, Abstain – 0)

Moved by Doug Sordyl and seconded by David Sundersingh

Committee agreed to discuss previously tabled comments.

#61 Committee agreed to consider further modifications to the section in a future iteration of the standard

#79 Committee agreed that they need to scale paths....path 5 1-25, path 4 26-50, path 3 51-75 and path 2 76-100. In path 7 the exterior vegetative space language will move to the beginning. The path will be 26-50

Committee agreed to revision.

#63 Committee agreed NRA and response should reference changes made to the section that address concerns

#180 Committee agreed that this is a general comment and doesn't require a NRA or RA. Instead the response needs to show that the SMACNA reference shows that 5% leakage is a good number, better than the industry standard. Also need to add SMACNA HVAC Air Duct Leakage Test Manual

Committee took a brief break

Reconvened after break and continued with outstanding comments.

#285 Committee agreed RA and definition will be added

#323 & 324 Agreed RA

#328 Committee agreed this is not comparable and doesn't distinguish mass material the same way that 90.1 does. Committee agreed NRA



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#329 Committee discussed why any informational reference was need in section 8.5.1.3 and agreed it is unnecessary. Both informational references will be removed.
 #336 Committee agreed that in 10.9.1.1 to take out language after “energy code...” and add “2009 International Building Code Section 1405.3.” Response to comment is NRA with language referencing the change to the section.

Committee reviewed, discussed and approved the following proposed changes to Section 8 - Energy.

8.6 HVAC Systems and Controls – PATH B (84 points)

8.6.1 Cooling Equipment	
<p>8.6.1.1 The seasonal energy efficiency ratio (SEER), energy efficiency ratio (EER), integrated part-load value (IPLV), coefficient of performance (COP) or kilowatt per ton (kW/ton) of the cooling equipment exceeded ANSI/ASHRAE/IESNA Standard 90.1 - 2007 or 2009 International Energy Conservation Code (IECC) requirements by 5-15%.</p> <p>If ANSI/ASHRAE/IESNA Standard 90.1-2007 or 2009 International Energy Conservation Code (IECC) requires more than one efficiency rating, the more efficient one was used.</p> <p>The percentage improvement for multiple pieces of equipment shall be the weighted average improvement based on equipment capacity.</p>	<p>Maximum = 12 points or n/a</p> <p>5% - 6% = 2 points 7% - 8% = 4 points 9% - 10% = 6 points 11% - 12% = 8 points 13% - 14% = 10 points 15% = 12 points</p> <p>n/a where there is no cooling equipment</p>
<p>8.6.1.2 Multiple compressors, variable speed compressors or other measures were installed to allow a plant capacity reduction to 30% of full load with a maximum of 25% loss in efficiency compared to full load.</p>	<p>3 points or n/a</p> <p>n/a if there is no part load.</p>
8.6.3 Heat Pumps	
<p>8.6.3.1 The heating efficiency for heat pump applications exceeded ANSI/ASHRAE/IESNA Standard 90.1 - 2007 or 2009 International Energy Conservation Code (IECC) requirements heating seasonal performance factor (HSPF) or coefficient of performance (COP) requirements by 5-15%.</p> <p>Heat pumps and other heating equipment (see 8.6.4) can be combined in a building but no more than twelve points can be achieved from 8.6.3 and 8.6.4 together.</p> <p>The percentage improvement for multiple pieces of equipment shall be the weighted average improvement based on equipment capacity.</p>	<p>Maximum = 12 points or n/a</p> <p>5% - 6% = 2 points 7% - 8% = 4 points 9% - 10% = 6 points 11% - 12% = 8 points 13% - 14% = 10 points 15% = 12 points</p> <p>n/a if there are no heat pump applications.</p>
8.6.4 Heating Equipment	
<p>8.6.4.1 The following measures were implemented:</p> <ul style="list-style-type: none"> • Heating equipment exceeded ANSI/ASHRAE/IESNA Standard 90.1 – 2007 or 2009 International Energy Conservation Code (IECC) annual fuel utilization efficiency (AFUE), thermal efficiency (E_t) or combustion efficiency (E_c) requirements by 1-15%. • Heating control specifications indicated hydronic system temperatures conducive to the efficiency claimed. <p>Heat equipment and heat pump (see 8.6.3) can be combined in a building but no more than 12 points can be achieved from 8.6.3 and 8.6.4 together.</p> <p>The percentage improvement for multiple pieces of equipment shall be the weighted average improvement based on equipment capacity.</p>	<p>Maximum = 12 points or n/a</p> <p>1% - 2% = 1 point 3% - 4% = 2 points 5% - 6% = 3 points 7% - 8% = 4 points 9% - 10% = 6 points 11% - 12% = 8 points 13% - 14% = 10 points >15% = 12 points</p> <p>n/a if there is no heating.</p>
8.6.7 Domestic Hot Water Heaters	
<p>8.6.7.1 All domestic hot water heaters met the efficiency requirements of ANSI/ASHRAE/IESNA Standard 90.1 – 2007 or 2009 International Energy Conservation Code (IECC), and were equipped with intermittent electric igniters and low NO_x burners.</p>	<p>2 points or n/a</p> <p>n/a if there are no domestic hot water heaters.</p>



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<p>8.6.12 Demand Controlled Ventilation</p> <p>8.6.12.2 Ventilation heat recovery was used on systems not required by ANSI/ASHRAE/IESNA Standard 90.1-2007 or 2009 International Energy Conservation Code (IECC) and included the following design items:</p> <ul style="list-style-type: none"> • Pressure-drop impact on fan power. • Bypass for economizer operation, if applicable. • Filtration. • All connections and leak paths were sealed with metal-backed UL181A tape. 	<p>5 points or n/a</p> <p>n/a for heating systems in climate zones 1 through 3 and cooling systems in <i>climate zones</i> 3c, 4c, 5b, 5c, 6b, 7 and 8.</p>
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#340 Committee discussed if the changes to bullet one and two are appropriate as suggested. The suggestion was made that maybe it should be an informational reference instead of in the language and also that the language “whichever is more stringent” may not be appropriate. The committee agreed to change the language to remove reference to specific sections and an additional informational reference will be added to include Section 605 of the International Mechanical Code.

#341 Committee agrees to this change minus the additional language of “whichever is more stringent”. Agreed NRA with explanation of partial acceptance.
 #99 & 103 Committee agreed RA

Comments accepted as discussed.
 Approved (Yes – 18, No – 0, Abstain – 0)
 Moved by Doug Sordyl and seconded by David Sundersingh.

Chair addressed the Committee thanking everyone for their hard work over the last few days. He also thanked Angela Tin and the American Lung Association for hosting our meeting.

Meeting adjourned.
 Approved (Yes – 18, No – 0, Abstain – 0)
 Moved by Greg Bergmiller and seconded by David Sundersingh.