

Minutes

GBI Consensus Body Meeting #13 Final

BSR/GBI 01-201X

Chicago, IL

Monday, March 21, 2016 1:00 PM CT to 7:30 PM CT

Tuesday, March 22, 2016 7:30 AM CT to 6:30 PM CT

AND

Wednesday, March 23, 2016 7:30 AM CT to 2:00 PM CT

Attendance:

No	Name	Organization(s)	3-21-16	3-22-16	3-23-16		
1	Gregg Bergmiller	S/L/A/M Collaborative	X	X	X		
2	Paul Bertram	Kingspan Insulated Panels, Inc.	X	X	X		
3	Allan Bilka	International Code Council	X	X	X		
4	Jeff Bradley	American Wood Council	X	X	X		
5	William Carroll	American Chemistry Council	X (By proxy)	X (By proxy)	X (By proxy)		
6	Chris Dixon	NBBJ (rep. self)	X	X	X		
7	Nicole Dovel-Moore	CTA Architects Engineers	X	X	X		
8	Amber Dzikowicz	NSF International	absent	absent	absent		
9	David Eldridge	Grumman/Butkus Assoc.	X (By proxy for part of the day)	X	X		
10	William Freeman	Resilient Floor Covering Institute	X (By proxy)	X (By proxy)	X (By proxy)		
11	Susan Gitlin	U.S. EPA	X	X	X		
12	Don Horn	GSA	X	X	X		
13	Josh Jacobs	UL Environment	X	X	Absent		
14	Greg Johnson	Johnson Consulting Services, Greenscape Alliance	X	X	X		
15	Karen Joslin		absent	absent	X		
	Leslie Kahn	Admin. Office of the U.S. Courts	Resigned				
16	Malee Kaolawanich	NIH (rep. self)	absent	absent	absent		

17	Rachel Minnery	AIA	X	X	X		
18	Charles Kibert	University of Florida	X	X	X		
19	Gary Keclik	Keclik Associates	X	X	X (By proxy)		
20	John Koeller	Alliance for Water Efficiency	X	absent	absent		
21	Jennifer Kowalonek	Alfred Benesch & Company	absent	absent	absent		
22	Michael Lehman	ConTech Lighting	X	X	X		
23	Tien Peng	National Ready Mix Concrete Assn.	X	X	X		
	Bernadette Reyes	Clark Construction Group	Resigned				
	Angela Rivera	URS Corporation (rep. self)	Absent	Absent	Resigned		
24	Jane Rohde	JSR Assoc. Inc., Vinyl Institute	X	X	X		
25	Gord Shymko	G.F. Shymko & Associates, In.	X	X	X		
	Julie Sobelman	Independent Consultant	Resigned				
26	Kent Sovocool	Southern Nevada Water Authority	X	X	X		
27	Steve Strawn	JELD-WEN	absent	absent	absent		
28	George Thompson	Chemical Compliance Systems, Inc.	X	X	X		
29	Angela Tin	American Lung Assn.	X	X	X		
30	Douglas Tucker	Misubishi Electric Cooling & Heating	X	absent	absent		
31	Erika Winters Downey	American Institute of Steel Construction	X (by alternate)	X (by alternate e)	X (by alternate)		
Voting Alternates							
	Abby Brokaw	American Lung Assn. (voting Alternate for Angela Tin)					
	Paul Karrer	AIA (Alternate for Rachel Minnery)					
	Bill Hoffman	UL Environment					

		(Voting Alternate for Josh Jacobs)					
	Lance Davis	GSA (Voting Alternate for Don Horn)					
	D' Lane Wisner	D' Lane Wisner (Voting Alternate for William Carroll)					
	John Cross	American Institute of Steel Construction (Voting Alternate for Erika Winters-Downey)	X	X	X		
TOTALS			26/31	23/31	23/31		
Visitors							
	Martha VanGeem	Self (Principal Engineer)	X	X	X		
	Kyle Thompson	IAPMO	X	X			
	Kelly Scanlon	U.S. EPA		X			
	Kallie Sinkus	American Lung Association	X	X	X		
	Heather Dylla	National Asphalt Pavement Assn.	X	X	X		
	J. Richard Willis	Auburn University		X			
Staff/Consultants							
	Wayne Trusty	Chair	X	X	X		
	Vicki Worden	Executive Director, GBI	X	X	X		
	Emily Randolph	Secretariat Asst., GBI	X	X	X		
	Micah Thomas	Staff, GBI					
	Maria Woodbury	Secretariat, GBI	X	X	X		

Monday, March 21, 2016

Welcome & Roll Call

Secretariat, Maria Woodbury welcomed participants and conducted roll call by self-introductions to establish quorum. The anti-trust statement was reviewed and participants were requested to comply with it fully.

Woodbury reviewed the participation options, stating that while observers are welcome to participate in the discussion, only Consensus Body Members are able to vote. Participants were reminded to raise hands should they desire to add something new to the discussion and staff would then call on them in order.

On the first day of this meeting, 1 member voted using a voting alternate (John Cross for Erika Winters-Downey). There were 2 members voting via proxy (Jane Rohde for William Carroll and George Thompson for Bill Freeman).

Woodbury informed participants that the call was being recorded for the purpose of minute taking and no objection was raised.

Angela Tin of the American Lung Association welcomed the Consensus Body and observers to the American Lung Association. Tin reviewed the emergency procedures.

Chair, Wayne Trusty, welcomed participants.

GBI Executive Director, Vicki Worden, provided background information on GBI and how the Green Globes Standard process fits into the overall plan. A brief overview of funders and certifications of GBI was provided as well as the GBI 01 ANSI Schedule.

Administrative Procedures and Related Matters

The agenda was reviewed and no changes were requested by the Consensus Body. It was noted that the order of the comments in the packet had been changed to coincide with the order of the comments on the agenda.

MOTION: A motion was made, seconded, and carried to approve the minutes from the previous Consensus Body Meeting on March 2, 2016.

None opposed. None Abstained.

**Discussion of public comments
Subcommittee Reports**

Water Efficiency

Water Chair Kent Sovocool provided background on the discussion of prerequisites in water, particularly in regards to 9.1. Sovocool then presented the Subcommittee's proposed responses to the water comments:

- **33 – 1. Substantive. 9.1**

- **Comment:** Replace section 9.1.1, 9.1.2, and 9.1.3 in their entirety with the following:
9.1 Indoor Domestic Plumbing (Pre-requisite - 0 points)
All plumbing fixtures and fixture fittings installed in the project shall meet the following requirements for maximum water consumption and are certified as being compliant with the requirements of the U.S. EPA's WaterSense Program where WaterSense specifications exist:
 - 9.1.1.1: Toilets (Maximum effective flush volume 1.28 gallons per flush);
 - 9.1.1.2: Urinals (Maximum effective flush volume 0.5 gallons per flush);
 - 9.1.1.3: Showerheads (Maximum effective flow rate 2.0 gallons per minute);
 - 9.1.1.4: Residential lavatory faucets (Maximum flow rate 1.5 gallons per minute);
 - 9.1.1.5: Residential kitchen faucets (Maximum flow rate 2.2 gallons per minute); and
 - 9.1.1.6: Non-residential lavatory faucets (Maximum flow rate 0.5 gallons per minute).
 - 9.1.1.7: Pre-rinse spray valves (Maximum flow rate 1.28 gallons per minute)
- **Reason:** The proposed standard lacks prerequisites, something that significantly diminishes the credibility of the standard as a “green standard”. With the way in which the standard is currently written, projects could conceivably meet the requirements of the standard and achieve multiple “globes” without addressing the important issue of water use efficiency in plumbing. Throughout the U.S., water supply and wastewater infrastructure is in need of repair, replacement and, in many cases, expansion. Without incorporating the most recent and widely proven product designs and technologies into a project, it means buildings will be touted as “green” when, in fact, they fail to fully address water supply, sanitation, wastewater treatment and water reuse issues important to our nation. By incorporating minimum plumbing requirements into this standard, new infrastructure construction can be deferred and water resources protected.

Currently, 29.57% of the U.S. population is already subject to the fixture (toilets & urinals) requirements proposed here in the draft standard. In some cases, the proposed thresholds for fixture fittings are also mandated (faucets, pre-rinse spray valves, showerheads). The following table illustrates which

jurisdictions are mandating the fixture requirements:

Estimate of regulatory coverage	
HETs & HEUs	
Jurisdiction	Population July 1, 2014
California	38,802,500
Texas	26,956,958
Georgia	10,097,343
Colorado	5,355,866
New York City	8,491,079
Miami-Dade FL	2,662,874
Broward County FL	1,869,235
Santa Fe, NM	<u>67,947</u>
Total pop of jurisdictions with HET-HEU requirement	94,303,802
Total U.S.	318,900,000
% with HET-HEU req'm't	29.57%

Since almost 30% of the U.S. population is mandated for HETs (1.28 gpf maximum) and HEUs (0.5 gpf maximum) in new construction (and, in some cases, for other water-efficient products as well), it gives projects in those jurisdictions an unfair advantage by them being able to "claim" points by default. In other words, one cannot compare project "performance" across state lines because some projects will get points for plumbing without ever doing anything unique or "extra" to earn those points. The credibility of the GBI standard among the "green" community and definitely with water efficiency professionals is seriously at risk because of the lack of mandates and prerequisites in the document for the most basic water efficiency provisions.

- o **Proposed Response:** Accept as modified. The committee added an exception that reads as follows: "Where local legal requirements require higher volumes of water for purposes of health or safety for any individual fixture or fixture fitting, the above do not apply"
- o **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment as modified by the subcommittee.

Discussion took place on the motion:

- It was stated that health usage is not always covered by local jurisdiction and doesn't always meet usage requirements. There was concern about piping systems not being able to handle flush rates.
- Concern was raised that the WaterSense program may change and that the Standard should either date the program, remove the name of the program, or remove the numbers. The point was made that it is inconvenient to the users of the Standard to require them to procure additional documents in order to find a specific value.
- A concern was raised about how a prerequisite such as the one proposed would effect a core and shell building, which has nothing installed. The possibility was raised that the prerequisite could be modified to accommodate buildings with no fixtures.

- Concern was raised about the fact that the issue of prerequisites had come up again. The speaker reminded the members that the Consensus Body had voted twice not to have prerequisites in the Standard and that the discussion had already delayed the proceedings.
- It was clarified that the statistic showing that 30% of the country are already under this mandate uses population. Doubt was raised whether population was the proper target for the Standard when in fact we should be looking at how many “green” constructed buildings would be affected by this. The speaker thought that it would be a much smaller percentage than if we went by population.
- It was clarified that the largest urban metropolitan areas are the areas mandating this. The opinion was stated that there is a directly correlation between population and the built environment.
- Concern was expressed about how this would apply to renovations.
- The suggestion was made that instead of referring to prerequisites could these be used as a baseline and that anything going above and beyond could earn points for the credit.

AMENDMENT: The motion was amended to change from “where local legal requirements” to “where local needs require” and eliminate the words WaterSense. The amendment was seconded.

Discussion took place on the amendment:

- The concern was raised about referencing health and safety because it requires the verifier to project the decision of the local jurisdiction. The speaker felt that doing so would “muddy the water”.
- It was noted that the motion still leaves this credit as a prerequisite earning no points and the speaker asked the maker of the motion to remove the prerequisite and reward points for some level either to or above the standard that we’re setting.

Point of order: When there is a motion on the floor with a second and then there’s an amendment, the amendment must be voted on. Then we return to the motion and vote on that.

The amendment failed with 4 in favor, 22 opposed, and none abstained.

Opposed: Susan Gitlin, Don Horn, Paul Bertram, Jeff Bradley, Michael Lehman, Jane, Bill, Tien Peng, Rachel Minnery, Gary Keclik, Charles Kibert, George Thompson, Bill Freeman, Greg Johnson, Gregg Bergmiller, John Koeller

None abstained.

VOTE: The original motion failed with 9 in favor, 15 opposed, and none abstained.

Opposed: Paul Bertram, John Cross, Jeff Bradley, Angela Tin, Jane Rohde, Bill Freeman, Gary Keclik, George Thompson, Bill Carroll, Gregg Bergmiller, Greg Johnson, Chris Dixon, Gord Shymko,
None Abstained

MOTION: The motion was made and seconded to send the comment back to the Subcommittee to be presented to the Consensus Body again as a non pre-requisite.

Discussion took place on the motion:

- It was stated that the current language is close to where it needs to be with the exception of the pre-requisite.

VOTE: The motion carried with 22, 2 opposed, and none abstained.

Opposed: Don Horn, John Koeller

None Abstained.

- **55 – 1. Substantive. 9.1**

- **Comment:** The proposed standard contains no prerequisite requirements for any water-efficiency products or designs. As such, a project or building could be certifies as

'compliant' under the standard without implementing the most commonly accepted water-efficiency measures provided for in other green standards - specifically HET Toilets and Urinals

- o **Reason:** Numerous studies have confirmed the impact of installing HETS and HEUs in commercial buildings. New research from the Plumbing Efficiency Research Council finds that flushing volumes above 1 gal./flush successfully clear long commercial drainlines. The BSR/GBI commercial building protocol needs to have more concrete measures to ensure indoor efficiency using proven and effective measures like HETS and HEUs.

• **45 – 2. Substantive. 9**

- o **Comment:** Compliance with Section 9.1 shall be mandatory.
- o **Reason:** The GBI Standard needs to have minimum standards for indoor fixtures in order to be considered credible. The absence of such requirements is conspicuous and may hinder the credibility of the program.

While allowing designers and engineers flexibility to find uncommon paths to efficiency is often desirable, there are appropriate circumstances to define minimum performance standards.

Water use is quite different than energy use. First, in most cases there are rarely, if ever, multiple paths to efficiency for indoor water fixtures, this is very different from energy. While there are many ways to efficiently light an interior space (LEDs, fluorescents, supplemental daylighting, etc.), there is only one practical way to remove human waste from a building and that is by way of a toilet.

Some may contend that fixtures may not need to limit use if they utilize alternative water sources, but that creates the same dilemma. Water from all sources needs to be used efficiently. The water efficiency community will discredit any program that promotes or allows wasteful use of water simply based upon the quality or source of the water (i.e. salt water, rainwater, graywater, etc.).

Another reason water use is fundamentally different than energy use indoors is that energy is consumed, water is not. Energy is typically converted to either light or heat and essentially lost. As such, once it's used its waste product has relatively little value. Water, on the other hand, is not consumed indoors, it merely changes quality through use.

I applaud the Standard's increased emphases on the use of alternative water sources to reduce dependence on potable supplies. But that doesn't mean that non-potable water is less valuable (indeed, it can sometimes be the most costly in terms of infrastructure and energy input). All water is inherently of high value and may ultimately be reclaimed after reaching the sanitary sewer system. Using a non-potable water source is not a justification for using more water. In fact, it's the best reason for using a high-efficiency fixture.

Part of the appeal of the GBI Standard and Green Globes is its ability to be flexible and that is recognized, but with respect to water efficiency, it is simply archaic and not reasonable at this juncture to put forth a standard that does not contain common minimum standards for indoor fixtures. This needs to be rectified in the next draft.

• **8 – 1. General. 9.1**

- o **Comment:** Replace sections 9.1.1, 9.1.2, and 9.1.3 in their entirety with the following: 9.1 Indoor Domestic Plumbing (Pre-requisite – 0 points) All plumbing fixtures and fixture fittings installed in the project shall meet the following requirements for maximum water consumption and are certified as being compliant with the requirements of the

U.S. EPA's WaterSense Program where WaterSense specifications exist:

- 9.1.1.1: Toilets (Maximum effective flush volume 1.28 gallons per flush);
- 9.1.1.2: Urinals (Maximum effective flush volume 0.5 gallons per flush);
- 9.1.1.3: Showerheads (Maximum effective flow rate 2.0 gallons per minute);
- 9.1.1.4: Residential lavatory faucets (Maximum flow rate 1.5 gallons per minute);
- 9.1.1.5: Residential kitchen faucets (Maximum flow rate 2.2 gallons per minute); and
- 9.1.1.6: Non-residential lavatory faucets (Maximum flow rate 0.5 gallons per minute).
- 9.1.1.7: Pre-rinse spray valves (Maximum flow rate 1.28 gallons per minute)
- **Reason:** This draft as it stands now leaves open the possibility that "GFI approved" buildings not have what we consider a basic level of water conservation. For this reason, prerequisite levels of water consumption must be specified as indicated.
- **Proposed Response:** Accept as modified. The committee added an exception that reads as follows: "Where local legal requirements require higher volumes of water for purposes of health or safety for any individual fixture or fixture fitting, the above do not apply"
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to postpone the discussion of comments 55 – 1, 45 – 2, and 8 – 1 until after the subcommittee has presented a new proposal for the previous comment.

Discussion took place on the motion:

- It was noted that there is a problem with mentioning WaterSense and then listing the criteria.

The motion carried with 22 in favor, 1 opposed, and none abstained.

Opposed: John Koeller

None Abstained.

- **36 – 1. Substantive. 9**

- **Comment:** Make regional adjustments to the weighting of the water efficiency category
- **Reason:** The extra weighting of water efficiency (over previous editions) is presumably due to regional water scarcity in California and other areas. Many regions are not suffering from water supply constraints. While projects in these regions shouldn't ignore water efficiency, it seems that there should be some point weighting adjustment to reflect that water issues aren't as critical in some areas as others.
- **Proposed Response:** Reject. There are many other considerations besides water supply that exist throughout the United States including conveyance and treatment of water and wastewater.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to reject the comment using the reason provided by the subcommittee.

Discussion took place on the motion:

- It was clarified that the comment applies to the entire Water Efficiency assessment area

VOTE: The motion carried with 23 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **34 – 31. Substantive. 9.1**

- **Comment:** Provide Path D - Water Efficiency Calculation

- **Reason:** Think there should be a Path D - prescriptive (like in Energy). Sorry to see calculator go away (despite limitations) as I think a quantification should be encouraged to monitor ongoing progress (just like energy model)
- **Proposed Response:** Reject. Insufficient historical data exists to create a scientifically robust calculator. Water Efficiency calculator allowed for double counting. Allows for gaming.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to reject the comment using the response provided by the subcommittee. The motion carried with 24 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **22 – 1. General. 9**

- **Comment:** Denver Water was asked by the Alliance for Water Efficiency. The stated that building can be certified as compliant under your standard without implementing the most commonly accepted water efficiency measures provided in other green standard. However, I believe that these standards they are referring to are covered in section 9.1.1 or 9.1.2 or 9.1.3
- **Reason:** Please spell out types of toilets, urinals, faucet aerators, and showerheads etc. that are recommended to get points. I believe that this has been covered it is just currently under the veil of other standards that we do not have access to.
- **Proposed Response:** accept as modified. The committee agrees that access to other standards should not be necessary and has revised the credit language.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made to accept the comment as modified using the proposed response. There was no second on the motion. The motion was withdrawn.

MOTION: The motion was made and seconded to remand the comment to the subcommittee. The motion carried with 22 in favor, 1 opposed, and 1 abstained.

Opposed: John Koeller

Abstained: Don Horn

- **56 – 12. General. 9.2, 9.3, 9.4, & 9.6**

- **Comment:** These criteria within BSR/GBI 01-201X all address the Guiding Principles for New Construction requirement for Process Water.
- **Reason:** None given
- **Proposed Response:** Accept as noted
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to Accept as Noted.

Discussion took place on the motion:

- It was requested the informational references be added to cite the Guiding Principles for New Construction.

AMENDMENT: The motion was amended to add the Guiding Principles as an informational reference.

Discussion took place on the amendment:

- It was noted that the comment is now false as it no longer complies with the New Guiding principles.
- A point of order was raised that once a motion is made it belongs to the floor. In order to be withdrawn it must be voted on unless there are no objections.

The motion was **Withdrawn with no objection.**

MOTION: The motion was made and seconded to reject the comment with the reason that it doesn't fully meet the new Guiding Principles for Process Water.

Discussion took place on the motion:

- The question was raised whether it is true that the criterion no longer meets the Guiding Principles that came out three weeks prior to the Consensus Body meeting.

The motion was **Withdrawn with no objection.**

MOTION: The motion was made to send the comment back to the subcommittee to evaluate whether it addresses the new Guiding Principles. The motion carried with 20 in favor, 1 opposed, and 1 abstained.

Opposed: John Koeller

Abstained: Allan Bilka

- **33 – 3. Substantive. 9.4.3.2**
 - **Comment:** Statement: “Not applicable where there is no industrial laundry or where volumes ~~do not exceed 350 lbs. (160kg) are not sufficient~~ ~~e.g., approximately 363 lbs. (800kg)~~ per hour.”
 - **Reason:** Not only was the conversion incorrect, but the use of the word “approximately” is not suitable for a standard. Furthermore, where did 363 lbs. come from? This provision needs to be simplified and corrected.
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- It was clarified that it was 350 lbs. per hour as stated in the language.

VOTE: The motion carried with 24 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

- **52 – 31. Substantive. 9.4.4.2**
 - **Comment:** Revise as follows: Water features use safe and approved alternate water sources...
 - **Reason:** We recommend adding this language in order to ensure that water blowing into the air is of appropriate quality. Moreover, this will add consistency with the language in 9.2.1.1 (right-hand column).
 - **Proposed Response:** Accept with modification: “Water features use approved alternate water sources...” Reason: **A:** “safe” is too vague and is outside the scope of the GBI specification.
B: As used, “safe” is subjective. Additionally, safety is a base code consideration and is generally outside the scope of the standard.
 - **Subcommittee Vote Result:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment as modified using Reason B as shown above.

Discussion took place on the motion:

- The question was raised whether saying “approved” was necessary because it begs the question of who would be responsible for approving the alternate water sources. It was proposed that a

public comment could be submitted during the next public comment period to clarify who is doing the approving.

- It was noted that non-potable water would not be used in healthcare settings.

The motion carried with 14 in favor, 10 opposed, and none abstained.

Opposed: Allan Bilka, Jane Rohde, Tien Peng, Gary Keclik, Charles Kibert, Greg Johnson, George Thompson, Bill Carroll, Bill Freeman, Chris Dixon

- **22 – 4. General. 9.4.4.2**

- **Comment:** Water features use alternate sources of non-potable water for make-up water.
- **Reason:** Need to specify type of alternate water sources. Currently by law graywater cannot be used for above surface uses (just sub surface irrigation). This means water would have to be limited to rainwater. All of these sources would not be allowed to go into pools without treatment first.
- **Proposed Response:** Accept. Clarify based on 52 – 31.
- **Subcommittee Voting Results:** 4 in favor, 1 opposed

MOTION: The motion was made and seconded to accept the comment based on the action taken on 52 – 31.

Discussion took place on the motion:

- It was noted that this would be an opportunity to clarify who was doing the approving.

AMENDMENT: The amendment was made and seconded to clarify the language to read: “approved by the authority having jurisdiction.” The amendment carried with 22 in favor, none opposed, and none abstained.

Discussion took place on the motion:

- It was noted that the entire document would be applicable only if approved by the authority having jurisdiction. As such the question was raised about whether this needs to be specified in this particular section.

VOTE: The motion carried as amended with 20 in favor, 3 opposed, and 2 abstained.

Opposed: Don Horn, Josh Jacobs, Chris Dixon

Abstained: Paul Bertram, Jeff Bradley

- **52 – 32. General. 9.5**

- **Comment:** Clarify what category of water the “treatment” applies to.
- **Reason:**
- **Proposed Response:** Accept with modification to change language in 9.5.1 to “Water Treatment for End Uses.” End use further clarifies the uses of water being treated.
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept as modified by approving the addition of “for End Uses”.

Discussion took place on the motion:

- The question was raised about whether this applies to water used off-site or only water used on-site. It was clarified that the credits only pertain to on-site water use.

VOTE: The motion carried with 23 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Chris Dixon.

- **33 – 5. Substantive. 9.6.1.1**

- **Comment:** Statement: “Water for non-potable indoor uses is directly harvested on-site (e.g., from rainwater, stormwater, foundation drain water, graywater) or reclaimed from on-site treatment system(s)”
- **Reason:** As written, there is no explanation of “reclaimed”. Assuming this section has to do with on-site sources, it needs to be expanded to say just that.
- **Proposed Response:** Accept as modified. **A:** We will change the text for 9.6.1.1 to simply read “Non-potable water is used for indoor purposes.” Modify Points column: “Points are earned where a percentage of *water for non-potable uses* will be used, harvested on-site or reclaimed:”
B: Modify text of 9.6.1.1 to read “Non-potable water is used for indoor purposes.” Modify Points column: “Points are earned where a percentage of water for non-potable uses will be used, harvested on-site or reclaimed:”
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment as modified using Response B as shown above.

Discussion took place on the motion:

- It was clarified that the Subcommittee disagreed with the commenter to include “directly” since the Subcommittee wanted to allow for other options.
- It was clarified that the opportunities for use of non-potable water are separated between indoor and outdoor use.
- Concern was raised about the number of points being allocated to this section.
- It was noted that “water for non-potable use” is a defined term in the standard, as is “non-potable water”. Concern was raised that changing the order of the wording in the criterion could result in a change in definition.

The motion was Withdrawn with no objection.

MOTION: The motion was made and seconded to remand the comment back to the water subcommittee on the basis that changing the order of the wording may change the definition. The motion carried with 23 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka.

- **52 – 34. Substantive. 9.6.1.1**
 - **Comment:** In the right-hand column, add the following language: Not applicable where state or local regulations prohibit such systems.
 - **Reason:** Elsewhere in the document (see 8.3.2.2.1), statements are included that caution against adopting practices when they have the potential to risk the health and safety of building occupants. We recommend that such a caution be included for this criterion, as there is the potential for human exposure and it does not require that water is treated.
 - **Proposed Response:** Accept
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to Accept the comment.

Discussion took place on the motion:

- The question was raised whether the N/A was necessary to the criterion. It was clarified that the N/A is necessary in this section so that projects aren’t punished for not legally being able to do this.

VOTE: The motion carried with 22 in favor, 1 opposed, and none abstained.

Opposed: Don Horn
None Abstained.

- **22 – 5. Substantive. 9.6.1.2**
 - **Comment:** One of the following systems is at least 80% pre-plumbed (pipes and valves) during construction
 - *Graywater*;
 - *Reclaimed water* – add definition;
 - *Recycled water* – add definition;
 - *Stormwater* – add definition; and/or
 - *Rainwater* – add definition.
 - **Pre-plumbed systems**
 - **Reason:** Not sure if it is here or elsewhere please define the different alternate water sources. As a utility we provide customers reclaimed water from our recycled water plant. As alternate water sources become more prevalent we need better definitions so that everybody knows exactly what is being considered.
 - **Proposed Response: A:** Reject on the basis that these terms are currently defined in section 5 of the Standard.
B: Reject. These terms are defined in section 5 of the Standard
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using Reason B as shown above. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed
None Abstained.

- **52 – 36. Substantive. 9.6.4**
 - **Comment:** Better documentation is needed to ensure that the on-site system actually will supply the percentage of water from on-site sources stated in 9.6.2.1
 - **Reason:** The standard rewards points for a certain percentage of water coming from on-site sources, but requires no documentation to prove the on-site system actually supplies that amount of water. Metering is a completely separate (and optional) section from the rewards (Section 9.7: Metering).
 - **Proposed Response:** Accept with modification: “Plumbing designer’s drawings, and specifications, and performance documentation including estimated yield and calculations to demonstrate the percentage of water from non-potable sources.”
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to Accept as modified using the proposed response. Discussion took place on the motion:

- The question was raised about who determines the percentage.
- The question was raised as to why “performance documentation” is included. It was noted that many systems do not have an impact after installation.

AMENDMENT The motion was amended to change the language to read “designer’s drawing and specifications including...” by striking “performance documentation”. The amendment was seconded. The amendment carried with 23 in favor, none opposed and 1 abstained.

None Opposed.

Abstained: Allan Bilka

VOTE: The motion carried with 20 in favor, 2 opposed, and 1 abstained.

Opposed: John Cross, Charles Kibert

Abstained: Allan Bilka

• **22 – 6. Substantive. 9.7.1.5**

- **Comment:** Tenant water use is *metered* where tenants use more than an estimated ~~4,000~~ 500 gal/day or 12,000 gal/month or 150,000gal/year.
- **Reason:** As a large water utility we would like to more metering and sub metering especially for customers that use a large quantity of water. We feel the original thresholds are too high and that it could be easy to manipulate data to get below an estimated use of 1,000 gal/day.

33 – 8. Substantive. 9.7.1.5

- **Comment:** Statement: “Tenant water use is individually metered in each case where a tenants is predicted to use more than ~~an estimated~~ 1,000 gal/day”
- **Reason:** The provision as written provides a large loophole because of a lack of clarity. Proposed clarification to specify that individual tenants are metered, **NOT** a collective metering of all tenants with one meter in those cases where collective water use exceeds 1,000 gallons per day.

45 – 4. General/Substantive. 9.7.1.5

- **Comment:** N/A: section needs clarification and rewrite
- **Reason:** Metering and submetering are not clearly defined. In fact, they appear interchangeable by definition. "Metered" usually suggests a connection which is billed by a utility. Submetered, usually suggests a connection downstream of a utility meter that is owned and operated by the property. It isn't usually feasible to "mete" a cooling tower, they are more often "submetered" it isn't clear if I only get points for metering tenants that use over 100 gpd or if that is just a recommended threshold. In general, if this section doesn't get more attention, I think you'll find it creates an extraordinary amount of confusion.
- **Proposed Response:** Accept in principle: restructure 9.7.1.5 as follows:

9.7.1.5 Tenant Metering or Sub-metering. (Strike existing text.)

13 points

- One point is earned per metered or sub-metered tenant connection up to a maximum of 13 points.
- Not applicable for buildings without tenants or where tenants are receiving their water exclusively via non-metered or non-sub-metered sources.

Rationale: **A:** we don't want to inadvertently create a barrier to sub-metering. Modify definition of sub-meter to include water: “...the proportionate energy or water use...”

B: The committee does not want to inadvertently create a barrier to sub-metering. Modify definition of sub-meter to include water: “...the proportionate energy or water use...”

- **Subcommittee Voting Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the revised language using Response B as shown above.

Discussion took place on the motion:

- A concern was raised about rewarding buildings for having more tenants. It was suggested that the language needed to be re-worded.
- The question was raised whether a building is more “green” if they have tenants that don't use as much water.
- The question was about how “tenant” is being defined in the standard.
- One member indicated that they preferred the language offered in comment 33 – 8.

The motion was Withdrawn with no objections.

MOTION: the motion was made and seconded to accept 33 – 8 as submitted by the commenter.

Discussion took place on the motion:

- Concern was raised about awarding one point per tenant and it was pointed out that the commenter didn't refer to the issue of points in their comment and the subcommittee should address this issue.

The Motion was Withdrawn with no objection.

There was a 20 minute break starting at 5:05 PM CT

MOTION: The motion was made and seconded to accept the language as proposed in 33 – 8.

Discussion took place on the motion:

- It was noted that accept the language in 33 – 8 would by default reject the 500 gallon proposal in 22 – 6.
- There was an issue raised with the use of the term "predicted" as this could result in gaming. The question was raised about whether there is a guideline for predicting water use.
- The subcommittee chair indicated that they would like to bring the comment along with 22 – 6 and 45 – 4 back to the subcommittee for reconsideration.
- The point was raised that 33 – 8 works as proposed with the exception of the points column and that the points language should be deleted so a project either gets 13 points or nothing.

AMENDMENT: the amendment was made and seconded to strike the points language. There was no objection to the amendment.

VOTE: The motion carried with 19 in favor, 4 opposed, and none abstained.

Opposed: Kent Sovocool, Rachel Minnery, Gary Keclik, Chris Dixon
None Abstained.

MOTION: The motion was made and seconded to reject 22 – 6 due to prior Consensus Body motion on 33 – 8.

Discussion took place on the motion:

- Point of order: It was clarified that an amendment must be voted on separately from the main motion. The argument was made that a friendly amendment was meant to help the original motion maker craft their motion.

MOTION: The motion was made and seconded to table 22 – 6. No objections were raised. The discussion of 22 – 6 was tabled.

MOTION: The motion was made and seconded to reconsider 33 – 8. The motion for reconsideration carried with 20 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Chris Dixon

MOTION: The motion was made and seconded to accept the language proposed in 33 – 8, striking the points language.

Discussion took place on the motion:

- Concern was raised regarding the term "predicted"
- The question was raised about the kind of tenants being target with 1000 gal/day. The point was raised that this would exclude residential buildings.

- A question was raised regarding the credit's intent and intended target. Is it necessary to have numeric criteria for this credit? It was stated that the intent is to encourage sub-meter of tenant spaces regardless of how much water is used by the tenants.

VOTE: The motion failed with 1 in favor, 19 opposed, and 2 abstained.

Opposed: Gord Shymko, David Eldridge, Chris Dixon, John Koeller, Kent Sovocool, Susan Gitlin, Don Horn, Mike Lehman, Angela Tin, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Gary Keclik, Charles Kibert, George Thompson, Bill Freeman, Gregg Bergmiller, Paul Bertram

Abstained: Jeff Bradley, Allan Bilka

Emily Randolph 4/28/2016 12:23 PM

Comment [1]: Need to reconcile number of names with number of hands.

MOTION: The motion was made and seconded to remand 22 – 6, 33 – 8, and 45 – 4 back to the water subcommittee. The motion carried with 17 in favor, 6 opposed, and none abstained

Opposed: Mike Lehman, Allan Bilka, Angela Tin, Jane Rohde, Bill Carroll, Greg Johnson

- **22 – 7. Substantive 9.8.1.2.7**
 - **Comment:** Sprinkler system is inspected by a third party commissioning agent for proper installation of all components specified on the irrigation plan and to assure that there is no runoff or overspray onto impervious surfaces.
 - **Reason:** Need a third party that is not the Landscape Architect or the irrigation system installer to inspect/commission the system to the specs of the Landscape Architect.
 - **Proposed Response:** Accept as modified: “by a qualified third party other than the designer or installer...” **A:** The commissioning agent has a connotation implying someone who does the commissioning of buildings and is not a defined term. **B:** Commissioning agent implies an individual who does the commissioning of buildings and is not a defined term.
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the proposed response using Reason B as shown above. The motion failed with 4 in favor, 18 opposed, and none abstained.

Opposed: John Cross, Paul Bertam, Jeff Bradley, Mike Lehman, Allan Bilka, David Eldridge, Angela Tin, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Charles Kibert, Gregg Bergmiller, Greg Johnson, Gord Shymko, George Thompson, Bill Freeman, Chris Dixon
None Abstained.

MOTION: The motion was made and seconded to accept the comment as written.

Discussion took place on the motion:

- The question was raised whether the “third-party” was necessary.
- Concern was raised that this level of specificity is unnecessary and that commissioning shouldn't be mention.
- It was pointed out that Commissioning is covered under Project Management. It was also noted that it is rare that an architect would do this.

VOTE: The motion failed with 2 in favor, 20 opposed, and none abstained.

Opposed: John Cross, Don Horn, Paul Bertram, Jeff Bradley, Michael Lehman, Allan Bilka, David Eldridge, Angela Tin, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Gary Keclik, George Thompson, Bill Freeman, Greg Johnson, Gregg Bergmiller, Gord Shymko, Chris Dixon

None Abstained

MOTION: The motion was made and seconded to reject the comment with the reason given as follows: “The specification of a commissioning agent is covered in another section (6.5.1) and this

work can be covered by many other qualified people.” The motion carried with 20 in favor, 2 opposed, and none abstained.

Opposed: Kent Sovocool, Susan Gitlin

None Opposed.

• **31 – 3. Substantive. 9.8.1.2**

- **Comment: 9.8.1.2** The irrigation system includes the following:

Maximum = ~~7~~ 11 points or N/A

9.8.1.2.1: An irrigation plan developed by a certified/licensed irrigation designer for the approved landscape plan that shows calculations for landscape water requirements compared to the landscape water allowance;

•**9.8.1.2.2:** *WaterSense*® or *Smart Water Application Technology (SWAT)*, smart controllers, *soil moisture sensors*, and/or *automatic rain shut off devices*;

•**9.8.1.2.3:** *Pressure regulation* is used for each zone to maintain proper operating pressures for *landscape irrigation sprinklers* or drip components;

•**9.8.1.2.4:** *Drip irrigation* on all planting beds where mature plant height is 10 inches or greater and/or in any planted area with a dimension less than 5 feet in any direction;

•**9.8.1.2.5:** Flow sensing is incorporated into the control system to suspend irrigation in any zone where flows exceed expectation;

•**9.8.1.2.6:** All *landscape irrigation sprinklers* and drip emitters comply with ASABE/ICC 802-2014 ANSI Landscape Irrigation Sprinkler and Emitter Standard; and/or

•**9.8.1.2.7:** Sprinkler system is inspected for proper installation of all components specified on the irrigation plan and to assure that there is no runoff or overspray onto impervious surfaces.

•~~One~~ Four points ~~is~~ are earned for an irrigation plan, two points for the sprinkler system inspection and one point for each of the other listed features included in the irrigation system up to a maximum of ~~7~~ 11 points.

•Not applicable where there is no irrigation.

- **Reason:** The irrigation plan by a certified/licensed professional will require significant expertise, time and coordination with the landscape designer and should be part of the IDP to maximize the points available for using the water budget tool in section 9.8.1.1 and determining how to maximize the use of alternative waters in section 9.6.2.1. This is not a trivial effort and the design is key to success for improved outdoor water use efficiency.

The inspection of the system will require more than one visit to assure the system goes in according to plan. Often the designer is best qualified to do the inspection and should be independent of the contractor installing the system and worth additional points.

- **Proposed Response:** Accept
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The question was raised about where the additional four points are coming from. It was clarified that four extra points would come from 9.8.1.1 and 9.6.2 to be moved to 9.8.1.2. It was stated that the committee will need to revisit the allocation of points after all of the comments have been addressed.
- It was noted that points are likely to change and should be examined once all other changes have been made.

AMENDMENT: The amendment was made and seconded to state that the points may change.

Discussion took place on the amendment:

- A concern was raised that the current wording would allow for the plan to be developed and approved but not implemented fully.
- Concern was raised about using Consensus Body time to revise the language of the response.
- The opinion was stated that the comment should be rejected, but that the numbers of points given to the section would be evaluated.
- It was stated that the inspection does not earn points as currently written and would earn points under the proposed language. It was clarified that the inspection does in fact receive points in the public comment draft.
- The observation was made that the discussion was going on for a while and the observer wondered if the topic should be tabled.

MOTION: The motion was made and seconded to call the question.

Discussion took place on the motion:

- It was clarified that a vote needed to be called on the motion to call the question before the amendments could be voted on and the motion required a 2/3 vote to pass.

VOTE: The motion carried with 19 in favor, 1 opposed, and 1 abstained.

Opposed: Chris Dixon

Abstained: Gord Shymko

VOTE: The amendment carried with 18 in favor, 2 opposed, and 1 abstained.

Opposed: Rachel Minnery, Chris Dixon

Abstained: Gord Shymko

AMENDEMENT: The motion was made and seconded to amend the response to Accept in principle. There were no objections.

VOTE: The motion carried as amended to "Accept in Principle. Points may change" with 19 in favor, 1 opposed, and 1 abstained.

Opposed: Chris Dixon

Abstained: Gord Shymko

- **31 – 2. Substantive. 9.8**
 - **Comment:** 9.8.1.1 The *WaterSense*® Water Budget Tool is used to determine landscape water allowance (LWA) and the landscape irrigation installation aligns with the allowance.
Assessment Guidance:
 $LWA = ETo \times Adj. \text{ Factor} \times \text{Area} \times 0.623 = \text{gallons}$
The Landscape Water Requirement will be calculated following ASABE S623 ANSI Standard for Estimating Landscape Plants Water Demand.
Exclusion: the area of the landscape used to grow food shall not be included in the calculations.
Informational reference(s):
 - EPA WaterSense® Water Budget Tool
 - ASABE/ICC 802-2014 ANSI Landscape Irrigation Sprinkler and Emitter Standard.
 - Landscape Irrigation Best Management Practices-2014Maximum = ~~20~~ 16 points or N/A

- ~~Twenty-Sixteen~~ points are earned where ET adjustment factor is 0.30
- Ten points are earned where ET adjustment factor is 0.50
- Five points are earned where ET adjustment factor is 0.70
- No points are earned where ET adjustment factor is greater than 0.70
- Not applicable where there is no vegetated space and therefore no need for irrigation.
- **Reason:** Reduce the number of points for using at ET adjustment factor of 0.30 from 20 points to 16 points to allow additional points for section 9.8.1.2
An exclusion from the water budget allocation should be the area used to grow food. Often these areas will need to use water acceptable for food production, therefore some alternate water sources will be unacceptable.
An additional reference for the design, installation, and management of the irrigation system is a document collaborative produced by the Irrigation Association and the American Society of Irrigation Consultants and is available for either organization as a free download on their websites: www.irrigation.org, www.asic.org
- **52 – 37. Substantive. 9.8.1.1**
 - **Comment:** To simplify this item, we recommend using the water budget tool alone and giving points based on what percentage below the baseline ET they get to. Also, we recommend that ASABE 623 not be referenced until it has been finalized.

Revised language:

9.8.1.1 The WaterSense Water Budget Tool is used to determine whether the landscape will meet a water budget that is some percentage less than a baseline based on peak watering rainfall and evapotranspiration for the location.

Informational Reference:

- EPA WaterSense Water Budget Tool

- **Reason:** Simplify. The draft already addresses plant selection in the landscape section and 9.8.1.2 for irrigation. So this is somewhat redundant. It will be cleaner to just direct users to check their planned landscape with the water budget tool and assign points based on how far below the baseline they are able to get.

ASABE S623 has not been approved by the overseeing committee and finalized.

Generally best practice would be to only reference final standards. S623 also does not specify a method for estimating effective rainfall or irrigation system efficiency, so there's a tremendous amount of variation being left to the practitioner, project team, and verifier.

- **Proposed Response:** Accept as modified. [See text in strike through and underline draft.]
- **Subcommittee Vote Results:** Unanimously in favor

52 – 38. Substantive. 9.8.1

- **Comment:** Revise right-hand column as follows: Maximum = ~~22~~ 20 points
n Twenty-two points are earned where no irrigation system is installed. (Not applicable where there is no landscaping or the landscaping has no vegetation.)

- **Reason:** Irrigation by hand is shown to be more water efficient than any installed, in-ground irrigation system.
- **Proposed Response:** Accept as modified: add after charging paragraph “9.8.1.1 may be used regardless of whether there is irrigation to the landscape.” There should not be a premium for not having an irrigation system, but the project can complete the water budget tool regardless. The compromise avoids awarding free points in areas where in-ground irrigation systems are rare
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept as modified 31 – 2, 52 – 37, and 52 – 38.

Discussion took place on the motion:

- It was clarified that the changes suggested by the comments were shown in the strikethrough and underline draft visible on the left side of the Secretariat Assistant’s screen.
- The question was raised about how points are earned if there’s no irrigation. It was clarified that there was potential to earn points for not irrigating. It was noted that the language as stated was not clear. The clarification was made that if a project is located in a part of the country where irrigation is not necessary it should not be penalized for not irrigating.
- The suggestion was made to decouple 52 – 38 from the motion.
- It was noted that studies have shown that hand watering is more efficient from a water-use standpoint than a built-in irrigation system. It was stated that this is likely because have a built-in system makes irrigation more likely to take place.

AMENDMENT: The amendment was made seconded to change the exclusion to read “food for human consumption”.

Discussion took place on the amendment:

- The point was raised that the language should be more specific about what the committee considers to be food. It should be clarified whether the text means edible or plants that are grown for the purpose of eating.

There were no objections to the amendment.

AMENDMENT: The amendment was made and seconded to say in the left hand column: “No irrigation system is installed or The WaterSense...” In the right hand column “16 points are earned where there is no irrigation system. Not Applicable where there is no landscaping or the landscaping has no vegetation” Knock irrigation down to 15 points. Maximum of additional 9 points.

Discussion took place on the amendment:

- A point of order was raised stating that there were two topics under discussion: the exclusion for food and the points for no irrigation. It was clarified that no objection had been raised to the amendment to the exclusion for food and the discussion had moved on to the second amendment.
- It was stated that it seems strange to discourage the installation of irrigation systems. Concern was raised that building owners are unlikely to want to hire people to hand water when they can install an irrigation system. It was clarified that this was to encourage xeriscaping and planting plants that don’t need irrigation.
- The question was raised whether more points should be awarded for no irrigation since it is more efficient. The amendment was altered to change points earned for installing an irrigation system from a maximum of 16 to 15 points.

There were no objections to the amendment.

VOTE: The motion carried with 21 in favor, none opposed and 1 abstained.

None Opposed

Abstained: Mike Lehman.

A member asked if there were other comments from the water section that had not been brought before the Consensus Body. The Secretariat Assistant stated that there were comments remaining for the Water Subcommittee to address.

The Chair stated that the discussion of the Site comments would begin the following morning.

Woodbury reminded the Consensus Body that the meeting would resume at 8:00 AM CT with breakfast provided at 7:30 AM CT.

The meeting recessed at 7:20 PM CT

Tuesday, March 22nd

Welcome, Roll Call, and Administrative Procedures

Secretariat reviewed anti-trust statement, established quorum by marking attendance, and reviewed participation options. The chair clarified meeting process; Subcommittee chairs are presenting for each of the Sections.

Discussion of public comments

Subcommittee Reports

Site

Site Chair Gregg Bergmiller presented the Subcommittee's response to comments received on the Site assessment area:

- **49-13 Substantive 7.2.1.3:**
 - **Comment:** Include a more concrete measurement of distance between re-fueling or electric charging stations; perhaps 5 miles for re-fueling and .5 miles for electric charging station?
 - **Reason:** Other options within this category have a more defined distance - recommend doing the same here so there is no "gaming" of the system.
 - **Proposed Response:** Accept with modification. The distance to the charging station will be .25 miles. The committee is concerned that .5 miles to a charging station would insufficiently encourage the use of electric vehicles.
 - **Subcommittee Vote Result:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to Accept the proposed response. The motion carried with 20 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

- **36-8 Substantive. 7.2.1.3:**
 - **Comment:** Define "general vicinity".
 - **Reason:** Need more clarity.

- **Proposed Response:** Accept. The committee has revised the language as shown in response to Comment 49 – 13.
- **Subcommittee Vote Result:** Unanimously in favor

MOTION: The motion was made and seconded to Accept the proposed response. The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **29-3.Substantive. 7.2.1.6:**

- **Comment:** I think the items says if walkscore is 75 or greater and then also choose one of the “or” items, or in a separate path have a walkscore of 90 or more. Not sure where to take points from, but Walkscore of 90 or more seems to be worth a lot more than 1 point.
- **Reason:** None given
- **Proposed Response:** Accept. The points for Walkscore were mistakenly left out of this language. The point allocation will be adjusted so that a Walkscore of 90 receives 1 or 2 more points than do the other options.
- **Subcommittee Vote Result:** 9 in favor, 1 abstained

MOTION: The motion was made and seconded to Accept the proposed response.

Discussion took place on the motion:

- The point was made that we will be balancing points for each section at the end.

AMENDMENT: The amendment was made and seconded to change the response to say that a Walkscore of 90 will receive more points than a Walkscore of 75 without specifying a specific number of points. There were no objections to the motion.

VOTE: The motion carried with 21 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

- **49-14. Substantive. 7.2.1.6:**

- **Comment:** This section begins with “The building’s Walkscore® is 75 or greater” and ends with “The building’s Walkscore® is 90 or greater” yet only offers 1 point. Delete one or the other.
- **Reason:** Duplicative requirement.
- **Proposed Response:** Reject. The goal of the criterion is to encourage walkability as much as possible. The point allocation was incorrect and will be corrected to grant additional points for the higher Walkscore.
- **Subcommittee Vote Results:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to Accept the proposed response. The motion carried with 20 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Don Horn.

- **52-12. Substantive. 7.2.1.6:**

- **Comment:** Increase the minimum number of points to 7. Reward the second level of performance (a Walkscore of 90 or greater) with 10 points.

- **Reason:** We do not believe that 1 point sufficiently reflects the value to the environment and to human health that can result from locating a building in walking distance from a range of amenities. Moreover, this criterion reflects two separate levels of performance – the first three options are all approximately in equivalent in benefits, while the last one (a Walkscore of 90 or greater) is at a higher level of performance. That level should be rewarded with additional points.
- **Proposed Response:** Accept as modified. The number of requested points are not available to be allocated to this credit, but the points available will be revised to allow 2 points for the first three options and 3 points for a Walkscore of 90.
- **Subcommittee Vote Results:** 9 in favor, 1 abstained

MOTION: Motion was made and seconded to accept the comment changing the response to read: "...revised to allow more points for a Walkscore of 90 or greater."

Discussion took place on the motion:

The point was raised that it creates more confusion to remove the specified points recommended by the Subcommittee. The response was that point allocations will be revisited by Subcommittees for their sections and specific points will be awarded for this credit at that time.

VOTE: The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **52-13. Substantive. 7.2.1.6**

- **Comment:** Add the following informational reference: [ASTM E2843-15, Standard Specification for Demonstrating That a Building is in Walkable Proximity to Neighborhood Assets](#)
- **Reason:** Much of this text is taken from this ASTM standard and the standard therefore deserves citation.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** 9 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment. The motion carried with 21 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

- **24-11. Substantive. 7.2.1.6**

- **Comment:** ~~"The building Walkscore® is 90 or greater."~~
- **Reason:** The first option for this category states that 1 point can be earned for the building having a Walkscore® of 75 or greater. Since options 2 and 3 are not contingent on option 1 (the language says OR, not AND), option 4 is irrelevant since it can have a Walkscore under 90 and still qualify for the point.
- **Proposed Response:** Reject. The goal of the criterion is to encourage walkability as much as possible. The point allocation was incorrect and will be corrected to grant additional points for the higher Walkscore.
- **Subcommittee Vote Results:** 9 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment for the proposed reason. The motion carried with 21 in favor, none opposed and one abstained.

None Opposed.

Abstained: Don Horn.

- **49-15. Substantive. 7.3.4.1 (Note: This comment was mislabeled in the packet as 28 – 15)**
 - **Comment:** For a *low-sloped roof* (less than or equal to 2:12), a minimum ~~initial~~ three- year-aged SRI of ~~7.8~~ 6.4 or greater; · For a *steep-sloped roof* (greater than 2:12), a minimum ~~initial~~ three-year-aged SRI of ~~2.9~~ 1.5 or greater.
 - **Reason:** 3-year-aged SRI is a more accurate prediction of performance over time.
 - **Proposed Response:** Accept as modified.
 - **Subcommittee Vote Results:** 6 in favor, 3 abstained

MOTION: The motion was made and seconded to accept the comment as modified.

AMENDMENT: The amendment was made and seconded to change the response removing “and”, leaving “or” from “and/or”. There were no objections to the amendment.

Discussion took place on the motion:

- It was verified that the numbers are consistent with ASRAE.
- It was suggested that we should include informational references for 3-year aged SRI.
- It was stated that this is a complicated issue.
- The question was raised whether this Standard should use ASTM. The point was raised that the Subcommittee had input from an expert who found these values through his research, and this is why the commenter’s proposal was modified.

VOTE: The motion carried with 17 in favor, none opposed, and 4 abstained.

None Opposed.

Abstained: Kent Sovocool, Susan Gitlin, Don Horn, and Jeff Bradley.

- **49 – 16. Editorial. 7.3.4.1: (Note: This comment was mislabeled in the packet as 28 – 16.)**
 - **Comment:** Why are we linking to a search on the ASHRAE website - suggest directly linking to pertinent documents on mitigating heat island effects.
 - **Reason:** I don’t believe this gives project teams value by providing a list of 217 documents to sort through
 - **Proposed Response:** Accept with modification to delete the link. This criteria in GBI is not dependent on climate zones and not directly related to ASHRAE. The reference to the cool roof rating council is sufficient.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment with modification.

The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43-11. Substantive. 7.3.4.2:**
 - **Comment:** Modify as follows: Hardscape ~~Paved~~ surfaces have a high...
 - **Reason:** Should not be limited to paving only. Should include segmental paving and all hardscape.
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment.

The motion carried with 20 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43-12. Substantive. 7.3.4.2:**
 - **Comment:** Modify as follows: New concrete or concrete masonry without additional colored pigment...
 - **Reason:** Concrete masonry is made from similar ingredients as concrete but is a distinct product and should be specifically included.
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** 5 in favor, 3 opposed, 2 abstained

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The point was made that glare is a significant issue, particularly for adults over 65. It was expressed that human discomfort is worse on reflective pavements and that there are possible vegetation impacts around reflective pavements as well.
- The question was raised whether the language “without additional pigments” applies to new concrete. In this case the comma placement indicates what the pigment refers to. It was clarified that in this case the intent is referring to new concrete without additional pigment, or new concrete masonry without additional pigment.

AMENDMENT: The amendment was made and seconded to accept the comment as modified “New concrete without additional colored pigment or new concrete masonry...”. There were no objections to the amendment.

VOTE: The motion carried with 17 in favor, none opposed, and 5 abstained.

None opposed.

Abstained: Kent Sovocool, Susan Gitlin, Paul Bertram, Jeff Bradley, Greg Johnson.

37-2. Substantive. 7.3.4.2:

- **Comment:** ~~Paved surfaces have a high SRI. A high SRI is an initial SRI of 29 or greater. New concrete without additional colored pigment is deemed to comply without additional testing.~~
- **Reason:** There are many flaws with this credit:
 1. The scientific community has not reach a consensus on the effectiveness of albedo as a mitigation strategy for UHI. Recently the National Academies of Sciences released a report on albedo- modification. The results of the report published, strongly opposed deployment of albedo-modification techniques, and instead recommended further research, to advance basic understanding of the climate system and quantify the technologies’ potential costs, intended and unintended consequences, and risks. Yet the report did specifically focus on hardscape albedo mandates, it did mention that there are questions about its potential impacts on local moisture and energy transport and it highlighted the large costs projects would incur both for initial painting and maintenance (NAS 2015). In addition FHWA Sustainable Pavements Program just published a reference manual on the best practices for more sustainable pavements. This reference manual concluded that the relationships between the contribution of pavement surface albedo and the UHI are complex and context specific. For example, building ordering and heights create three-dimensional “urban canyons” that impact the flow of air through the urban environment and appear to have a significant effect on urban warming. Furthermore, the literature review found no study with actual field data demonstrating the extent that pavement surface albedo contributes to the UHI. As a result, FHWA recommended more research to better

understand hardscape materials contribution to UHI and possible mitigation strategies (FHWA 2015). In addition, researchers at Arizona State University recommended that optimal strategy for UHI needs to be determined on a city-by-city basis, rather than adopting a “one-solution-fits-all” strategy in order to avoid unintended consequences (Yang 2015).

2. The initial SRI value for new concrete is not always greater than 29 and in fact new concrete SRI's are often times lower than 29. Typical albedo values range from 0.04 to 0.16 for asphalt pavements and from 0.18 to 0.35 for concrete pavements (Pomerantz et al. 2003) Initial SRI values should not be used as a measure for reflective paved surfaces since they are known to rapidly change overtime. For example as asphalt pavement ages, it oxidizes and the albedo increases whereas when concrete pavement ages the albedo decreases due to soiling and exposure to darker aggregates (EPA 2008, FHWA 2015). Initial results from a study underway at NCPTC and NCAT has found that both asphalt and concrete pavement surfaces result in similar albedos around 0.2 in 6 to 10 years (NCPTC/NCAT 2013).

There are documented unintended consequences to using hardscape materials with higher reflectivity. ASU conducted a literature review to evaluate the environmental impacts of reflective materials and identified many unintended consequences such as heating penalties, human health impacts and reduction in precipitation (Yang 2015).

As a result many green rating systems have removed the UHI credit for hardscape materials with the first being FHWA's INVEST and the second being Greenroads.

The National Academies of Sciences (NAS). 2015. Climate Intervention: Reflecting Sunlight to Cool Earth. Available online at <http://www.nap.edu/catalog/18988/climate-intervention-reflecting-sunlight-to-cool-earth>

FHWA 215. Towards Sustainable Pavement Systems: A Reference Document. Available online at http://www.fhwa.dot.gov/pavement/sustainability/ref_doc.cfm

Yang, J., Wang, Z. and Kaloush, K. (2015). “Environmental impacts of reflective materials: Is high albedo a ‘silver bullet’ for mitigating urban heat island?” in Renewable and Sustainable Energy Reviews.

Pomerantz, M., H. Akbari, S. C. Chang, R. M. Levinson, and B. Pon. 2003. Examples of Cooler Reflective Streets for Urban Heat-Island Mitigation: Portland Cement Concrete and Chip Seals. Lawrence Berkeley National Laboratory, Berkeley, CA

EPA 2008. Reducing Urban Heat Islands: Compendium of Strategies – Cool Pavements. Available online: <http://www.epa.gov/hiri/resources/pdf/CoolPavesCompendium.pdf>

National Concrete Pavement Technology Center (NCPTC) and National Center for Asphalt Technology (NCAT). 2013. Quantifying Pavement Albedo – Phase I Final Report: Literature Review and Detailed Work Plan. Project No.DTFH61-12-C-00016. Federal Highway Administration, Washington, DC.

- **Proposed Response:** Accept as modified. *“7.3.4.2 Hardscape surfaces have a high solar reflectance (SR). A high SR is a three-year aged value SR of not less than 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.30 at installation .New concrete without additional colored pigment is deemed to comply without additional testing.”* Reason: SRI is seen as a value that is not relevant, an easier value of SR can be provided
 - **Subcommittee Vote Results:** 4 in favor, 3 opposed, 3 abstained
- Note:** There were multiple motions made on this comment

MOTION: The motion was made to accept the proposed response. There was no second.

MOTION: The motion was made and seconded made to accept the original comment

Discussion took place on the motions:

- The point was made that research indicates there is no benefit to this credit as it incentivizes one material over another. It was stated that SR was the first step, however it doesn't change anything getting to SRI.
- It was stated that a three-year aged SRI is a better indicator than an initial SRI but this is not always available.
- The concern was raised that one industry's objection to a common strategy to reducing urban heat island would be a mistake.
- It was stated that Berkley National Lab is currently working on this issue, research is still not conclusive.
- The point was made that most cities have a small urban core with tall buildings but the rest of the city is primarily buildings with under 4 stories so pavements do matter, however albedo is the primary factor that needs to be considered not the material. It was explained that suburban mall areas are impacted as well as downtown skyscraper areas.
- The question was raised whether there were disputes on the reference provided by the commenter at the Subcommittee level.

VOTE: The motion carried with 10 in favor, 9 opposed, and 3 abstained.

Opposed: Kent Sovocool, Don Horn, Paul Bertram, Tien Peng, George Thompson, William Freeman, Gregg Bergmiller, Chris Dixon, Gord Shymko

Abstained: Allan Bilka, Rachel Minnery, Gary Keclik

- **43-13. Substantive. 7.3.4.3:**
 - **Comment:** Modify as follows: ~~Hardscape Paved~~-surfaces...Under points make corresponding change.
 - **Reason:** Should not be limited to paving only. Should include segmental paving and all hardscape.
 - **Proposed Response:** Accept. Mimic the definition of hardscape from 189.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment. The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **49-17. Substantive. 7.3.4.3:**
 - **Comment:** Clarify how future shading will be met and who is qualified to determine this.
 - **Reason:** How do you measure compliance with this? Anyone can say they will have trees providing shading on a building's footprint within 15 years. Add more specificity to this credit – otherwise it is an opportunity to "game" the system
 - **Proposed Response:** Reject. The committee believes the standard language is adequate for use by a qualified professional.
 - **Subcommittee Vote Results:** 5 in favor, 2 abstained

MOTION: The motion was made and seconded to accept the comment. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.
None Abstained.

Energy

The Chair of the Energy Subcommittee, David Eldridge presented the Subcommittee's proposed responses to Public Comments on the Energy assessment area:

- **No comment. 8.3.1.1.1**
 - **Proposed change:** Include a final bullet that states: "A project must choose either the IECC or ASHRAE 90.1 for all the factors."
 - **Subcommittee Voting Results:** 9 in favor, 2 abstained.

MOTION: The motion was made and seconded to accept the change. The motion carried with 20 in favor, none opposed and 1 abstained.

None Opposed.

Abstained: John Cross.

- **7-8. General. 8.3.1.1.1:**
 - **Comment**(No proposed modifications)
 - **Reason:** While we understand why the standard should encourage users to exceed the base energy code or standard, we have some reservations about using a percentage reduction for U-factors. This seems to create a standard that is not uniform. For example ASHRAE 90.1 is based at least in part on cost-effectiveness of the assemblies. Thus, even in the same climate zone for the same building type, U-factors vary between different structural materials or assemblies. While we understand why the standard should encourage users to exceed the base energy code or standard, we have some reservations about using a percentage reduction for U-factors. This seems to create a standard that is not uniform. For example ASHRAE 90.1 is based at least in part on cost-effectiveness of the assemblies. Thus, even in the same climate zone for the same building type, U-factors vary between different structural materials or assemblies. Those with higher U-factors in the base code or standard will incur a more significant reduction in the GBI standard as current written. Although it would require significant effort, we suggest that GBI undertake appropriate simulations to develop specific U-factors for each of the building types and assemblies by climate zone that result in an equivalent energy savings rather than use a somewhat arbitrary percentage reduction.
 - **Proposed Response:** Reject: It is preferable to keep the simplified format rather than to develop new tables.
 - **Subcommittee Voting Results:** 10 in favor, 1 opposed.

MOTION: The motion was made and seconded to reject the comment using the proposed reason by the Subcommittee.

Discussion took place on the motion:

- It was noted that 90.1 is based on cost effectiveness vs. U factors.
- The concern was raised that some materials don't have to achieve the same environmental performance based on cost of the material.
- It was stated that the current credit language is a compromise created by the Energy Subcommittee.

VOTE: The motion carried with 16 in favor, 4 opposed, and 1 abstained.

Opposed: John Cross, Jeff Bradley, Jane Rohde, Bill Carroll

Abstained: Susan Gitlin

- **14-5. Substantive. 8.3.2.3.1:**

- **Comment:** • Five points are earned where more than 90% of light fixtures located in applicable areas have continuously dimmable light reduction controls.
 - Three points are earned where more than 90% of the of light fixtures located in applicable areas have light reduction controls based multi-level lighting;
 - Two points are earned where there is bi-level control located in applicable areas.
 - Not Applicable where spaces use less than 0.5 W/ft2 (0.1 W/m2).
- **Reason:** Specification is needed to clarify that points can be earned by meeting requirements for the spaces that are applicable in this section (i.e. spaces that use greater than 0.5 W/ft2).
- **Proposed Response:** Accept with modification. For clarity we agree with your changes with some modifications. The term “spaces” is used for interior rooms whereas “areas” is typically for exterior parts of the project. So the committee suggestion changing the word “areas” to “spaces”. And in addition the following clarification sentence to be added to the beginning of the provision: **“8.3.2.3.1 In all spaces that use at least 0.5W/ft2 of lighting power, more than 90%...”**
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment with modification using the reason provided.

AMENDMENT: The amendment was made and seconded to insert “regularly occupied before spaces.

Discussion took place on the amendment:

- There was clarification around what is Not Applicable and how applicability would be determined.
- The question was raised what are regularly occupied spaces. The response was assessors determine which spaces are regularly occupied and this is clear to them.
- A request was made to define “Primary regularly occupied spaces” because a stairwell might be considered a regularly occupied space but that is not the type of space we are considering for this credit.
- An action item was proposed to provide a definition for “regularly occupied spaces.”

There was no objection to the amendment.

AMENDMENT: The amendment was made and seconded to remove “located in applicable spaces”.

There was no objection to the amendment.

VOTE: The motion carried with 22 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

- **14-7. Substantive. 8.3.3.2:**

- **Comment:** Ten points are earned where the building does not use mechanical cooling and the design complies with ASHRAE Standard 55-2010 in all regularly occupied spaces.
- **Reason:** If the building is not designed with occupant thermal comfort as a priority, the occupants will create their own comfort post-occupancy. This will dramatically increase

the energy consumption of the building when compared to a properly engineered thermal comfort system.

- **Proposed Response:** Accept with modification. Remove the first bullet awarding 10 points where there is no mechanical cooling and add a bullet point declaring buildings that don't use mechanical cooling as Not Applicable.
- **Subcommittee Vote Results:** 7 in favor, 2 opposed, 1 abstained.
- **14-8. Substantive. 8.3.3.3:**
 - **Comment:** Ten points are earned where no heating system is installed and the design complies with ASHRAE Standard 55-2010 in all regularly occupied spaces.
 - **Reason:** If the building is not designed with occupant thermal comfort as a priority, the occupants will create their own comfort post-occupancy. This will dramatically increase the energy consumption of the building when compared to a properly engineered thermal comfort system.
 - **Proposed Response:** Accept as modified. The committee decided to strike the first bullet point and replace with an N/A for buildings with no heating systems.
 - **Subcommittee Vote Results:** 7 in favor, 2 opposed, 1 abstained

MOTION: The motion was made and seconded to accept as modified using the Subcommittee's proposed responses for comments 14 – 7 and 14 – 8. The motion carried with 18 in favor, 1 opposed, and 3 abstained.

Opposed: Allan Bilka

Abstained: Kent Sovocool, Susan Gitlin, Don Horn

- **29-7. Substantive. 8.3.4:**
 - **Comment:** Add: 8.3.4.3 Energy modeler for items 8.3.4.1 and 8.3.4.2 has ASHRAE BEMP or other energy modeling certification
 - **Reason:** Does not have a "not applicable" option, borrows two points from 8.3.4.1
 - **Proposed Response:** Reject with modification. Add: 8.3.4.3.: "Recommended documentation: The findings as well as the name and contact information for the individual responsible for the energy modeling shall be provided." Energy modelers should not be required to have certifications. The reputation of the modeler is sufficient.
 - **Subcommittee Voting Results:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to reject the comment while adding the recommended documentation for the proposed reason. The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Kent Sovocool

- **49-21. Substantive. 8.4.1.1:**
 - **Comment:** ~~Two points are earned~~ Not applicable where there are no elevators."
 - **Reason:** Points are earned for not having escalators?
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** 7 in favor, 1 opposed

MOTION: The motion was made and seconded to accept the comment. The motion carried with 20 in favor, 1 opposed, and 1 abstained.

Opposed: Bilka
Abstained: Dixon

- **34-27. Substantive. 8.4.1.1:**
 - **Comment:** “...All regularly utilized elevators.”
 - **Reason:**
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** 7 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The question was raised as to what is regularly utilized, would freight elevators be separated out, and ADA lifts by stairwells. There was clarification that sometimes freight elevators are regularly utilized and assessors are able to determine this.
- Language was proposed: “elevators for all regularly utilized elevators” “for all passenger elevators and any regularly utilized elevators”
- The point was raised that it doesn’t matter whether the elevator is used for passengers or freight for our credit.
- Concern was raised that “freight” and “service” were too restrictive.

AMENDMENT: The amendment was made and seconded to change language to “for all passenger elevators and any regularly utilized elevators”. There were no objections to the amendment.

VOTE: The motion carried with 20 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **34-26. Substantive. 8.4.1.3:**
 - **Comment:** “...~~One point is earned~~ Not applicable where there are no escalators.”
 - **Reason:**
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** 7 in favor, 1 abstained
- **34-27. Substantive. 8.4.1.3:**
 - **Comment:** ~~Two points are earned~~ N/A where there are no escalators.
 - **Reason:** Should be N/A not add points
 - **Proposed Response:** Accept with modification “N/A where there are no escalators or moving walkways”
 - **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept comments 34 – 26 and 34 – 27. The motion carried with 20 in favor, 1 opposed, and none abstained.

Opposed: Allan Bilka

None Abstained.

- **34-28. Substantive. 8.4.1.4:**
 - **Comment:** “...~~One point is earned~~ Not applicable where the building does not contain any of the listed equipment systems.”
 - **Reason:** Wording of last item "does not contain any of listed equipment systems". The way it is worded there would always be 1 point awarded

- **Proposed Response:** Accept
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- A question was raised regarding what is listed equipment.
- The point raised that the only single story buildings built at grade would not have elevators due to ADA laws. It was stated that it is not the committee's intent to penalize buildings with more than one story.

AMENDMENT: The amendment was made and seconded to change the motion to read "any systems capable of using this equipment". An objection was raised to the amendment.

Discussion took place on the amendment:

- Buildings with no elevators shouldn't have as much credit as buildings with efficient elevators.

VOTE: The amendment carried with 20 in favor, 1 opposed and none abstained.

Opposed: Allan Bilka

None Abstained.

VOTE: The motion carried with 20 in favor, 1 opposed and none abstained.

Opposed: Allan Bilka

None Abstained.

- **14-9. Substantive. 8.4.3.3:**

- **Comment:** The project is furnished with power strips or receptacles that automatically control availability of power based on occupancy sensors and/or timed schedules in accordance with ASHRAE Standard 90.1-2010.
 - Two points are earned where energy-saving power strips are installed on 75%-100% of ~~workstations~~ private offices, open offices and computer classrooms, including receptacles installed in modular partitions.
 - One point is earned where energy-saving power strips are installed on 50%-74% of ~~workstations~~ private offices, open offices and computer classrooms, including receptacles installed in modular partitions.
- **Reason:** ASHRAE Standard 90.1-2010 stipulates automatic control of receptacles installed in private offices, open offices and computer classrooms, including receptacles installed in modular partitions. The requirements of BSR/GBI 8.4.3 should extend beyond workstations only.
- **Proposed Response:** Accept.
 - First Bullet: Two points awarded for compliance with ASHRAE 90.1 – 2013 Second Bullet: One point awarded for compliance with ASHRAE 90.1 – 2010 Section 8.4.2.
 - GG 8.4.4.3 needs to be re-formatted to 8.4.3.3
 - Strike "power strips or" from the left column
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment. The motion carried with 15 in favor, none opposed and 7 abstained.

None Opposed.

Abstained: John Cross, Kent Sovocool, Don Horn, Jeff Bradley, Allan Bilka, Rachel Minnery, and Susan Gitlin.

- **34-29. Substantive. 8.4.3.2:**

- **Comment:** Delete this line item
- **Reason:** Has no bearing in the private sector as there is no proof of enforcement; presumably this is a federal agency matter.
- **Proposed Response:** ~~Reject comment.~~ We The committee supports the Energy Star label therefore we support the policy in place to provide new equipment as Energy Star certified. We The Committee believes this credit is verifiable in the private sector.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **56-7. General. 8.5.1, 8.5.2, 8.5.4:**

- **Comment:** The proposed BSR/GBI 01-201X criteria will exceed the Guiding Principles for New Construction's requirement for Measurement & Verification.
- **Reason:** none given
- **Proposed Response:** Accept as noted, increased stringency was intentional.
- **Subcommittee Voting Results:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The point was raised that this is one thing that has dropped from the new Guiding Principles.

VOTE: The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **34-30. Substantive. 8.5.1.2:**

- **Comment:** Add "8.5.1.2.8: Individually occupied units"
- **Reason:** MF penalized for sub-meter types; there is sub-metering but lighting, plug and HVAC are combined into small units
- **Proposed Response:** Reject on the basis that Sub-metering is required for all tenancies.
- **Subcommittee Voting Results:** 9 in favor, 2 abstained.

MOTION: The motion was made and seconded to reject the comment using the proposed response.

The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **14-10. Substantive. 8.5.2.1:**

- **Comment:** A Resource Management Plan addresses all energy consuming areas of a building or project and includes the following monitoring protocols (i.e. hourly, daily, monthly, seasonal, by floor, etc.):
 - Electricity;
 - Heating fuels;
 - Steam; and
 - Other (e.g. chilled or hot water for campus/district systems) Note: This may reflect new technology that uses other energy sources as long as they are measurable.
- This monitored data should be displayed in public view.

- **Reason:** Providing occupants and visitors with up-to-date or real-time information on space energy consumption provides awareness and education that can encourage behavioral changes and lead to further energy reductions.
- **Proposed Response:** Accept as modified. The following language has been added to the points column: “One point is earned where the gathered data is provided for review by occupants and visitors with up-to-date or real-time information on space energy consumption. The focus of the electronic information access should provide awareness and education that can encourage behavioral changes and lead to further energy reductions.”
- **Subcommittee Vote Results:** 6 in favor, none opposed, 1 abstained.
- **Note:** Multiple motions took place on this comment. The first motion was to incorporate additional credit language which passed with 9 in favor, none opposed, and 2 abstained. The second motion was to add additional credit for public display of energy. This motion failed with 4 in favor, 5 opposed, and 2 abstained.

MOTION: The motion was made and seconded to accept the comment as modified using the proposed response.

Discussion took place on the motion:

- A concern was raised regarding security and confidentiality One member proposed that language could be added as follows: “N/A for projects where there is a legitimate confidentiality concern.” The statement was made that points should not be earned for not doing something and a project should not get points even if they don’t comply due to a confidentiality concern.
- The question was asked about how points are earned for this credit. The response was that any two of the three items earns two points.

AMENDMENT: The amendment was made and seconded to remove “should” and “can” so it becomes “is to provide” and “encourages”. There was no objection to the amendment.

VOTE: The motion carried with 18 in favor, 2 opposed, and 1 abstained.

Opposed: John Cross, Don Horn

Abstained: Greg Johnson

- **56-8. General. 8.5.2 & 8.5.4**
 - **Comment:** The cited ANSI criteria provide for a range of options to analyze energy performance data to measure performance, including benchmarking protocols.
 - **Reason:** None given
 - **Proposed Response:** Accept as noted, but no proposed change to credit language.
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment as noted. The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Kent Sovocool.

- **49-22. Substantive. 8.5.3.1:**
 - **Comment:** Suggest this be broken out with more outcome measures - for instance, within what % does building perform as intended? Suggest 9 points of building performs as intended with lower point totals with buildings that are outside of 20% of

performance requirements established at the beginning of project (and N/A where project did not establish building performance targets)

- **Reason:** Should have more outcome measures here. Agree that one should be able to earn 9 points for achieving energy goal; but lower points be provided for being within a certain percentage (with 0 points if building is outside of 20%) and 0 if buildings did not establish building performance targets
- **Proposed Response:** Reject. This is a design and construction rating system. Rewarding or penalizing actual performance goes beyond the scope and presents logistic and policy certification issues.
- **Subcommittee Vote Results:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- The question was raised whether this was included in commissioning and a member of the Subcommittee verified that this was not part of commissioning.

Vote: The motion carried unanimously with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **56-9. General. 8.6:**

- **Comment:** The Guiding Principles for New Construction requirement for Renewable Energy is fulfilled by this criterion, which also asks for Feasibility Study.
- **Reason:** None Given
- **Proposed Response:** Accept as informative
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment as informative. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **14-2 Substantive. 5.1:**

- **Comment: on-site renewable energy:** energy derived from sun, wind, water, Earth's core, and biomass that is captured, stored and used on the building site, using such technologies as wind turbines, photovoltaic solar panels, transpired solar collectors, solar thermal heaters, small-scale hydroelectric power plants, and fuel cells, ~~and ground source heat pumps.~~
- **Reason:** Ground source heat pumps are identical to air-to-air heat pumps, except they utilize a heat sink with more consistent temperatures than the outside air. Classifying a ground source heat pump as renewable energy would be similar to classifying the refrigerator in my garage as non-renewable energy and the refrigerator in my house as on-site renewable energy. In addition, if the cooling and heating loads are not balanced, the ground loop can become saturated and the efficiency of the GSHP system decreases dramatically and can be worse than a traditional air-to-air heat pump.

- **43 – 3. Substantive. 5.1**

- **Comment:** Delete ground-source heat pumps from this definition: **on-site renewable energy:** energy derived from sun, wind, water, Earth's core, and biomass that is captured, stored and used on the building site, using such technologies as wind turbines, photovoltaic solar panels, transpired solar collectors, solar thermal heaters, small-scale hydroelectric power plants, and fuel cell, ~~and ground source heat pumps~~.
- **Reason:** Ground source heat pumps are not renewable because they add heat to the ground that is not always able to dissipate. This heat then makes the ground source heat pump less efficient.
- **Proposed Response:** Accept as modified. The committee accepts the proposed changes in addition to also striking fuel cells. Fuel cells are not an energy generation technology, they're a storage technology.
- **Subcommittee Vote Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept 14 – 2 and 43 – 3 as modified using the Subcommittee's proposed response.

Discussion took place on the motion:

- Concern raised that if we leave heat pumps in, there are many areas where they are not used correctly and are less efficient as a result.
- It was stated that it's not renewable the way the language is written now.
- The point was made that it is renewable there's a European reference that it is using freely available renewable energy.
- The point was made that the phrase "net energy gain" includes all of the options mentioned while keeping generic terminology.
- It was stated that biomass should be in the body of the language and not in the definition of on-site renewable energy
- A suggestion was made to bring it back to the Subcommittee

The motion was Withdrawn. There were objections to the withdrawal.

VOTE: The motion to withdraw failed with 6 in favor, 15 opposed, and 1 abstained.

Opposed: John Cross, Susan Gitlin, Don Horn, Paul Bertram, Mike Lehman, Allan Bilka, David Eldridge, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Gary Keclik, Greg Johnson, Gregg Bergmiller, Chris Dixon.

Abstained: Jeff Bradley

VOTE: The motion carried with 15 in favor, 5 opposed and none abstained.

Opposed: Kent Sovocool, Jane Rohde, Bill Carroll, George Thompson, Bill Freeman
None Abstained.

- **43-4 Substantive. 5.1**
 - **Comment:** Delete biomass from this definition:
on-site renewable energy: energy derived from sun, wind, water, and Earth's core, ~~and biomass~~ that is captured, stored and used on the building site, using such technologies as wind turbines, photovoltaic solar panels, transpired solar collectors, solar thermal heaters, small-scale hydroelectric power plants, fuel cells, and ground-source heat pumps.
 - **Reason:** Biomass is not renewable energy. It is burned just like fossil fuels and creates CO2 and other toxic emissions just like fossil fuels. Wood and biomass are renewable materials, not renewable energy. Deleting this does not prohibit biomass or waste-to energy as an energy source.

- **7 – 3.1. Substantive. 5.1**

- **Comment: on-site renewable energy:** energy derived from sun, wind, water, or the Earth's core, and biomass that is captured, stored and used on the building site, using such technologies as wind turbines, photovoltaic solar panels, transpired solar collectors, solar thermal heaters, small-scale hydroelectric power plants, fuel cells, and ground-source heat pumps.
- **Reason:** A sustainable standard should encourage the use of clean renewable energy, not those forms of energy that degrade the atmosphere. The combustion of biomass releases pollutant emissions to the atmosphere that can be on par with or even greater than those resulting from the burning of fossil fuels (See references below). This standard should be limited to non-combustion renewable energy sources. Furthermore, burning biomass for fuel is on “renewable” when the biomass is replaced in a sustainable way, and there are no provisions in this standard to ensure sustainable biomass growth. References:
 - Natural Resources Defense Council, “Our Forests Aren’t Fuel” website, <http://www.nrdc.org/energy/forestsnotfuel/>
 - Earth Institute at Columbia University, “Is Biomass Really Renewable?” website, <http://blogs.ei.columbia.edu/2011/08/18/is-biomass-really-renewable/>
 - Cary Institute letter to U.S. EPA, http://www.caryinstitute.org/sites/default/files/public/downloads/2015_ltr_carbon_biomass.pdf
 - Non-profit Partnership for Policy Integrity, “Carbon emissions from burning biomass for energy” website, <http://www.pfpi.net/carbon-emissions>
- **Proposed Response:** Accept as modified by changing the language to read “and biomass from recovered waste sources” to include specific on-site biomass options.
- **Subcommittee Vote Results:** 5 in favor, 3 opposed, 2 abstained

MOTION: The motion was made and seconded to accept comments 43 – 4 and 7 – 31 as modified using the Subcommittee’s proposed response.

Discussion took place on the motion:

- It was stated the modification is consistent with EPA’s program.
- The point was made that consistency between credits is encouraged.
- It was stated that biomass is recognized by Presidential Executive Order as renewable source. Subcommittee doesn’t remove biomass entirely but compromises by identifying waste sources.
- It was stated that trees may be taken for forest management and they would be burned regardless, this point would incentivize gaining energy or managing particulates of material that will be burned regardless.
- A question raised about how the area of a building site where this waste could be collected is defined and whether it should be defined as a continuous site under common ownership.

VOTE: The motion carried with 16 in favor, 6 opposed and 1 abstained.

Opposed: John Cross, Jeff Bradley, Jane Rohde, Bill Carroll, Charles Kibert, Greg Johnson

Abstained: Allan Bilka

- **43-22. Substantive. 5.1:**

- **Comment:** Modify as follows: **renewable energy:** energy that is continuously replenished on the Earth, such as wind, solar thermal, solar electric, geothermal, and hydropower, and various forms of biomass.

- **Reason:** Biomass is not renewable energy. It is burned just like fossil fuels and creates CO₂ and other toxic emissions just like fossil fuels. Wood and biomass are renewable materials, not renewable energy. Deleting this does not prohibit biomass or waste-to-energy as an energy source.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** 6 in favor, 1 opposed, 2 abstained

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The request was made to limit to biomass from waste sources for consistency with previous responses.
- The point was made that there are many materials studied and used as biomass including switch grass, hemp, and food waste in addition to others. These are also being converted to energy by burning or some other method.
- The point was made that biodiesel from feeding GMO yeast can be included as renewable.
- It was stated that the Committee could we re-define biomass at some point in the future.
- There was clarification that common usage of “renewable energy” would be considered energy without emissions.
- A question was raised whether we could say “biogenic” instead of “biomass”.

VOTE: The motion failed with 8 in favor, 13 opposed, and none abstained.

Opposed: Paul Bertram, Jeff Bradley, Mike Lehman, Jane Rohde, Bill Carroll, Gary Keclik, George Thompson, Greg Johnson, Gregg Bergmiller, Bill Freeman, Charles Kibert, Chris Dixon, and Gord Shymko
None Abstained.

MOTION: The motion was made and seconded to reject the comment with the reason that various forms of biomass are considered renewable.

Discussion took place on the motion:

- The point was raised that two members stated this needs more work at the Subcommittee level.
- The question was raised whether Energy should be the Subcommittee to address Emissions issues.
- One member stated they are not comfortable rubber stamping all biomass.

VOTE: The motion carried with 12 in favor, 8 opposed, and 1 abstained.

Opposed: John Cross, Kent Sovocool, Susan Gitlin, Don Horn, Allan Bilka, David Eldridge, Tien Peng, and Rachel Minnery

Abstained: Gord Shymko

- **14-1. Substantive. 5.1:**
 - **Comment: climate zone:** see [ASHRAE Standard 169-2013](#), Normative Appendix B of ANSI/ASHRAE/IESNA Standard 90.1-2013, or Section 301 of the 2015 International Energy Conservation Code (IECC).
 - **Reason:** Standard 169-2013 includes updated weather data and the addition of Climate Zone 0 with humid (0A) and dry (0B) to better account for extremely hot locations. The inclusion of Standard 169 makes the rating system more applicable to international locations, especially for locations in extremely hot climates.
 - **Proposed Response:** Reject. ASHRAE 169-2013 has revised climate zones. However, these have not been incorporated into printed versions of 90.1 or the IECC yet. These

changes are anticipated to be part of 90.1-2016 and when 90.1-2016 becomes available in the fall, the committee will consider updating.

- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 16 in favor, none opposed, and 5 abstained.

None Opposed.

Abstained: Susan Gitlin, Don Horn, Greg Johnson, Rachel Minnery, Josh Jacobs

- **9-4. Substantive. 5.1:**

- **Comment:** A carbon offset is a certificate representing the reduction of one metric ton (2,205 lbs.) of carbon dioxide equivalent emissions.
- **Reason:** Carbon offsets should also be used/offset CO2E in addition to CO2.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment. The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Josh Jacobs

Materials

Materials Chair, Charles Kibert presented the proposed response to public comments submitted on the Materials assessment area:

- **52-39. 10.2.1.1 & 10.2.1.2**

- **Comment:** The third party Multiple Attribute Product Certification option should be given greater weight than the other options in these credits.
- **Reason:** EPDs, LCAs, and Multiple Attribute Product Certifications are not equal tools. EPDs and LCAs are tremendously important disclosure tools; however, having one doesn't necessarily mean that the product is better than the industry average in terms of environmental performance. Generally speaking, however, a third party Multiple Attribute Product Certification will indicate a product has demonstrated actual measured, relevant and meaningful environmental preferability better than the other cohorts cited within these sub-sections.
- **Proposed Response:** Reject. EPDs and Multi-attribute standards are not the same, however they both have strengths and weaknesses and the committee's goal is transparency.
- **Subcommittee Vote Results:** 8 in favor, 5 opposed, 1 abstained.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- One member stated that they would like to vote against the motion and send the comment back to the Subcommittee for more work.
- The point was raised that multi-attribute shouldn't be rated higher than credible EPD resources since they are not transparent. The suggestion was made to strike "the committee's goal is transparency" from the response. This suggestion was not adopted.

Vote: The motion carried with 13 in favor, 6 opposed, and 2 abstained.

Opposed: Susan Gitlin, Don Horn, Jane Rohde, Bill Carroll, Tien Peng, Josh Jacobs

Abstained: Kent Sovocool, Gregg Bergmiller, Gord Shymko

- **49-23. Substantive 10.1.1:**
 - **Comment:** Change indicators to categories. Add impact categories for land use, habitat alteration, resource use, and human health effects
 - **Reason:** The limited impact categories currently included do not represent a full life cycle assessment of environmental impacts and may favor environmentally damaging solutions.
 - **Proposed Response:** Reject on the basis that not all impact categories are well defined yet, and not all were weighted equally, with global warming given the highest weighting by a stakeholder panel for BEES, ozone depletion the least.
 - **Subcommittee Vote Results:** 11 in favor, 2 opposed.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- The point was made that land use, resource use/depletion, habitat alteration, and human health effect are dealt with. There is no world-wide consensus for accepted categories and there are potentially an unlimited number of impact categories. It was stated that there are a range of uncertainties on impact categories: climate change, and ozone depletion. It was added that any specific list should include explanation as to why items are included or excluded.
- There was clarification that EPD is not LCA. LCA is a scientific process that informs EPDs and they are not interchangeable.
-
- An additional point was raised that if only a few components are taken into consideration then it's not a true life cycle assessment and the unconsidered areas could have detrimental impacts.

NOTE: At 1:01 PM CT, Chair Wayne Trusty handed the Chair of the Consensus Body to Mike Lehman. Trusty entered the discussion.

- Many life cycle models are available, and you can use whatever categories you'd like. Categories in models are numerous and all are well documented.

One member stated that if new categories aren't included, then the term Life Cycle Assessment should be removed.

- There was clarification that this is whole building LCA not a product LCA, you are constrained by structure of the EPDs.
- It was stated that data won't become available until there is demand for it.
- The point was made that impact categories produce an equivalent result. Resource use is an inventory categorization.
- It was stated that this Standard is not talking about ISO 29-30. The Standard refers to ASTM instead which refers to ISO 12-40. The suggestion was made that the Standard could offer additional points for adding more categories from an optional list.

- The concern was raised that there was a high potential for gaming the Standard if additional impact categories were added and that the rating system should not be used as a stick to whip the industry into shape.

Vote: The motion carried with 11 in favor, 9 opposed, and 1 abstained.

Opposed: John Cross, Kent Sovocool, Susan Gitlin, Don Horn, Allan Bilka, Tien Peng, Rachel Minnery, Gary Keclik, and Gord Shymko

Abstained: Bergmiller

- **7-9. Substantive. 10.1.1**

- **Comment: 10.1.1** (First paragraph not shown) Assessment protocol:

The life cycle assessment reports all relevant impacts, including the following life cycle impact indicators:

- Global warming potential (GWP);
- Acidification potential;
- Eutrophication potential;
- Ozone depletion potential (ODP); ~~and~~
- Smog potential;-
- Land use (or habitat disruption); and
- Resource depletion.

- **Reason:** The proposed indicators are only a subset of possible LCA indicators. Land use, biodiversity, and resource-related impacts are of particular importance to the building sector and should be included. According to ISO 14044, Section 4.4.2.2, "The selection of impact categories shall reflect a comprehensive set of environmental issues related to the product system being studied, taking the goal and scope into consideration. Omitting land use, a main driver of biodiversity loss, and resource depletion, an important indicator of scarcity, does not fulfill the intent of ISO standards for LCA. Further, ISO 14044, Section 4.4.2.2.1 references land use and the definition of impact categories as needed to conduct a complete environmental assessment: "...LCI results other than mass and energy flow data included in an LCA (e.g. land use) shall be identified and their relationship to corresponding category indicators shall be determined. For most LCA studies, existing impact categories, category indicators or characterization models will be selected. However, in some cases existing impact categories, category indicators or characterization models are not sufficient to fulfill the defined goal and scope of the LCA, and new ones have to be defined..."

- **Proposed Response:** Defer to Consensus Body

- **Subcommittee Vote Results:** There were three motions made on this comment, none passed.

- **Motion 1:** Reject the comment. These two impact categories are not suitable for comparison in a whole building LCA.

In Favor:5

Opposed: 5

Abstained: 0

- **Motion 2:** Accept with modification to only add the bullet for resource depletion. Land use has more controversy about how it can be compared. Have the bullet read "Non-renewable materials"

In favor: 4

- Opposed: 6
- Abstained: 1
- **Motion 3:** Accept
- In favor: 4
- Opposed: 6
- Abstained: 1

MOTION: The motion was made and seconded to reject the comment. The following reason was proposed with no objections: "Five impact categories are those for which the committee has adequate data to support." The motion carried with 13 in favor, 9 opposed, and none abstained.

Opposed: John Cross, Kent Sovocool, Susan Gitlin, Don Horn, Allan Bilka, Tien Peng, Rachel Minnery, Gary Keclik, and Gord Shymko
None Abstained.

- **36-17. Substantive. 10.2.1.1:**
 - **Comment: 10.2.1.1** A minimum of twenty products, each constituting at least 1% of the total material cost of the project, includes one or more of the following that at a minimum evaluates the *cradle-to-gate product life cycle*:
 - **Reason:** Identified products should constitute a significant portion of the building materials.
 - **Proposed Response:** ~~Reject, based upon~~ This section was developed to address the inclusion of interior finish products that were not formerly included in single attribute calculations because of the smaller percentage based upon an overall project costing. Therefore, this could be a consideration for future updates, but would want to have 20 products that include EPDs, Life Cycle, and utilization of multiple attribute certifications.
 - **Subcommittee Vote Results:** 7 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 20 in favor, none opposed, and 2 abstained.

None Opposed.

Abstained: Susan Gitlin, Allan Bilka

- **21-11. Substantive. 10.5.1.1:**
 - **Comment:** Add N/A option
 - **Reason:** N/A should be a standard option since many project do not involve reuse of an existing structure
 - **Proposed Response:** Reject to adding N/A to 10.5.1.1 this is an area of importance that does not merit N/A option.
 - **Subcommittee Voting Results:** 10 in favor, 2 opposed

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- It was stated that if this is so important it should earned more than 12 points.
- The point was raised that if it's a brand new building it can't get points, but if they are N/A the points are out of the denominator. The greenest decision is not to build.
- A concern was raised about depriving the building of the chance to meet the minimum of 20% for certification.

- It was stated that using existing resources is always better and voting for this encourages urban sprawl. Demolishing existing buildings to improve use of space is a sound option.

VOTE: The motion carried with 16 in favor, 4 opposed, and 2 abstained.

Opposed: Paul Bertram, Jeff Bradley, Mike Lehman, and David Eldridge.

Abstained: Allan Bilka and Kent Sovocool.

- **52-52. Substantive. 10.5.2.1:**

- **Comment:** Include additional language as follows: The project incorporates reused, refurbished and/or off-site salvaged materials, safe for use in place of new materials (except furnishings). If considering the reuse and management of materials that are harmful, either because of constituents in them or because of contamination from outside sources, consult the regulations and resources from jurisdictional environmental agencies and ensure all applicable requirements have been met. Depending on the salvaged material and its application in the new construction, also consult construction codes for structural integrity and energy efficiency requirements.

Assessment Guidance:

Percentages are calculated as the percentage of the total materials cost.

Percentage = $100 \times (A \div B)$, where:

A = Total value of reused materials

B = Total value of materials

- **Reason:** The reuse of recovered materials needs to be judicious. One concern is that potentially harmful materials that had historically circulated in the construction and maintenance of buildings could be reintroduced. In case of some harmful materials, federal and state regulations are in place, and their requirements must be met. In case of others, while there might not be regulations, environmental agencies have published information resources, education materials, and/or best management practices. Project teams should seek and consult such information. Further, depending on the application, the structural and energy-efficiency performance of recovered materials may be other important criteria for their selection. Building codes may not allow salvaged lumber for structural applications due to safety concerns, or a salvaged single-pane window for exterior applications due to energy inefficiency.
- **Proposed Response:** Reject proposed language for 10.5.2.1. Professionals are required to follow all applicable regulations so this language is not needed.
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- It was stated there are times where salvaged materials may not be regulated, there could be lead or other things in it. Project teams need to be sure they're not unintentionally harming the health of occupants.
- The issue was raised that we're not responding to the comment.
- Concerned raised around the use of term "harmful" and whether this is used as a risk or a hazard. We want to address risks, not just hazards in this Standard.

VOTE: The motion carried with 18 in favor, 3 opposed, and none abstained.

Opposed: Kent, Sovocool, Susan Gitlin, Gregg Bergmiller

None Abstained.

• **7-17. Substantive. 10.5.2.1:**

- **Comments:** 10.5.2.1 The project incorporates reused, refurbished and/or off-site *salvaged materials* in place of new materials (except *furnishings*). Assessment Guidance:
Percentages are calculated as the percentage of the total materials cost.
Percentage = $100 \times (A \div B)$, where:
A = Total value of reused, refurbished and salvaged materials
B = Total value of materials
The value of the reused, refurbished or salvaged material is the greater of the cost of the reused, refurbished or salvaged material or the cost of new material which is being avoided.
- **Reason:** The section is unclear which value is being used in the calculation of the value of the reused, refurbished or salvaged material. Is the cost to acquire the reused, refurbished or salvaged material or the avoided cost of the material the reused, refurbished or salvaged material replaces? Also, in the formula all three types of materials should be included, not just “reused”.
- **Proposed Response:** Accept with modification: The value of the reused, refurbished or salvaged material is the greater of the cost of the reused, refurbished or salvaged material or the cost of new comparable material which is being avoided.
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment with the Subcommittee’s proposed modification using the proposed response.

Discussion took place on the motion:

- It was clarified that the original intent of the credit was to use area not mass. It was stated that mass is not a good measure to use.
- The question was raised about how the area would be calculated if a project is only reusing the frame. It was stated that the calculation applies to the plane and not the components.
- It was stated that if area is the intended measurement it should be better stated in the language.

VOTE: The motion carried with 22 in favor, 1 opposed, and none abstained.

Opposed: Susan Gitlin.

None Abstained.

• **49-25. Substantive. 10.5.3:**

- **Comment:** Suggest including procedures to have appraisals or some other valuation methodology included in the required documentation
- **Reason:** What proof of the value of reused furnishings or off-site material is required here? Having a verification mechanism for this would lend credence to this credit and prevent potential gaming of the system.
- **Proposed Response:** Reject comment, however it is partially addressed in response to 7 – 17: “The value of the reused, refurbished or salvaged material is the greater of the cost of the reused, refurbished or salvaged material or the cost of new comparable material which is being avoided.”
- **Subcommittee Voting Results:** 10 in favor, 2 abstained.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Susan Gitlin

- **34-36. Substantive. 10.5.1.1: (NOTE: This comment was misnumber 7 – 36 in the packet)**
 - **Comment:** Move this section to Project Management
 - **Reason:** given subcontract this is a challenge to calculate likely more effort than 4 points would warrant
 - **Proposed Response:** Reject. Minimizing waste is an important part of a green rating system for new buildings. No reason was given for moving it to the project management section. This is a materials issue.
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 14 in favor, none opposed and 3 abstained.

None Opposed.

Abstained: Susan Gitlin, David Eldridge, Rachel Minnery

- **19-4. Editorial. 10.6.1.4:**
 - **Comment:** Finally, we recognize that C&D fines (minus 2-inch or so material created during the demolition and transportation process) are not recognized for any recovery value when used as alternative daily cover (ADC). The fact is that C&D fines used as ADC replace a virgin product, dirt, which is a working definition of recycling. Perhaps GBI does not want to count ADC at its 100% value as recycling, but as it wants to do with fuel products, perhaps a percentage of this could be counted
 - **Reason:** None Given
 - **Proposed Response:** Reject. ADC is landfill material and is not diverted from the landfill.
 - **Subcommittee Voting Results:** 6 in favor, 3 opposed, 3 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- It was stated the purpose of 10.6.1.4 is to divert from landfill.

VOTE: The motion carried with 15 in favor, 5 opposed, and 1 abstained.

Opposed: Jeff Bradley, Jane Rohde, Bill Carroll, Chris Dixon, and Gregg Bergmiller

Abstained: Kent Sovocool

- **34-37. Substantive. 10.7.1:**
 - **Comment:** Delete this section
 - **Reason:** This is a very broad criteria that would be difficult to calculate and evaluate. Additionally, non-prefab, non-assembled and non-modular material selection can have as big or larger impact; this is more appropriately considered in life cycle assessment
 - **Proposed Response:** Reject. It is recognized that this can be challenging to calculate. Nonetheless, it is important to consider. The life cycle assessment section of this document does not consider materials used.
 - **Subcommittee Voting Results:** 5 in favor, 3 opposed, 3 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- It was stated that there was no consensus on what these terms mean at the Subcommittee level. Disagreement was expressed with the previous comment that we did have consensus on the definitions in the Subcommittee.
- It was stated there is not necessarily a correlation with prefabrication and resource conservation. Things like paint, gypsum board, etc. are all prefabricated. Assembly of components might be a better term to use.
- An amendment was proposed to include: "Prefabricated modular building assemblies or modular building units." A second amendment to include "Product assembly" was suggested. There was no second for the amendments and objections were raised. Amendments were withdrawn.
- It was suggested to send the comment back to the Subcommittee.

The Motion was Withdrawn. Objections were raised.

Vote: The motion to withdraw carried with 14 in favor, 6 opposed, and 1 abstained.

Opposed: Jeff Bradley, Jane Rohde, Bill Carroll, George Thompson, Bill Freeman, and Greg Johnson

Abstained: Allan Bilka

MOTION: The motion was made and seconded to send the comment back to the Subcommittee. The motion carried with 14 in favor, 6 opposed, and 1 abstained.

Opposed: Jeff Bradley, Jane Rohde, Bill Carroll, Rachel Minnery, George Thompson, and Bill Freeman

Abstained: Don Horn

- **34-36. Substantive. 10.6: (NOTE: This comment was misnumbered 7 – 36 in the packet)**
 - **Comment:** Move this section to Project Management
 - **Reason:** given subcontract this is a challenge to calculate likely more effort than 4 points would warrant
 - **Proposed Response:** Reject. Minimizing waste is an important part of a green rating system for new buildings. No reason was given for moving it to the project management section. This is a materials issue.
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 14 in favor, none opposed, and 3 abstained.

None Opposed.

Abstained: Susan Gitlin, David Eldridge, Rachel Minnery

- **52-53. Substantive. 10.6.1.1:**
 - **Comment:** Revise as follows: A preconstruction waste management plan is made prior to any construction or demolition. This plan includes the major categories of materials expected to be generated throughout demolition and construction activities and specifies administrative and procedural requirements for waste management activities on construction and demolition sites.

For each major material category identified, the The preconstruction waste management plan includes:

- ~~• Indicates the strategies and/or locations for source reducing, salvaging, recycling, returning to supplier/manufacturer, or other ways of diverting waste from landfill;~~
- ~~• Indicates whether recycled materials will be separated on-site or commingled; and~~
- ~~• Includes approximate generated quantities, if possible.~~

i. Performance requirements including, but not limited to:

- A target diversion rate that the contractor should meet or exceed;
- Examples of major materials that can and should be diverted;
- Examples of diversion activities:
 - Manufacturer reclamation;
 - Salvage for on-site reuse, sale or donation;
 - Repurposing;
 - Composting;
 - Source-separated recycling; and
 - Commingled recycling;
- Work expectations to maintain recovered materials in a condition that is conducive to their reuse;
- Submittal requirements such as:
 - Anticipated Material-Diversion Report including, but not limited to:
 - Estimate of types and quantities of materials generated;
 - Diversion goals for the different types of materials and anticipated diversion methods;
 - Names of take back programs, reputable recyclers, salvage and reuse companies and/or material exchanges that will be used;
 - Progress Material-Diversion Reports including, but not limited to:
 - Material category,
 - Amounts to date of materials salvaged, reused, recycled, donated, sold or returned to manufacturers' with take-back programs,
 - Records to date of donations, sales, recycling and landfill/incinerator manifests, weight tickets, hauling receipts, and invoices;
 - The Summary Report that documents the results of the project and includes, but is not limited to, the items listed under Progress Material-Diversion Reports (see 10.6.1.2);
- Execution requirements including, but not limited to:
 - Purchasing agreements with waste reduction provisions to prevent excess materials from arriving at the site, e.g., packaging;
 - Use of detailed material estimates to limit waste generated by unplanned cutting;
 - Source-separation procedures;
 - Commingling procedures;
 - Frequency of removal;
 - Handling and transportation procedures including designated container locations and labeling;

- Quality Assurance requirements, including but not limited to:
- Provisions that encourage the use of reputable recyclers, performing operations in compliance with state and local regulations, state licensing or registration and/or third-party, independent certification;
- Name and contact information for the person on the job site responsible for developing and implementing the CWM plan;
- Plans for training, meetings and communication;
- Reporting and record keeping provisions;
- Troubleshooting instructions and contact information;
- **Reason:** The purpose of having a pre-construction waste management plan is to increase the likelihood that the waste diversion effort is successful. A pre-construction waste management plan needs to be a well thought out document. It should specify performance, submittal, execution and quality assurance requirements so as to outline administrative and procedural aspects, set in place a clean process, and improve the waste diversion results.
 - **Proposed Response:** Accept the first two bullets. Most of this additional information is covered in a more general way by the existing language. Your proposed language is better suited for a User's guide. The following will be added to 10.6.1.1:
 - Includes the name and contact information for the person(s) on the job site responsible for developing and implementing the waste management plan;
 - Includes reporting and record keeping provisions;
 - **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment with modification using the Subcommittees proposed response.

Discussion took place on the motion:

- Changes were suggested to the response to the comment: to delete the first sentence and strike the third bullet.

The Motion was Withdrawn with no objections.

MOTION: The motion was made and seconded to reject the comment with the reason that "Most of this additional information is covered in a more general way by the existing language. Your proposed language is better suited for a User's Guide. The following will be added to 10.6.1.1:

- Includes the name and contact information for the person(s) on the job site responsible for developing and implementing the waste management plan;
- Includes reporting and record keeping provisions;"

AMENDMENT: The amendment was made and seconded that the language referring to target diversion rate in the comment be added: "performance requirements including but not limited to: a target diversion rate that the contractor should meet or exceed...." There were no objections to the amendment.

VOTE: The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **46-2. Substantive. 10.6.1.1:**

- **Comment:** 10.6.1.1 A preconstruction waste management plan is made prior to any construction or demolition. This plan includes the major categories of materials expected to be generated throughout demolition and construction activities. For each major material category identified, the preconstruction waste management plan:
 - Indicates the strategies ~~and/or locations~~ for source reducing, salvaging, recycling, returning to supplier/manufacturer, or other ways of diverting waste from landfill;
 - Indicates the facility, hauler, or service provider that will handle each material being diverted;
 - indicates whether recycled materials will be separated on-site or commingled; and
 - includes approximate generated quantities, if possible.
- **Reason:** Within a WMP, it is important to include the names of haulers, what type of material they are responsible for, and where materials are taken to once they are recovered. When this information is gathered as part of the pre-planning phase, project teams are much more likely to contract appropriately for the waste that will be generated and how/where to recycle them.
see a sample plan template: <http://www.stopwaste.org/resource/construction-anddemolition-debris-recovery-plan>
- **Proposed Response:** Accept
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43-23. Substantive. 10.6.1.1**

- **Comment:** Recycled materials is used incorrectly here. Modify as follows: ...indicates whether construction and demolition materials ~~recycled materials~~ will be separated on-site or commingled;
- **Reason:** Recycled materials are materials that have recycled content. This is used in the context of determining post-consumer and pre-consumer recycled content. In section 10.6, the topic is construction and demolition materials, and materials to be recovered.
- **Proposed Response:** Accept.
- **Subcommittee Voting Results:** Unanimously in Favor.

MOTION: The motion was made and seconded to accept the comment. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **19-1. Substantive. 10.6.1.2**

- **Comment:** While the material may be sent off to recycling facilities, and a recycling rate claimed by that facility is used, there is no way to verify that the facility is telling the truth and not just transferring material to a landfill. This happens on a constant basis, jeopardizing the credibility of any points awarded here. Suggest that a requirement be

put in place that to receive any points, the facility's recycling rate must be certified by a third-party organization that is using a certification program developed to an ISO level.

- **Reason:** None Given
- **Proposed Response:** Reject. Third party-certification would add additional cost to the project. Instead report the responsible parties through the addition of the text below and whether the facility is certified (if 52 – 54 is accepted).

Add the following:

Include the name and contact information for the person(s) responsible for developing and implementing the waste management plan, the person responsible for the off-site facility recycling rate, and the person responsible for the content of the final waste management report;

- **Subcommittee Voting Results:** 12 in favor, 1 abstained.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Jeff Bradley

- **52-54. Substantive. 10.6.1.2:**

- **Comment:** Revise as follows:

A final waste management report is a summary report completed after construction that documents the results of the project. that includes all waste and recycling/reuse materials, their weight/volume, recycling rate for each line item on the plan, and an overall recycling rate for the project.

The Summary Report includes:

- An overall recycling rate for the project;
- Material categories;
- Amounts of materials salvaged, reused, recycled, donated, sold or returned to manufacturers' with take-back programs, as well as the achieved recycling rate for each line item;
- Names of take back programs, recyclers, salvage and reuse companies and/or material exchanges that were used; • Records of donations, sales, recycling and landfill/incinerator manifests, weight tickets, hauling receipts, and invoices;
- Average facility recycling rates. For each recycling facility used, it should be noted whether the recycling operation is certified through a state, local or a third-party, independent certification.

The report includes a separate average recycling rate for materials sent to facilities that accept or process comingled construction and demolition materials. For those materials sent for off-site sorting by a construction and demolition materials recycling facility, the average facility recycling rate is included.

- **Reason:** Organization. As written, the components of the summary report are not clear. The revisions above propose an appropriate organization and amount of detail for the requirement.

Average facility recycling rates. While not typical of a summary report, we support including requirements that project teams disclose the average facility recycling rates

for facilities they used. In addition, by further requiring that it be noted whether the recycling operation is certified through a state, local or a third-party, independent certification organization, we attempt to give full credibility to the facility recycling rate claims. It is appropriate for a green building assessment system to include such language as a way to ensure that accurate diversion rates are reported and put a stop to sham recycling.

- **Proposed Response:** Accept as modified, move last bullet to 10.6.1.1: “provides average facility recycling rates...”
- **Subcommittee Voting Results:** 10 in favor, 1 abstained.

MOTION: The motion was made and seconded to accept the comment as modified using the Subcommittee’s proposed response.

Discussion took place on the motion:

- The point was raised that if the committee wants average facility recycling rates reported it could be included in the report as well as part of the pre-construction planning process.
- Concern was raised about how comingled waste would affect the average facility recycling rates. It was stated that including that rate in the report could throw off the report.

AMENDMENT: The amendment was made and seconded to accept as modified and also include the last bullet in 10.6.1.1.

Discussion took place on the amendment:

- There was concern that the amendment needed further clarification. It was stated that it’s important for projects to state both what they intended to do and then what actually happened.

There were no objections to the amendment.

VOTE: The motion failed with 8 in favor, 12 opposed, and 2 abstained.

Opposed: John Cross, Don Horn, Mike Lehman, Angela Tin, Jane Rohde, Bill Carroll, Gary Keclik, George Thompson, Bill Freeman, Greg Johnson, Gregg Bergmiller, and Chris Dixon

Abstained: Paul Bertram and Jeff Bradley

MOTION: The motion was made and seconded to accept as modified striking in 10.6.1.2 “Average Facility Recycling rates” leaving the rest of bullet the same and adding into 10.6.1.1.

Discussion took place on the motion:

- The question was asked whether what was written is a workable solution. It was stated that the credit is currently asking that recycling facilities be certified by a third party. There was some uncertainty raised about who conducts the third party certification. It was stated that that was included in the credit language.

The motion carried with 21 in favor, none opposed, and 2 abstained.

None Opposed.

Abstained: Kent Sovocool and Allan Bilka.

- **46-3. Substantive. 10.6.1.4:**
 - **Comment:** 10.6.1.4 Construction waste, including building demolition waste and packaging, is diverted from the landfill through recycling, reuse, repurposing, or composting. The amount of construction waste that is used for waste-to-energy incineration is multiplied by 0.5 when counted as waste diverted from landfill. Waste-to-energy facilities have a combustion efficiency rate of 60% or more. Soil and land-clearing debris and materials used as alternative daily cover at landfills are not included in these

calculations. Calculations may be performed based on weight or volume, but the same basis is used throughout this credit. Where calculations are performed to convert waste from weight to Volume or volume to weight, the source of these conversions is stated. For materials sent for offsite sorting at a mixed recovery facility, additional points are available for facilities that have verified their annual average recycling rate from an independent third party organization.

- **Reason:** This proposal would add points or a new point category for third-party verified recycling rates at mixed recovery facilities (MRFs).

Waste diversion calculations are rarely consistent from project to project. One of the major places where quantification can differ significantly on projects is the handling of offsite recycled material averages via mixed recovery facilities. Some projects use load-specific numbers; others use annual facility-wide averages. Some facilities measure using weights and scales; others use visual sorts and volume. There is a big push in the C&D industry to incentivize consistency in reporting offsite recycling quantification. Several standards and rating systems are moving toward favoring third-party verified facility diversion rates for MRFs. LEED, GreenPoint Rated, and the California green building code (CALGreen) all have provisions or points for recognizing third-party verification of recycling rates.

The most credible standard in effect today is the Recycling Certification Institute: (www.recyclingcertification.org/)

Certified facilities can be found here: <https://www.recyclingcertification.org/certified-facilities/>

GG should reference RCI (or equivalent) as a way to encourage and reward consistent verification of recycling rates.

- **Proposed Response:** Accept this comment as modified. Take a point from 10.6.1.2 and Move points language to right column. "one additional point is earned for facilities that have verified their annual average recycling rate from an independent third party organization."
- **Subcommittee Voting Results:** 10 in favor, 2 abstained.

MOTION: The motion was made and seconded to accept the comment with modification using the Subcommittee's proposed response. The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Greg Johnson.

- **19-2. Editorial. 10.6.1.4:**

- **Comment:** When done properly, the use of C&D biomass as a legitimate fuel has been recognized by federal authorities, including the EPA, as a legitimate fuel source. It provides a higher heat value than virgin wood, and must meet strict cleanliness standards set by both governmental permitting agencies and the boilers that use it. In addition, C&D biomass provides the financial underpinning for most mixed C&D recycling facilities to economically viable and be able to process more difficult to recycle items, such as drywall, vinyl siding, and others. In addition, for almost all of that wood fuel is the only viable market outside of sending it to a landfill. Counting only 50% of that end market does a disservice to a carefully processed end product
- **Reason:**

- **Proposed Response:** Reject. The 50% is a compromise between diversion methods that include recycling and salvaging and those that use the diverted material as fuel. It is meant to encourage recycling and other methods before using the waste as fuel.
- **Subcommittee Voting Results:** 7 in favor, 2 abstained.

MOTION: The motion was made and carried to reject the comment using the Subcommittee's proposed response. The motion carried with 21 in favor, 1 opposed, and none abstained.

None Opposed.

Abstained: Jeff Bradley.

- **19-3. Editorial. 10.6.1.4:**

- **Comment:** No mention is made of material sent to gasification plants, and there are at least two planned that will accept C&D materials, much of it residual that used to go to a landfill. These plans will have a very high recovery rate and will divert more material from landfill. Will this be subjected to the same low percentage.
- **Reason:** None given
- **Proposed Response:** Reject. It is better to include this language when gasification plants are operating and their efficiency rates are known.
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 21 in favor, 1 opposed, and none abstained.

Opposed: Jeff Bradley.

None Abstained.

- **7-19. Substantive. 10.6.1.4:**

- **Comment: 10.6.1.4** Construction waste, including building demolition waste and packaging, is diverted from the landfill through recycling, *reuse*, repurposing, or composting. The amount of construction waste that is used for waste-to-energy incineration is multiplied by 0.5 when counted as waste diverted from landfill. Waste-to-energy facilities shall have a combustion efficiency rate of 60% or more. Soil and land-clearing debris and materials used as alternative daily cover at landfills are not included in these calculations. Calculations may be performed based on weight or volume, but the same basis is used throughout this credit. Where calculations are performed to convert waste from weight to volume or volume to weight, the source of these conversions is stated.
- **Reason:** There is a language issue in the above paragraph. Simply stating that "Waste-to-energy facilities have a combustion efficiency rate of 60% or more" is not an actionable item. The text should be amended as "... shall have a combustion efficiency rate...."
- **Proposed Response:** Accept.
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment. The motion carried with 23 in favor, none opposed and none abstained.

None Opposed.

None Abstained.

Note from staff: The language “shall” will be edited per legal review.

- **9-12. Substantive. 10.6.1.4:**
 - **Comment:** The amount of construction waste that is used for waste-to-energy incineration is multiplied by .5 when counted as waste diverted from landfill. Waste-to-energy facilities have a combustion efficiency rate of 60% or more. Clean biomass that is reused as boiler fuel is considered repurposing, not waste-to-energy.
 - **Reason:** Biomass is a renewable resource, the burning of which displaces fossil fuels.
 - **Proposed Response:** Reject. The 50% is a compromise between diversion methods that include recycling and salvaging and those that use the diverted material as fuel. It is meant to encourage recycling and other methods before using the waste as fuel.
 - **Subcommittee Voting Results:** 9 in favor, 1 opposed.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee’s proposed response.

Discussion took place on the motion:

- An objection was made to rejecting comment 9 – 12. It was noted that clean biomass is being used that would qualify under a different section of the clean air act than an incineration facility. It was stressed that this is a different subject than previously discussed regarding biomass.

VOTE: The motion carried with 21 in favor, 5 opposed, and 2 abstained.

Opposed: Paul Bertram, Jeff Bradley, Mike Lehman, David Eldridge, and Greg Johnson.

Abstained: Susan Gitlin and Chris Dixon.

- **52-5. Substantive. 10.6.1.4:**
 - **Comment:** Revise as follows: Construction waste, including building demolition waste and packaging, is diverted from the landfill through recycling, reuse, repurposing, or composting. The amount of construction waste that is used for waste-to-energy ~~incineration~~ combustion is multiplied by 0.5 when counted as waste diverted from landfill. Waste-to-energy facilities have a combustion efficiency rate of 60% or more. Soil and land-clearing debris and materials used as alternative daily cover at landfills are not included in these calculations. Calculations ~~may~~ should be performed based on ~~weight or volume, but the same basis is used throughout this credit.~~ Where calculations are performed to convert ~~waste from weight to volume or volume to weight,~~ the source of these conversions is stated and consistently used.
 - **Reason: Incineration vs. combustion.** It is incorrect to use the term “incineration” to refer to “waste to energy” activities. Incinerators destroy or treat wastes, while boilers and industrial furnaces recover energy and materials. The term combustion includes boilers and industrial furnaces and appropriately captures “waste to energy” activities. Weight vs. volume. Although both weight and volume are used to measure waste, the choice of which metric to use depends largely on the end user or destination of the waste. When the final destination is a landfill, the relevant costs are typically assessed by volume. Landfill fees, for example, are assessed at dollars per cubic yard or foot. However, commodity markets for scrap construction materials deal with product by weight, since scrap materials often do not maintain their original shape and volume. Recycling tipping fees are assessed as dollars per ton. Furthermore, fuel surcharges and other types of environmental charges are assessed by haulers by weight.

Lack of common metrics is an often overlooked barrier to sustainability, making it critical to standardize the metric. In the context of waste diversion, it is more appropriate to use weight.

Volume to weight conversion. For the validity of overall calculation, it is important to consistently use the same volume to weight conversion. Although a project team might not intentionally use a different method, an oversight is possible over the course of a long project with an intermittent schedule. It is recommended that it be stated that the same conversion method must be used throughout the project.

- **Proposed Response:** Reject except as modified. Change “incineration” to “combustion.” As indicated by the comment, some activities are reported by volume and others are reported by weight.
- **Subcommittee Voting Results:** 8 in favor, 3 opposed.

MOTION: The motion was made and seconded to accept the Subcommittee’s proposed response.

Discussion took place on the motion:

- There was discussion on whether to reject the comment or accept with modification. It was decided that the Consensus Body is voting to accept only part of the comment and therefore it should be Accept as Modified.

AMENDMENT: The amendment was made and seconded to Accept as modified using the Subcommittee’s proposed response. There was no objection to the amendment.

Discussion took place on the amendment:

- Some members felt that the comment was not in fact being accepted. It was clarified that since the committee accepted the change from incineration to combustion it was appropriate to Accept as Modified.

VOTE: The motion carried with 20 in favor, 1 opposed, and 1 abstained.

Opposed: Susan Gitlin

Abstained: Don Horn

- **52-56. Substantive. 10.6.2.1:**
 - **Comment:** Revise as follows: **10.6.2.1.2 Interior Storage Requirements:** Building design addresses interior storage of recyclables ing-waste in accordance with one or more of the following space layouts, as required to meet minimum capacity for scheduled collection and any security or safety needs in accordance with one or more of the following measures:
 - In-cabinet or under-counter/work station collection bins;
 - A minimum of one collection bin centrally located on each floor;
 - A separate and secure collection area for a single material stream; and/or
 - Recycling chutes that empty into dedicated recycling collection bin;
 - **Reason:** Some material streams, such as electronics, require special protection due to the risks of data loss, and others are prone to breakage and contain harmful components, such as fluorescent fixtures. These types of wastes require special space allocation.
 - **Proposed Response:** Accept.
 - **Subcommittee Voting Results:** 10 in favor, 1 abstained.

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The question raised whether to include safety needs. It was clarified that this is included.

VOTE: The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Jeff Bradley

The question was raised after vote whether this is an OSHA requirement.

- **19-5. General. 10.6.3:**

- **Comment:** Emphasis is placed on recycling facilities with at least an 80% recycling rate. But there is no requirement for those facilities to prove they are recycling to that level, which for mixed facilities and some single source operations, is quite a high rate. As stated above, recommend that an ISO-level recycling rate certification program be required to prove the rate is valid.
- **Reason:** None given
- **Proposed Response:** Reject. We do not know of an ISO certification program for this, but we have listed other programs which do exactly what you're asking for (please see informational references and recommended documentation for further details).
- **Subcommittee Voting Results:** Unanimously in favor.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

AMENDMENT: The amendment was made and seconded to strike part of the response so that it reads, "Please see informational reference and recommended documentation for further details. There were no objections to the amendment.

VOTE: The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **1-6 (3M). General. 10.6.3.1:**

- **Comment:** Add clarification regarding Diversion Rate calculation.
- **Reason:** The supply chain waste diversion rate should be calculated based on diversion of waste associated with the specific product (product 'gate to gate'). Diversion rate for a supplier's facility (or corporation) may not reflect waste diversion being achieved for the particular product used in the building.
- **Proposed Response:** Reject. We feel that tying the diversion rate to the overall facility is a good first step in this innovative credit. We will take your suggestion in advisement in future versions of the standard.
- **Subcommittee Voting Results:** Unanimously in Favor.

MOTION: The motion was made and seconded to reject the comment using the proposed response.

The motion carried with 20 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **52-57. Substantive. 10.6.3.1:**

- **Comment:** Include following: Assessment Guidance:
The diversion rate is expressed as a percentage and calculated as follows:
$$\text{Diversion Rate} = (1 - ((\text{Mass Landfilled} + \text{Mass Incinerated without Energy Recovery}) / \text{Mass Discarded Material})) \times 100$$

The following methods are accepted as valid diversion from landfill:
 - Recycling using reputable facilities performing recycling operations in compliance with state and local regulations, state licensing or registration and/or third-party,

independent certification;

- Returning to supplier;
- Reuse in same process;
- Reuse in different process;
- Redesign to eliminate waste;
- Processing and selling to third party;
- Commercial composting; and/or
- Waste-to-energy: the manufacturer removes, to the maximum practical extent, recyclable materials from the waste stream using common or front-end recycling methods before material is sent to the waste-to-energy operation. Final by-products of waste-to-energy processes are disposed of properly and, if sent to landfill, are included in the total mass discarded value. Facilities are compliant with applicable government emissions regulations and facility permits. The waste-to-energy process used is one of the following:

- Bio-diesel or other biofuels;
- Anaerobic digestion with energy recovery; or
- ~~Incineration~~ Combustion with energy recovery where:
 - o ~~Incineration~~ Combustion makes up less than 10% of the total waste by mass diverted; and

- o **Reason:** Sham recycling. Recognizing the possibility of sham recycling, this green building assessment system should encourage project teams to confirm that materials are sent to reputable operations. Incineration vs. combustion. It is incorrect to use the term “incineration” to refer to “waste to energy” activities. Incinerators destroy or treat wastes, while boilers and industrial furnaces recover energy and materials. The term combustion includes boilers and industrial furnaces and appropriately captures “waste to energy” activities.
- o **Proposed Response:** Reject except as modified: Change “incineration” to “combustion”. It is redundant and unnecessary to say that a facility is reputable or in compliance with regulations. The x100 is not needed. In addition, third party certification adds cost to the project.
- o **Subcommittee Voting Results:** Unanimously in Favor.

MOTION: The motion was made and seconded to accept the comment as modified to change incineration to combustion.

Discussion took place on the motion:

- The question was raised whether it is redundant and unnecessary to say a facility is reputable. It was clarified that the credit asking projects to verify that the recycler is reputable.
- It was recommended to include the language “this would place undue burden on project teams to verify manufacturer’s supply chain.”

AMENDMENT: The amendment was made and seconded to add the following language to the response: “This would place undue burden on the project team to verify manufacturer’s supply chain.” There was no objection to the amendment.

AMENDMENT: The amendment was made and seconded to add the x100. There was no objection to the amendment.

VOTE: The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Kent Sovocool.

- **9-13. Substantive. 10.6.3.1:**
 - **Comment:** Incineration does not generate bottom ash or fly ash defined as hazardous by US CFR 261.24 (TCLP) or equivalent test for the jurisdiction of the incineration plant. Testing frequency should be in conformance with the regulations of the jurisdiction where the facility is located. ~~ash is tested a minimum of four times a year and specifically the fly ash and bottom ash generated during the incineration of discarded materials from the facility being certified is tested.~~
 - **Reason:** Excessive testing requirements that go far beyond the requirements of RCRA that the facility accepting material is required to comply with will make this credit impossible to reach. Facilities accepting C&D materials for combustion are likely accepting material from multiple sites over the course of weeks or months, storing it, and finally using the materials. Attempting to determine when materials from a specific job site are being combusted would be extremely difficult. Removing the onerous language will allow builders to comply with the requirements of the credit without facing unrealistic requirements.
 - **Proposed Response:** Accept as modified. Remove text as suggested by the commenter. Do not include commenter's additional text. Additional text is not needed because it would be redundant to say that you need to follow local regulations.
 - **Subcommittee Voting Results:** 9 in favor, 1 abstained.

MOTION: The motion was made and seconded to accept the comment as modified using the Subcommittee's proposed response.

Discussion took place on the motion:

- The question was raised as to who is being asked to follow regulations. It was clarified that this would be another party.
- It was suggested to remove "you" from the response.

AMENDMENT: The amendment was made and seconded to change language in the response to "manufacturer needs to follow local regulations". There was no objection to the amendment. VOTE: The motion carried with 19 in favor, 1 opposed, and 2 abstained.

Opposed: Susan Gitlin.

Abstained: Tien Peng and Chris Dixon.

NOTE: At 4:25 PM CT Wayne Trusty handed the Chair of the Consensus Body to Charles Kibert.

There was a five minute break

Indoor Environment Quality

Indoor Environment Quality Chair Mike Lehman present the Subcommittee's proposed responses to the Indoor Environment Comments (Note: by this point the Chairmanship of the Consensus Body had reverted to Trusty):

- **38-1. Substantive. 11.1.2.1:**
 - **Comment:** Natural ventilation systems are designed in accordance with Section 6.4 of ANSI/ASHRAE Standard 90.1-~~2010~~ 2013
Informational reference(s):
ANSI/ASHRAE Standard 90.1-~~2010~~ 2013
 - **Reason:** This should cite the latest ASHRAE 90.1 standard. There are two instances of this in Sec. 11.1.2.1.

- **Proposed Response:** Accept with assumed correction that cited standard in 62.1 not 90.1.
- **Subcommittee Vote Results:** Unanimously in favor
- **Note:** This change was already made in a previous vote, however, since the standard was incorrectly named in the comment, they were not voted together.

MOTION: The motion was made and seconded to accept using the assumed correction that cited standard 62.1 not 90.1. The motion carried with 19 in favor, none opposed and none abstained.

None Opposed.
None Abstained.

- **38 – 2. Substantive. 11.1.5**

- **Comment:** Documentation on CO2 sensor accuracy Feedback loop of sensor readings and HVAC system action Calibration/Maintenance schedule of sensors
- **Reason:** To be added to the list of “Recommended Documentation”.
- **Proposed Response:** Reject with modification to change “Manufacturer’s specifications” to “specifications”. The first two suggested changes are already covered and the third change is addressed in commissioning under the Project Management section of the rating system.
- **Subcommittee Vote Results:** 7 in favor, 1 abstained.

MOTION: The motion was made and seconded to reject the comment using the Subcommittee’s proposed response.

AMENDMENT: The amendment was made and seconded to Accept with modification to change “Manufacturer’s specifications” to “specifications”, using the following reason: the first two suggested changes are already covered and the third change is addressed in commissioning under the Project Management section of the rating system. There were no objections to the amendment.

VOTE: The motion carried with 20 in favor, none opposed, and 2 abstained.

None Opposed.

Abstained: Susan Gitlin and Don Horn.

- **23-2. Editorial. 11.2.2.1.1:**

- **Comment:** "At least one per 10,000 ft2 of floor area"
- **Reason:** Potentially that's a lot of sampling. Can likely increase area of sampling in places where there is a lot of open air exchange (i.e. open cubical areas) [p. 88]
- **Proposed Response:** Accept as noted.
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment as noted.

Discussion took place on the motion:

- There was clarification that the comment includes this language in the Standard. A suggestion was made to reject the comment because no change is being made. It was also suggested that comment be accepted as informative.

The Motion was Withdrawn with no objections.

MOTION: The motion was made and seconded to reject the comment using the following reason: “This level of sampling is appropriate.” The motion carried with 24 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **23-3. General. 11.2.2.1.1:**
 - **Comment:** "For any area that fails to meet the requirements, the individual chemical(s) in the highest concentrations that are leading to failure are to be reviewed and the problem remedied."
 - **Reason:** Is it the intent of this standard to re-test areas that initially failed? If not, how does one know the problem has been remedied? [p. 89]
 - **Proposed Response:** Accept. ~~Our~~ The committee's goal for this criterion is good indoor air quality. If there are chemicals over this limit the cause of them should be investigated and the building owner we presume will do additional testing.
 - **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- The point was made that as written if a project failed the first test it would not receive credit. If the Consensus Body wants to allow opportunity to remediate and earn credit pending additional testing, it should be commented on during the second public comment period or during continuous maintenance.
- It was stated that the building owner would hopefully retest until they pass. It was pointed out that that hope is not explicitly spelled out in the language of the credit.

AMENDMENT: The amendment was made and seconded to change language in the response:

"...should be investigated. [strike last part of sentence]". There were no objections to the amendment.

VOTE: The motion carried with 19 in favor, 1 opposed, and 4 abstained.

Opposed: John Cross.

Abstained: Kent Sovocool, Susan Gitlin, Jeff Bradley, and Allan Bilka.

- **53-6. Substantive. Table 11.2.2.1.1:**
 - **Comment:** Remove entire table and replace with: The collection and analytical method used shall have a detection limit for the sample submitted of 10 micrograms or less. The analysis shall include the list of chemicals associated with the method plus tentatively identified compounds (TICs). Gas chromatography with mass spectroscopy (GC- MS) must be the analytical method used to achieve this requirement. The concentrations of the compounds detected will be compared to their respective occupational exposure limits (OELs) (e.g., OSHA Permissible Exposure Limits, American Conference of Governmental Industrial Hygienists Threshold Limit Values, National Institute of Occupational Safety and Health Recommended Exposure Limits, etc.). None of the compounds (except formaldehyde at 33 micrograms per cubic meter) should exceed one one hundredth (1/100th) the most conservative OEL. An expert proficient at interpreting this data, such as a Certified Industrial Hygienist, shall review the lab data and make this determination.
 - **Reason:** Table 11.2.2.1.1 comes from the California standard for chamber testing building materials for VOC emissions as they may impact outdoor air pollution. It has little to do with the overall air quality in an occupied space or human exposure. Many of the compounds on the list are seldom if ever detected in indoor air (e.g., acrylonitrile, 1,3- butadiene, MTBE, caprolactum, 1,4-dioxane, 2-ethanoic acid, nonanal, octanal, etc.). However, other compounds commonly detected in indoor air are not listed (e.g.,

ethanol, acetone, pentane, glycol ethers, chlorofluorocarbons, hydrofluorocarbons, various petroleum hydrocarbons, etc.). The method recommended would identify most of the compounds listed in the Table plus many others of greater importance. The OELs have been vetted for decades and many of them are updated on a regular basis as more toxicological data is obtained. A safety factor of 100 times less is very appropriate based on my 30 years of collecting these kinds of samples and my Masters of Science thesis on new carpet emissions. It is rare that a compound is even within 1/1000th of its OEL. In the past ASHRAE has recommended no more than 1/10th the OEL. As such 1/100th is protective and practical.

- **Proposed Response:** Reject. The committee is more comfortable with what is we have in the standard as being practical. It is more regularly used in other standards and codes.
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed reason.

Discussion took place on the motion:

- The point was made that this Standard doesn't necessarily use specific language simply because other codes and standards use that language.
- It was stated that design teams need consistency and uniformity.
- The point was made that if something is proven to work that is a good reason to use that language, not simply because others have used it.

AMENDMENT: The amendment was made and seconded to strike the last sentence of the response.

Objection was raised to the amendment.

VOTE: The amendment carried with 10 in favor, 7 opposed, and 6 abstained.

Opposed: Greg Johnson, George Thompson, Bill Freeman, Charles Kibert, Chris Dixon, Jane Rohde, and Bill Carroll

Abstained: Don Horn, Paul Bertram, Jeff Bradley, Tien Peng, Josh Jacobs, and Bilka

AMENDMENT: The amendment was made and seconded to change the response to read: "current language is more practical and consistent with other standards and codes". There were no objections to the amended response.

VOTE: The motion carried with 18 in favor, 1 opposed, and 3 abstained.

Opposed: Susan Gitlin.

Abstained: Kent Sovocool, Allan Bilka, and Paul Bertram.

- **53-5. Substantive. 11.2.2.1.1:**
 - **Comment:** 1st Bullet: Replace all of 1st bullet with: Sampling shall be conducted over at least eight (8) hours during normal operating hours for non-residential buildings. The sampling time for residential buildings shall be over at least twenty-four (24) hours.
 - **Reason:** Since I am recommending removal of Table 11.2.2.1.1 there would be no contaminant levels. Typical industrial hygiene and IAQ professional sampling times are over the times the building is normally occupied (i.e., 8 hours for work and 24 hours for home). Also, some of the methods referenced (grab sampling) could have sampling times of only a few minutes and would not be representative of the average contaminant levels that may be present over normally occupied times.
 - **Proposed Response:** Reject based on motion on 53 – 6. Did not remove table.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **53-4. Substantive. 11.2.2.1.1:**

- **Comment:** 3rd bullet: Replace ~~...away from walls and ventilation.~~ with at least three feet away from walls.
- **Reason:** "Away from walls and ventilation" is too poorly defined. How far? Three feet is a common distance used in IAQ. Away from ventilation makes no sense. What ventilation? How far? etc. Just get rid of it.
- **Proposed Response:** Accept as modified "...Walls and supply ventilation." Supply ventilation could impact typical VOC levels that we're looking for.
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the comment as modified using the Subcommittee's proposed response.

NOTE: An editorial change to the response was made to switch from "supply ventilation" to "Ventilation supply" since that is more commonly used. There were no objections.

VOTE: The motion carried with 23 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **53-7. Substantive. 11.2.2.2:**

- **Comment:** Remove entire section.
- **Reason:** Even when an acceptable TVOC level is identified (i.e., 500 ug/M3) this approach is flawed when compared to the previously described approach. The method used can skew the results to pass or fail because of variations in the compounds they collect and how much they collect. Even using the same method can change the TVOC results drastically depending on the analysis requested (e.g., compare to hexane or toluene). There is no standardized method. Also, one low toxicity compound at elevated levels can cause the test to fail when little hazard is present while a low but hazardous level of a highly toxic compound can be present in a test that passes. The fact that there is no pass/fail criteria for the TVOC test in this case makes it even more valueless.
- **Proposed Response:** Reject. This test has been proven to identify indoor air quality issues in buildings previously unidentified as a way for building owners to correct those problems.
- **Subcommittee Vote Results:** 7 in favor, 2 opposed, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response. The motion carried with 21 in favor, none opposed, and 2 abstained.

None Opposed.

Abstained: Kent Sovocool and Jeff Bradley

- **49-27. Substantive. 11.2.2.2 Path B:**

- **Comment:** I would suggest 3 points is earned if the test passes.
- **Reason:** Otherwise, this credit, doesn't get a project to the desired outcome of having a space free of high-levels of VOCs

- **Proposed Response:** Reject. Don't know what the suggested "pass" is being recommended by the comment.
- **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept the rejection of the comment using the Subcommittee's proposed response. The motion carried with 20 in favor, 1 opposed, and 3 abstained.
Opposed: Susan Gitlin.

Abstained: Rachel Minnery, Allan Bilka, and Josh Jacobs.

- **51-1. Substantive. 11.2.2.2:**

- **Comment:** VOC Range (carbon): C~~5~~6 - C~~4~~516
- **Reason:** These changes will align with the European programs and some North American programs to advance consistency in the application of TVOC.
- **Proposed Response:** Accept.
- **Subcommittee Vote Results:** 7 in favor, 2 abstained

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- There was clarification that this does align with everything in North America and was verified by the Subcommittee.

VOTE: The motion carried with 21 in favor, none opposed, and 2 abstained.

None Opposed.

Abstained: Kent Sovocool and Jeff Bradley.

- **24-20. Substantive. 11.2.2.2:**

- **Comment:** "Path B: Total Volatile Organic Compounds (TVOC)
- **Reason:** Acronyms should only be provided when they are defined in at least one location in the overall document. If an explanation is not provided in the glossary section, spell it out here.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the comment. The motion carried with 23 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **13-30 Substantive. 11.2.2.2:**

- **Comment:** Reference compound: ~~hexane~~ toluene
- **Reason:** Toluene is the more widely accepted surrogate standard for analysis of TVOC. See CDPH Standard Method V1.1

- **51 – 2. Substantive. 11.2.2.2:**

- **Comment:** Reference compound: ~~hexane~~ toluene
- **Reason:** These changes will align with the European programs and some North American programs to advance consistency in the application of TVOC.
- **Proposed Response:** Accept.
- **Subcommittee Vote Results:** 8 in favor, 2 abstained

MOTION: The motion was made and seconded to accept comments 13 – 30 and 51 - 2. The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Jeff Bradley

- **24-33. Substantive. 11.2.3.1:**
 - **Comment:** "NFPA 720 ~~2015~~ 2012"
 - **Reason:** Updated code standard.
 - **Proposed Response:** Accept
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **53-9. General Substantive 11.2.6:**
 - **Comment:** Vaping should be included
 - **Reason:** None Given
- **9 – 16. Substantive. 11.2.6.1**
 - **Comment:** Smoking is defined as the inhalation of smoke of burning tobacco, use of e-cigarette vaporizers, or other substances encased in items such as (but not limited to) cigarettes, pipes, and cigars for recreational or medical use.
 - **Reason:** The health effects of e-cigarettes are currently unknown, and unnecessary secondary exposure should be avoided.
 - **Proposed Response:** Accept. The committee changed the text of the definition of smoking to include "electronic cigarettes". The language of the text has been changed to read: "An occupancy policy prohibits smoking by posting signage indicating No Smoking including Use of Electronic Cigarettes on the building, near all building entrances, and air intakes."
 - **Subcommittee Vote Results:** 8 in favor, 1 abstained

MOTION: The motion was made and seconded to accept both comments.

Discussion took place on the motion:

- The point was made that if the sign is near an air intake but in a location where no one would stand to see the sign it wouldn't be beneficial. For example open windows are air intakes.

AMENDMENT: The amendment was made and seconded to change the language to: "No Smoking including use of electronic cigarettes within 25 ft. of the building with signage posted at every entrance." Strike "on the building, near all building entrances, and air intakes".

There was an objection to the motion.

VOTE: The amendment carried with 15 in favor, 4 opposed, and 2 abstained.

Opposed: John Cross, Susan Gitlin, Don Horn, and Rachel Minnery

Abstained: Kent Sovocool and Paul Bertram

AMENMENT: The amendment was made and seconded to add a period after first smoking. "Signage will be posted at every building entrance indicating prohibiting no-smoking including and the use of electronic cigarettes within 25 ft. of the building." Strike the remainder". There were no objections to this amendment.

VOTE: The motion carried with 21 in favor, none opposed, and none abstained..

None Opposed.

None Abstained.

- **43-28. Substantive. 11.2.6.1:**
 - **Reason:** Smoking gets one point when all the other emissions get so many more points? This doesn't make sense – if there is smoking allowed then there isn't a reason to be concerned with low emitting materials. Increase the number of points in this section to 3.
 - **Proposed Response:** Reject. The American Lung Association places an importance on reducing the overall risk and impact of tobacco smoke on lung health. We support the increase of points; however, understand the daunting task of assigning points to each section. Today most buildings have already established a smoke free environment. The addition of electronic cigarettes further enhances this requirement. Points should be directed at more challenging IEQ areas.
 - **Subcommittee Vote Results:** 8 in favor, 1 opposed

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- The question was raised whether ALA should be cited in the response. An editorial change to replace ALA with The Committee was suggested.
- Language for the reason as follows: The committee places an importance on reducing the overall risk and impact of tobacco smoke on lung health. We appreciate the importance of this topic. Today most buildings have already established a smoke free environment. The addition of electronic cigarettes further enhances this requirement. Points should be directed at more challenging IEQ areas.
- The point was raised that some areas ban smoking near buildings where in the South smoking is allowed inside of buildings.
- It was stated that this is not measurable or enforceable.

VOTE: The motion carried with 13 in favor, 4 opposed, and 4 abstained.

Opposed: John Cross, Kent Sovocool, Susan Gitlin, Allan Bilka

Abstained: Don Horn, Paul Bertram, Rachel Minnery, Gord Shymko

- **14-11. Substantive. 11.3.4.1:**
 - **Comment:** A minimum of 75% of artificial light sources have a Lumen Maintenance factor of ~~35,000~~ 60,000 hours to L70 or greater (the output of the lights have lost no more than 30% of their initial output at ~~35,000~~ 60,000 hours). ~~35,000~~ 60,000 hours is based on at least 15 minutes ~~3 hours~~ of operation per start.
 - **Reason:** LED lighting should be the basis of the requirements in a green building rating system.
 - **Proposed Response:** Reject. Change of 35,000 hours based on this standard including LEDs as the basis for both integrated luminaires as well as LED lamps. Modify 15 minutes to 1 hour. Modification is used to ensure technology stabilization for any artificial light source.
 - **Subcommittee Vote Results:** 6 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed reason. The motion carried with 19 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Kent Sovocool.

- **49-28. Substantive. 11.3.4.3:**

- **Comment:** Should include a light bulb recycling/disposal plan in this category (note, recycling plan is recommended documentation immediately below).
- **Reason:** In order to earn this credit, the project must ensure it is complying with relevant environmental laws and ordinances (to include light bulb disposal as hazardous waste)
- **Proposed Response:** Reject. That content is more appropriate for another section. Better for the Project Management Section.
- **Subcommittee Vote Results:** 6 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee's proposed response.

Discussion took place on the motion:

- The question was raised whether this comment should be sent to the Project Management Subcommittee to address or see where it might apply in the Materials Section.

AMENDMENT: The amendment was made and seconded to add the language: "The committee added language that reads, "a separate and secure collection and secure area for a single material stream" in Materials section 10.6.2.1.2 in response to comment 52 – 56. This addition addresses your comment." There were no objections to the amendment.

VOTE: The motion carried with 21 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **50-14. Substantive. 11.4.2:**
 - **Comment:** References ASHRAE 55-2010
 - **Reason:** As noted above, having different reference years in the same document sets up potential conflicts.
 - **Proposed Response:** Accept the comment in principle. The committee changed the reference to 55-2013 because it is the most current version. ~~(most current).~~
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment in principle. The motion carried with 20 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **14-12. Substantive. 11.4.2:**
 - **Comment:** 11.4.2.1 The HVAC systems and building shall be ~~are~~ designed to provide a thermal environment in conformance with ANSI/ASHRAE 55-2010.
 - **Reason:** Thermal comfort does not rely solely on the mechanical system; the entire building design will impact occupant thermal comfort and must be considered in the thermal comfort calculations. In addition, a naturally ventilated building may not have an HVAC system, yet it can still meet the requirements of Standard 55-2010 in the right climate.
 - **Proposed Response:** Accept ~~the comment with modification as modified: to~~ Also update the code reference to 55-2013.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment as modified using the Subcommittee's proposed response.

Discussion took place on the motion:

- It was noted that “shall” is not recommended language by GBI’s legal team and will likely be edited out.

AMENDMENT: The amendment was made and seconded to strike “shall be” and replace it with “are”. There were no objections to the amendment.

VOTE: The motion carried with 20 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **14-13. Substantive. 11.4.2:**
 - **Comment:** 11.4.2.1 The HVAC systems are designed in conformance with ANSI/ASHRAE 55-2010. Exceedance hours for regularly occupied spaces shall not exceed 150 occupied hours per year.
 - **Reason:** Thermal comfort should be maintained for the vast majority of occupied hours during the year. As Standard 55 does not limit the number of exceedance hours, a space that is comfortable for 1 hour of the year could technically comply with the Standard.
 - **Proposed Response:** Reject. The Committee feels the proposal is too stringent.
 - **Subcommittee Vote Results:** 5 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the Subcommittee’s proposed response.

Discussion took place on the motion:

- The concern was raised that Subcommittee voted to include 300.
- An editorial note was made to remove feelings from the Consensus Body’s responses to commenters.

VOTE: The motion carried with 19 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **14-14 Substantive. 11.4.2 and 11.4.2.1:**
 - **Comment:** **11.4.2.1** The HVAC systems are designed in conformance with ANSI/ASHRAE 55-2010. Exceedance hours for regularly occupied spaces shall not exceed 300 hours per year.
 - **Reason:** Thermal comfort should be maintained for the vast majority of occupied hours during the year. As Standard 55 does not limit the number of exceedance hours, a space that is comfortable for 1 hour of the year could technically comply with the Standard. 300 hours per year is consistent with the unmet load hour requirements from Appendix G of ASHRAE Standard 90.1.
- **24 – 22. Substantive. 11.4.2.1:**
 - **Comment:** "The HVAC systems are designed in conformance with ANSI / ASHRAE 55-~~2013~~ 2013."
 - **Reason:** Updated code standard.
- **38 – 5. Substantive. 11.4.2.1:**
 - **Comment:** ANSI/ASHRAE Standard 55-~~40~~ 2013
 - **Reason:** This should cite the latest ASHRAE 55 standard. Same comment for Sec. 11.4.3.
 - **Proposed Response:** Accept with modification that the Standard be changed to 55-2013.

- **Subcommittee Vote Results:** 5 in favor, 1 abstained.

MOTION: The motion was made and seconded to accept the comments with modification to change to 2013 and accept the 300 hours. An editorial change was made to remove "shall." The motion carried with 19 in favor, none opposed, and none abstained.

None Opposed.
None Abstained.

The motion was made and seconded to recess for the day at 6:26 PM CT. The motion carried unanimously.

Wednesday, March 23rd

On the third day of this meeting 5 members voted via proxy for at least part of the meeting (Don Horn for Susan Gitlin after 11:30 AM CT, Michael Lehman for Paul Bertram after 12:00 PM CT, Jane Rohde for William Carroll, George Thompson for Bill Freeman, and Gord Shymko for Gary Keclik). One member voted via voting alternate (John Cross for Erika Winters Downey).

Chair and Staff discussed and presented the Consensus Body with the idea of beginning the day by completing the discussion of the Indoor Environment Comments prior to the discussion of the comments on the Entire Document and Project Management. There were no objections.

Woodbury announced that the call would be recorded for the purpose of taking accurate minutes. There were no objections raised to recording the call.

Subcommittee Reporting Continued

Indoor Environment Continued

Chair Mike Lehman continued his presentation of the responses proposed by the Indoor Environment Subcommittee.

- **35 – 2. Substantive. 11.4.2.1**
 - **Comment:** section and point opportunity for compliance with ASHRAE 55-2004
 - **Reason:** Other sections allow compliance with ASHRAE standards below 2013 and 2010
 - **Proposed Response:** Reject given that other section references have been updated. ASHRAE 55-2004 is out of date.
 - **Subcommittee Vote Results:** 7 in favor, 3 abstained

MOTION: The motion was made and seconded to accept the recommendation of the subcommittee. The motion carried with 19 in favor, none opposed, and none abstained.

None Opposed.
None Abstained.

- **14 – 16. Substantive. 11.4.3**
 - **Comment:** Documentation demonstrating compliance with ANSI/ASHRAE Standard 55-2010, including relevant worksheets and report.
 - **Reason:** ANSI/ASHRAE Standard 55-10 is improperly named.
 - **Proposed Response:** Accept with modification as modified; that The reference will also be updated to 2013 to clarify language and update code.

- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the recommendation of the subcommittee.

The motion carried with 19 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43 – 25. Substantive. 11.5.1.1.6:**

- **Comments:** Modify as follows: Walls separating *acoustically separated areas* from other areas have all joints between wall panels and joints at penetrations sealed with acoustic sealant;
- **Reason:** This clarifies the intent that voids should be filled with acoustical sealant between wall panels and at penetrations. The phrase “all joints” in the existing text could be misconstrued to mean that mortar joints between masonry units (block or brick) in masonry walls are required to be acoustical sealant.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** 7 in favor, 2 abstained

MOTION: The motion was made and seconded to accept the proposed response.

Discussion took place on the motion:

- The point was made that sealant for fire safety is not necessarily useful for acoustic purposes.

The motion carried with 18 in favor, 2 opposed, and none abstained.

Opposed: Greg Johnson, Jeff Bradley

None Abstained.

MOTION: The motion was made and seconded to reconsider 34 – 25 based on the fact that 11.5.1.1.6 could award points for something that does not comply with code.

Discussion took place on the motion:

- The question was raised about whether the comment could be reconsidered. It was stated that someone on the prevailing side of the previous vote may make a motion to reconsider.
- A question was raised about the reasons for putting the kinds of construction details in 11.5.1.1.6 are being put into a green building standard where the intention is about acoustic performance. It was clarified that a prescriptive approach is important in this case and carries over from the previous version of the standard. This language significantly impacts whether a space is acoustical or non-acoustical and isn't a requirement in any building code or under jurisdictional authority as far as the speaker was aware. The concern was raised that if this language does not appear in the Standard then the described actions would not take place.
- The commenter spoke up indicating that their comment was meant to clarify the existing language, but they would be supportive of deleting the credit language entirely if that's the direction the Consensus Body chose to take. It was noted that the commenter's addition called attention to a greater problem.
- It was pointed out that fire-stopping can also be used in acoustical separation as an acoustical sealant. It was stressed that fire-stopping is a life safety issue and the speaker views Standards such as Green Globes, etc. as needing to stay away from life safety code requirements. It should add to requirements that are well understood within the industry without superseding or diminishing code requirements. The speaker went on to state that fire-stopping is only required for rated assemblies while acoustical sealant is required for everything else.

- The question was raised about whether fire-stopping has been tested and rated as acoustical sealants. It was stated that most fire-stopping is rated for acoustical sealing. It was stressed that there is a difference between acoustical sealants and fire-stopping. There are sealants that are formulated specifically for acoustical purposes.
- The suggestion was made to add a bullet point exempting fire-rated assemblies, which would address a previous speaker's concern while keeping the intent of the credit intact. Concern was raised that doing so would open the door for creating similar exemptions throughout the Standard.
- The commenter stated that they did not consider the complexity of the related issues being discussed and that they would be comfortable deleting the sentence now that they have a better understanding.
- It was brought to the attention of the Consensus Body that the question to reconsider the comment had not yet been voted on and yet the discussion was moving towards reconsideration. It was stated that a majority vote was necessary for the motion to carry.

VOTE: The motion carried with 14 in favor, 9 opposed, and none abstained.

Opposed: John Cross, Don Horn, Tien Peng, George Thompson, Bill Freeman, Gord Shymko, Gary Keclik, Chris Dixon, Mike Lehman.

None Abstained.

MOTION: The motion was made and seconded to modify the motion to add a sentence "...acoustic sealant. Fire-rated assemblies are to be protected according to the building code;"

Discussion took place on the motion:

- Concern was raised that this motion did not clarify the original concerns and that this new language could be considered confusing.
- The point was made that by being specific in regards to "acoustic sealant" the credit language excludes other strategies that aren't specifically referred to.
- It was reiterated that this credit is overly prescriptive in trying to tell design teams how to make acoustically separated walls. The speaker felt that the credit language falls outside of the purview of a Standards Developer for Green Buildings.
- It was stated that the original motion served as clarification and did not add a new concept to the standard which changes the credit intent.
- It was stated that fire-stopping is one form of protection for a rated assembly, but that an entirely different method exists: fire-resistive rated conditions, which is not fire-stopping.
- It was clarified that this credit is for projects that don't have an acoustical engineer on board. It was stated that this is a simple approach to fixing holes and that many partitions fail field testing because of holes in sealant. This credit is intended to plug those holes.
- The point was raised that other sections of the Standard have notes separate from the point-earning language and that the fire-rated assemblies language could go into a note. It was noted that is important for the designer to be aware that whatever product they use might need to be both acoustically rated and fire-rated.

AMENDMENT: The amendment was moved and seconded to Remove "with acoustic sealant" and add to end in place of previous suggestion: "fire-stopping and fire-rated assemblies must comply with this requirement."

There were no objections to the amendment.

AMENDMENT: The amendment was made and seconded remove "joints at" insert ceilings and floors.

There were objections to the amendment.

VOTE: The amendment carried with 11 in favor, 7 opposed, and 5 abstained.

Opposed: John Cross, Angela Tin, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Charles Kibert.

Abstained: Kent Sovocool, Susan Gitlin, Don Horn, Paul Bertram, Jeff Bradley

AMENDMENT: The amendment was made and seconded to say "acoustically sealed." There were no objections to the amendment.

VOTE: The motion carried with 17 in favor, 3 opposed, and 3 abstained. The credit language reads as follows: "Walls separating acoustically separated areas from other areas have all joints between wall panels, ceilings and floors, and joints at penetrations acoustically sealed. Fire-stopping and fire-rated assemblies must comply with this requirement."

Opposed: Don Horn, Charles Kibert, Rachel Minnery

Abstained: Paul Bertam, Jeff Bradley, Tien Peng

- **34 – 40. Substantive. 11.5.2**
 - **Comment:** Delete this section
 - **Reason:** This appears to be a product marketing effort. It is an active rather than a passive acoustical practice. If it remains there should be a N/A provision
- **43 – 29. Substantive. 11.5.2:**
 - **Comment:** Delete this entire section. ~~Sound Masking System~~ (and rest of section)
 - **Reason:** It is much better to control sound than to mask it. Masking sound requires installation, energy, user operation, and maintenance. It can be objectionable to some people. By deleting this, it doesn't prohibit sound masking, it just doesn't reward it. Delete this section and award points elsewhere.
 - **Proposed Response:** Reject. Sound Masking is a proven strategy that, when used in conjunction with other strategies in this section, serves to improve occupant acoustic comfort in buildings. See GSA Public Building Service paper Sound Matters, December 2011, and FGI Guidelines – both address and encourage the use of sound masking strategies to improve acoustic comfort in buildings.
 - **Subcommittee Vote Results:** 7 in favor, 3 abstained.

MOTION: The motion was made and seconded to accept the subcommittee recommendation.

Discussion took place on the motion:

- One speaker voiced their opposition to the motion, stating that sound masking should be one of the last priorities for points. Concern was raised that too many points were allocated to this section. The suggestion was made to add a caveat about where sound masking is needed.
- It was noted that points could be taken from this section and added to smoking.
- It was stated that 43 – 29 doesn't prohibit the use of sound masking, but it does not provide points for sound masking.

VOTE: The motion failed with 5 in favor, 14 opposed, and 3 abstained.

Opposed: John Cross, Susan Gitlin, Don Horn, Paul Bertram, David Eldridge, Angela Tin, Jane Rohde, Bill Carroll, Tien Peng, Rachel Minnery, Charles Kibert, George Thompson, Bill Freeman, Gregg Bergmiller

Abstained: Kent Sovocool, Jeff Bradley, Allan Bilka

MOTION: The motion was made to accept the comments as written.

Discussion took place on the motion:

- One member requested that if the motion carries that the points for sound masking be moved to smoking.
- The suggestion was made to reduce the points earned for this credit from 3 to 1.
- The question was raised regarding whether sound masking is explicitly referenced in the Federal Guiding Principles. It was stated that it is not specifically addressed.

VOTE: The motion carried with 16 in favor, 5 opposed, and 2 abstained.

Opposed: Gord Shymko, Gary Keclik, Chris Dixon, Mike Lehman, Allan Bilka

Abstained: Jeff Bradley, Greg Johnson

- **24 – 29. Substantive. 11.5.3.1 & 11.5.5.1:**
 - **Comment:** ASTM E989-06 (2012)
 - **Reason:** Minor point of clarification. Standard was reapproved but not materially changed.
- **24 – 23. Substantive. 11.5.6.1 & 11.5.6.2:**
 - **Comment:** ASTM E1332-~~10a~~ 2003
ASTM E90-~~09~~ 2004
ASTM E1686-~~10e1~~ 2003
ASTM E413-~~10~~ 2004
ASTM E966-~~10e1~~ 2004
ASTM E1374-06(2011) [Reapproved]
ASTM E336-~~14~~ 2007
ANSI S12.2-2008 ~~1999~~
 - **Reason:** Many updated code standards.
 - **Proposed Response:** Accept.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the proposed response. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43 – 30. Substantive. 11.5.5:**
 - **Comment:** Revise as follows:
Mechanical Noise.
Design complies with background sound levels associated with mechanical systems in accordance with ANSI/ASA S12.2 Standard “Criteria for Evaluating Room Noise” and as follows:
•Airborne sound power levels from HVAC unit do not exceed the Room Criteria detailed in *ASHRAE Systems Application Handbook 2014-2007, Chapter 48 47, Table 1 42* for listed spaces when HVAC units are in operation; use 2014 FGI Guidelines for healthcare spaces; and
•Spaces are designed such that room background noise using the Room Criteria (RC) ratings complies with *ASHRAE Systems Application Handbook 2014-2007, Chapter 48 47, Table 1 42*; use 2014 FGI Guidelines for healthcare spaces.
Delete Table 11.5.5.1
 - **Reason:** Do you have copyright permission from ASHRAE for this? Why not just reference the ASHRAE table? Why not reference the 2014 version instead of the 2007 version of the ASHRAE Applications Handbook.

- **Proposed Response:** Accept date change.
- **Subcommittee Vote Results:** Unanimously in favor.

MOTION: The motion was made and seconded to accept the date changes.

Discussion took place on the motion:

- The question was raised whether GBI has permission to copy the ASHRAE table. It was clarified that this will be verified during legal review.
- The point was raised that we should use the most current version and we can update the date of newer versions as needed during the continuous maintenance process.

AMENDMENT: The amendment was made and seconded to accept the inclusion of 2014 FGI Guidelines for healthcare spaces. There were no objections to the amendment.

VOTE: The motion as amended reads: "Accept with modification. The committee does not accept the deletion of the table." The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **24 – 24. Substantive. 11.5.10**
 - **Comment:** "...ANSI S12.60 -2010 ~~2006~~"
 - **Reason:** Updated Code standard.
 - **Proposed Response:** Accept the change
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the change in date. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed.

None Abstained.

- **43 – 31. Substantive. 11.5.X (New Section):**
 - **Comment:** Add a new section:
Interior Background Sound Levels
Sound levels from building systems noise and exterior noise does not exceed these values:
 - ANSI/ASA S12.60 for spaces in schools
 - FGI Guidelines for spaces in healthcare facilities
 - Table 11.5.x for other spacesMeasurements should be made with windows closed under normal operating conditions. See attached Table 11.5.x.
3 points (at bottom)
 - **Reason:** This is the desired end result for acoustics - that interior sound levels are reasonable. There are dB apps available on smartphones so it is no longer a mystery as to what their values mean or what they should be. This will encourage appropriate design near expressways, airports, and other places with high sound levels. It will also require care in designing HVAC and plumbing systems.
GBI should be using the established S12.60 for school and FGI for healthcare.
Interior sound levels are important for green buildings. Acoustics issues receive the most complaints in green buildings. These criteria get at the heart of the matter – the combined noise levels inside buildings due to outdoor and indoor causes. Quiet is something that building owners, tenants, and renters will pay more for; they will vacate noisy rooms and spaces. An example – people frequently ask for hotel rooms away from

elevators and vending machines and on the side of the hotel away from the expressway. This is not a minimum code. GBI should award buildings for addressing this.

- **Proposed Response:** Reject. There is currently no way to effectively address this issue, no agreed upon baseline exterior measurement condition, no standard to reference for implementation and achievement of intended results.
- **Subcommittee Vote Results:** 7 in favor, 2 abstained

MOTION: The motion was made and seconded to accept the rejection of the comment using the reason shown. The motion carried with 18 in favor, 2 opposed, and 2 abstained.

Opposed: Jane Rohde, Bill Carroll

Abstained: Paul Bertram, Allan Bilka

Whole Document

The Secretariat and Secretariat Assistant present comments made on the draft Standard in its entirety. Woodbury and Emily offered proposed responses for some of the General Comments.

- **49 – 1. General. All.**

- **Comment:** It would be helpful to have a "what's changed" section somewhere identifying the change from this version of the standard from the 2010 version - perhaps as an appendix?
- **Reason:** Would help to streamline the review process
- **Proposed Response:** Reject. The Forward highlights some changes in the Standard and more information will be available from GBI upon request.

MOTION: The motion was made and seconded to reject the comment using the proposed response.

Discussion took place on the motion:

- The statement was made that GBI should have a red line draft of the Standard. Staff replied that while ordinarily there would be a red line draft, ANSI granted GBI permission not to have one for this revision because a red line draft would have rendered the Standard unreadable. It was stated that moving forward GBI would provide a red line draft.

The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed

Abstained: Allan Bilka

- **49 – 2. General. All.**

- **Comment:** Even if a building met GBI's highest criteria today, a changing climate would cause drastic changes in performance over the lifetime of the asset. GBI should consider how it can provide "green" buildings that are fit for purpose over time and secure the investment in long term performance by incorporating the use of climate change projections.
- **Reason:** Other green building rating systems are working to address this aspect of design that assumes a future like the past (stationarity). There are also rating systems such as RELi (Resiliency Action List) that are going further to address the near term temporal scale and the building specific spatial scale regarding extreme incidents/all hazards. This insight may help GBI to innovate and maintain competitive for the customer set that use the system.
- **Proposed Response:**

MOTION: The motion was made and seconded to accept the comment and take action: a planned action for the future during continuous maintenance.

Discussion took place on the motion:

- It was stated that GBI doesn't currently have a plan in place to address this. Resilience is a theme that would impact nearly every credit.
- The point was made that another group includes a climate zone and then look at 50 and 100 year impacts of climate change. Another rating system includes three pilot credits. It's an up and coming impact category.
- There was clarification that part of resilience includes materials, moisture, and other areas that are already included in the Standard. Energy modeling and floodplane issues need to be addressed by other standards bodies first then we can incorporate those references in our Standard in the future. An Emergency Management Assessment Tool for buildings could be considered by GBI in a pilot format to address interactions in the community.
- Another member stated unless we have a broad framework in wanting to include resilience it won't really happen, we'll simply be dealing with adaptation to climate change.
- It was stated that flooding is both an immediate and a long-term issue.
- A concern was raised that a resilience credit submitted in Risk Assessment was rejected at Subcommittee level. We need a framework to include this. Risk includes data hacking, climate, mass shooters, and all risks. Not simply chemical risks.

AMENDMENT: The amendment was made and seconded to add a sentence: ""commenter is welcome to make specific recommendations to improve the document in the future.""

VOTE: The amendment carried with 13 in favor, 6 opposed, and 4 abstained.

Opposed: Kent Sovocool, Susan Gitlin, Paul Bertram, Tien Peng, Gord Shymko, Gary Keclik

Abstained: Allan Bilka, Rachel Minnery, Karen Joslin, Chris Dixon

VOTE: The motion carried with 16 in favor, 2 opposed, and 5 abstained.

Opposed: Paul Bertram, Tien Peng

Abstained: Kent Sovocool, Susan Gitlin, Allan Bilka, Rachel Minnery, Chris Dixon

MOTION: The motion was made and seconded to form a task group to consider resilience in the GBI Standard.

Discussion took place on the motion:

- A question was raised whether we could form the group during continuous maintenance. Opposition was raised that the Consensus Body should take action on this issue now.
- It was stated that resilience inclusion would alter the scope of the Consensus Body and this Standard. Guiding Principles includes resilience.
- The recommendation was made that we focus more on climate change aspects of resilience.

VOTE: The motion carried with 19 in favor, 3 opposed, and 1 abstained.

Opposed: John Cross, Greg Johnson, Chris Dixon

Abstained: Jeff Bradley

ACTION ITEM: Discuss Resiliency further offline.

Project Management

Chair, Karen Joslin present the Subcommittee's proposed responses to Comments received on the Project Management assessment area:

- **11 – 7. Substantive. 6.2.1.1.1**

- **Comment:** 6.2.1.1.1: GC/CM Environmental Policy:
 - Includes policies and practices that support the health of humans and site-environment during construction;
 - includes a statement to adhere to applicable regulatory/legal requirements.
- **Reason:** Typical EMS/EHS standard requirements must include commitment to adherence to legal and other requirements, and forms a basis for objectives and targets.
- **Proposed Response:** Reject the proposed amendment. It is not necessary.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to Reject the proposed amendment as proposed by the Subcommittee.

Discussion took place on the motion:

- A concern was raised about the specificity of the reason.

AMENDMENT: The amendment was made and seconded to change the reason to read, “It is not necessary to duplicate legal requirements that all projects must abide by. There were no objections to the amendment.

VOTE: The motion carried with 24 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **11 – 8. Substantive. 6.2.1.1**

- **Comment:** Consider adding a clause of itself or bulleted item to clause 6.2.1.1.2 which requires setting appropriate degree of self-auditing to ensure policies and practices are being met.
- **Reason:** None Given
- **Proposed Response:** Accept. A clause will be added that reads: “includes policies and practices that include continuous reporting mechanism to be reviewed by the assessor.”
- **Subcommittee Vote Results:** 4 in favor, 1 abstained

MOTION: The motion was made and seconded to add the clause as proposed by the subcommittee.

Discussion took place on the motion:

- It was stated that this seems like language that is already in an EMS and it was asked why it would be repeated. It was stated that there was no provision for physically tracking in a written and deliverable method so that an assessor can confirm that the policies were followed.
- There was a question raised about the necessity of including the phrase “to be reviewed by the assessor”. In principle all of this will be reviewed by an assessor. It was stated that the committee wanted a specific deliverable that the assessor has proof that these things were done.
- The point was raised that this belongs in the recommended documentation section of the Standard.

VOTE: The motion carried with 19 in favor, 2 opposed, and 1 abstained.

Opposed: Don Horn, David Eldridge

Abstained: Susan Gitlin

- **34 – 6. Editorial. 6.2.1.1.3**

- **Comment:** A project risk assessment is conducted prior to the start of construction to ~~identify any~~ consider major health of humans (i.e., residents, workers, visitors, and construction trades people) and
- **Reason:** The deleted absolute terms can potentially subject the parties to unnecessary liability exposure.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the response as recommended by the subcommittee.

Discussion took place on the motion:

- The concern was raised with the word “any” not with the word “identify.” This is an opportunity to include hazards for the health of the residents or tenants in the risk assessment. The statement was made that eliminating “any” would remove the liability.
- The statement was made that this is an opportunity to consider hazards to the health of residential tenants in the risk assessment. It was stated that risk is one thing and hazards are another. The speaker preferred the more general language of risk.

AMENDMENT: The amendment was made and seconded to change the wording so that it reads “identify major risks” striking the word “any”. There were no objections to the amendment.

Discussion took place on the motion:

- Clarification was requested regarding Project risk assessment vs. all of the products related to the project, clarifying this will help us determine whether we want “identify” or “consider.”

VOTE: The motion carried with 21 in favor, none opposed, and 2 abstained.

None Opposed

Abstained: Kent Sovocool, Chris Dixon.

MOTION: The motion was made and seconded to send the section in its entirety back to subcommittee to develop a separate definition for project risk assessment.

AMENDMENT: The motion was amended to change “section in its entirety” to “the credit 6.2.1.1.3.” The amendment was seconded.

Discussion took place on the motion:

- It was stated that Risk Assessment is a defined term. We don’t have a definition for Project Risk Assessment. Product risk assessment is already defined. Italics on risk assessment could be removed to decouple from the defined term that is irrelevant in this context. We can not substitute “project” for “product”.

MOTION: The motion was made and seconded to withdraw the original motion. There were objections to the withdrawal.

The motion carried with 15 in favor, 3 opposed, and 4 abstained.

Opposed: Kent Sovocool, Susan Gitlin, Rachel Minnery

Abstained: David Eldridge, Greg Johnson, Gord Shymko, Gary Keclik

The Motion was Withdrawn

MOTION: The motion was made and seconded to create a definition for project risk assessment.

The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed

Abstained: Jeff Bradley

- **34 – 7. Editorial. 6.2.1.1.4**

- **Comment:** Covert this a single line item (6.2.1.2) with a point value of 1.
- **Reason:** To equate a non-smoking policy with the Environmental Policy is in my opinion out of proportion.
- **Proposed Response:** Reject. The committee feels this is important for health and safety reasons for the workers to leave it at three points.
- **Subcommittee Vote Results:** 4 in favor, 1 abstained

MOTION: The motion was made and seconded to reject the comment using the proposed response.

Discussion took place on the motion:

- The question was asked whether vaping should be included as per the previous day's discussion.

VOTE: The motion carried with 18 in favor, 1 opposed, and 4 abstained.

Opposed: David Eldridge

Abstained: Susan Gitlin, Don Horn, Jeff Bradley, Greg Johnson

MOTION: The motion was made and seconded to update smoking definition in accordance with any changes made in Indoor Environment.

Discussion took place on the motion:

- There was clarification on the motion that smoking is defined in the text of the Standard, not in the Definitions Section 5. The vaping issue is addressed in signage language. Historically signage was the first item and the definition of smoking supported it.
- The question was raised whether to move the definition to the Definitions section.

VOTE: The motion carried with 23 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **28 – 7. Editorial. 6.3.1.1**

- **Comment:** A cost of ownership financial analysis is performed of the project's collective bundle of green features (i.e. energy/water conservation measures, energy/water efficiency features, maintenance best practices, waste reduction) that are expected to impact:
- **Reason:** Currently there is no verb or sentence in the charging language.
- **Proposed Response:** Accept with amendment "is performed on", to correct grammar.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the amendment as proposed by the subcommittee. The motion carried with 20 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **24 – 8. Substantive. 6.3.1.1**

- **Comment:** Identify the expected LCCA study period for compliance with the intended analysis.

- **Reason:** LCCA is based on a study period, not necessarily whole building life cycle as is suggested in Path B. Different typologies may warrant different study periods but providing no context is asking for a user to subvert the intentions of the standard. Option to develop a service life table. Or placing a minimum of 50 years. In order to provide clarity to the LCCA a minimum service life should be stated.
- **Proposed Response:** Take to in-person meeting
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to send the comment back to the subcommittee. The motion carried with 22 in favor, none opposed, and none abstained.

None Opposed

None Abstained

- **43 – 6. Substantive. 6.4.1.1**

- **Comment:** Modify as follows:
A Moisture-Control Design Analysis in buildings using ASHRAE 160-2009 or a steady-state water vapor transmission analysis such as in ASTM C755 is performed for the purpose of predicting, mitigating, or reducing moisture damage to the *building envelope*, materials, components, systems, and *furnishings*.
- **Reason:** Allow a steady-state water vapor transmission analysis. These show the potential for condensation and are a useful tool. Tools that meet Standard 160 are extremely complex and require detailed materials knowledge of moisture sorption, desorption, absorption, and other properties that are often not well understood by users of the tool, or known by manufacturers, designers, or users of the tool. These properties also vary greatly with the local site conditions. Also, the criteria requirements in Standard 160 are controversial and under revision. Allowing the use of other methods allows those who are uncomfortable with or disagree with Standard 160 to use another method. The steady-state vapor transmission analysis is usually just as accurate as Standard 160 in pointing out areas of potential condensation.
- **Proposed Response:** Accept with Modification. Add “or equivalent” after ASTM C755 to give the evaluator the option.
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the proposed response.

Discussion took place on the motion:

- It was stated ASTM C755 is not a design analysis for the entire building for moisture. There are three classes of vapor retarders allowed, these are not equivalent.
- The question was raised whether the Subcommittee considered software like WUFI, which could provide this type of hydrothermal analysis. It was stated that WUFI was discussed and the capabilities seemed to be complicated when it was discussed. It was stated that there were different versions geared towards building scientists and non-building scientists.

AMENDMENT: The amendment was made and seconded to remove “such as in ASTM C755 or equivalent”.

Discussion took place on the amendment:

- It was stated that including an appendix wasn't a good idea without more study and the above amendment was decided upon.

There were no objections to the amendment.

VOTE: The motion carried with 21 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **50 – 4. General. 6.4.1.1**
 - **Comment:** 1. Is ASHRAE 160-2009 the only tool available to meet this target? 2. Is this analysis part of ASHRAE 90.1-based electronic calculation programs?
 - **Reason:** 1. Just making sure other tools have been vetted.
2. It seems logical that Trane/Trace and other programs would have the ability to perform this moisture analysis, too, in association with energy analysis.
 - **Proposed Response:** Accept as modified. Additional tools have been addressed in the response to 43 – 6. ASHRAE 90.1 only deals with Energy Efficiency and specifically does not address Moisture.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept as modified using the proposed response.

The motion carried with 20 in favor, none opposed, and 1 abstained.

None Opposed

Abstained: Mike Lehman

- **43 – 7. Substantive. 6.4.1.1**
 - **Comment:** Modify as follows:
A Moisture-Control Design Analysis in buildings using ASHRAE 160-2009 is performed on above-grade portions of the building envelope and walls and ceilings adjacent to spaces of added moisture or humidification for the purpose of predicting, mitigating, or reducing moisture damage to the *building envelope*, materials, components, systems, and *furnishings*.
 - **Reason:** Specify what the analysis should be performed for. Add that the analysis must also be performed for walls and ceilings adjacent to increased humidity levels such as pools, spas, ice rinks, or hospitals.
 - **Proposed Response:** Accept with Modification. Strike “or humidification”. Define added moisture.
 - **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to use the proposed response and request that the subcommittee reevaluate and define added moisture.

Discussion took place on the motion:

- Clarification was requested on whether this applies to mechanical addition of moisture or if moisture levels are due to the site, like in New Orleans. Question was raised does ASHRAE 160 get to furnishings?

AMENDMENT: The amendment was made and seconded to remove “the subcommittee reevaluate and define added moisture” There were no objections to the amendment

NOTE: An editorial change was suggested to capitalize “and” in the fragment “Building envelope AND on walls...”

VOTE: The motion carried with 23 in favor, none opposed, and 1 abstained.

None Opposed.

Abstained: Allan Bilka

- **43 – 8. Substantive. 6.4.1.1**

- **Comment:** Modify as follows: Five points are earned when the applicable wall and ceiling assemblies are designed in accordance with moisture control design criteria.
- **Reason:** Only give points for the wall and ceiling assemblies specifically described – building envelope and those adjacent to spaces with added humidity.
- **Proposed Response:** Accept
- **Subcommittee Vote Results:** Unanimously in favor

MOTION: The motion was made and seconded to accept the comment.

Discussion took place on the motion:

- The question was raised whether we have a measure for what is applicable and what is not. Not every project can pursue all of the points.
- The commenter stated they were referring to the walls described on the left, they were not intending to complicate the issue.
- It was suggested we may want to expand this out to ensure interior building products are used appropriately.
- Another stated we don't want to open up the definition. People are not always going to look to the left for this clarification. We can over-prescribe this, and want to be careful of that.
- Question was raised why flooring or ceiling are not covered here.

AMENDMENT: The amendment was made and seconded to remove “applicable”. There were no objections to the amendment.

VOTE: The motion carried with 22 in favor, none opposed, and 1 abstained.

None Opposed

Abstained: Jeff Bradley

- **49 – 11. General. 6.5**

- **Comment:** Require minimal commissioning for all projects.
- **Reason:** Minimal commissioning should be required for all projects.
- **Proposed Response:** Reject. The practicality of implementation is complicated. The committee would need to see a proposal for specific changes from the commenter in order to define what minimal commissioning is. The Consensus Body has previously rejected having de facto prerequisites for the standard.
- **Subcommittee Vote Results:** Low participation. Reviewed by small group and subcommittee.

MOTION: The motion was made and seconded to reject the comment using the response that the committee prefers an incentive based approach.

Discussion took place on the motion:

- The point was made that Green Globes incentivizes items like this heavily rather than using requirements.

The motion carried with 15 in favor, 8 opposed, and none abstained.

Opposed: Kent Sovocool, Karen Joslin, Susan Gitlin, Don Horn, Allan Bilka, Tien Peng, Rachel Minnery, Charles Kibert

None Abstained.

- **28 – 10. Substantive. 6.5.1.1:**

- **Comment: 6.5.1.1.4 Plumbing and 6.5.1.1.5: Irrigation systems;** (Re-number remaining items accordingly)
- **Reason:** Plumbing and irrigation are different specialties and addressed in different sections of CSI documents.
- **Proposed Response:** Accept with modification. Change the points to 2 points for plumbing, 1 point for irrigation and N/A for irrigation. In the absence of an irrigation system, the building should not be penalized.
- **Subcommittee Vote Results:** Subcommittee split. There is concern about reducing points to Plumbing Recommendation

MOTION: The motion was made and seconded to accept with modification using the proposed response.

Discussion took place on the motion:

- The commenter stated they would like plumbing split from irrigation, but is not concerned about the points on this.
- It was stated that stormwater management seems to be missing from the commissioning list. Clarification was provided that it depends who you ask whether this is considered part of plumbing.

AMENDMENT: The motion was made and seconded to amend the response to say “the points will be evaluated later.” There were no objections to the amendment.

VOTE: The motion carried with 21 in favor, 2 opposed, and none abstained.

Opposed: Kent Sovocool, David Eldridge
None abstained.

Vicki Worden presented new information from ANSI to adjust schedule and build in a few extra weeks to work on additional issues that have come up through this public comment period.

The question was raised whether the second public comment period would be on the entire document or only on changes made to the first draft. Clarification was given that only any language changed after the first Public Comment period would be open for comment. We are not looking for changes in provisions that were not previously questioned, not suggestions for new language or comments on language that was not changed since the first public comment draft went out.

It was suggested a list of items not addressed in the comments but bookmarked for continuous maintenance be compiled and made publically available.

The following rough schedule was presented to the Consensus Body:

- Subcommittee Calls Scheduled for April and May
- Hard stop on Consensus Body work by May 31
 - Review of comments
 - List of unresolved issues
 - Executive Session to review whole document comments
- 15 day period for commenters to say if their comments are resolved or unresolved.

There will likely need to be a third public comment period before the process moves to continuous maintenance

New Business

There was no new business raised.

Adjournment

MOTION: A motion was made, seconded and unanimously carried to adjourn the meeting at 1:26 pm CT.