Structural Advisory Committee (SAC), Meeting notes from 2/9/12 SAC meeting at MnSPE
See also attached sign-in sheet.
Future SAC meeting/agenda:
(Revised date) March 21, 2012 IBC 20/23/31, IRC 10, related 1305/1309, IEBC

- Window cleaning safety, see attached draft. Section 2, item 2—question of 4 stories, height above grade? Discussion: Chapter 16 or 1303, fall protection/OSHA, Abi/webinar, loading requirement, dedicated anchor or davits, different equipment by owner/designed by structural engineer? Copy of OSHA new proposed language—Abi will forward to SAC?
- Chapter 21 IBC lateral support empirical/table gone (vertical distance masonry), Table 2109.4 now referenced MSJC, current amendment to be repealed because no longer in IBC, difference: non-bearing interior walls; Dan Kelsey moves to repeal 1305.2109, Trevor Axner seconded, consensus reached to repeal, side note: Gene Abbott will check MSJC number.
- Chapter 22 IBC steel; cold rolled steel—U of MN research/Abi (marking of studs, clearer requirement, and uniform language). No action taken.
- Seismic IRC 301.2.2, Table 301.2 (1): From Dan Kelsey's email—"I have reviewed the seismic provisions in the 2012 IRC, which included getting an opinion from ICC staff and other staff in our office. Section R301.2.2 is clear that the seismic provisions of the IRC do not apply to SDC A – C detached one and two family dwellings; and do not apply to SDC A – B townhomes. This means that we do not need to worry about an amendment regarding the Site Class D, Section R301.2.2.1, because it doesn't apply to MN. There are however a few sections in Chapter 6 and a Section in Chapter 7 that are charged solely by SDC A, B, and/or C. This sets up the potential for varied interpretation regarding the application of these sections, most of which we want to apply in MN due to the fact that they are the least restrictive application of the IRC. It would be reasonable to say the provisions in Chapter 6 and 7 are more specific than Section R301.2.2 therefore they apply to MN. It would also be reasonable to follow R301.2.2 and not apply any seismic provision to MN, even though this would cause problems with the practical application of the IRC. This can be addressed efficiently by adding a footnote to Table R301.2(1) to make the application of the seismic provisions in Chapter 6 and 7 clear." The reason for this proposal is the practical use of the IRC, (see also January notes). Dan Kelsey moved to keep seismic design category column in Table R301.2 (1), fill in the column as 'A' and clarify what the least restrictive design method is by revising footnotes (this is in addition to repealing subpart 4—see following item), and clarify when seismic provisions apply to MN in some sections of Chapters 6 and 7. Gene Abbott suggested the following wording, "Minnesota shall be classified as seismic category A for any exceptions and/or least restrictive provisions of the code." Abi seconded and consensus was reached to approve Dan's proposal with Gene's wording.
- MN 1309.0010 subp. 4—Adoption of the International Residential Code (IRC) by reference, subp. 4 Seismic or earthquake provisions: Dan Kelsey moves to repeal amendment, Trevor Axner seconded and consensus was reached to repeal amendment.
- IRC Chapter 7 Wall coverings, MN 1309.0703.7 Subp. 3a—"For structures in 90 mph wind speed region apply Seismic Design Category A limitations and requirements of Exception 1 and Table R703.7 (1): since revised per 2012 IRC, there is no need for this amendment? Discussion: Table A or B, 1-story with brick veneer or use Table 1st exception. Trevor moved to repeal amendment, seconded by Gene Abbott, consensus reached to repeal amendment.

- From January meeting notes: encapsulation for post-tension research by Dan Murphy, IBC Chapter 19, amendment MN 1305.1907 Corrosive environments: references ACI 318. Dan Murphy to review ACI 318-2011 version to see if amendment is still required, (amendment improves durability). Dan Murphy not present. Currently Minnesota doesn't require anything more than model codes. Per Mike Lederle, no need for amendment. Ross Turner to contact Dan Murphy and forward any updated information to SAC, (to be discussed in March).
- Proposal submitted by Trevor Axner (also attached), "1309.0602 - Tall wall table footnote proposed modification: Add to the end of footnote 'd'. Studs shall be continuous full height. <u>Where studs do not extend full height due to a wall opening, full height studs shall be provided on each side of the opening, equal in number to the spacing of the required full height studs multiplied by half the width of the opening, plus one stud. Where multiple openings occur adjacent to one another, framing between openings is to include the total of all full height studs required for both openings combined.</u>" Discussion: users not reading footnotes to table, eliminate misapplication of table. Footnote (c) is referenced to wrong section; also methods are not 2 through 8 anymore. Trevor to revise incorrect references and to revise footnote c (maintenance only). Trevor Axner to write SONAR; Dan Kelsey and Colleen Chirhart to assist. Trevor moved to go ahead with submitted proposal (with revisions as discussed), Frank Berg seconded, consensus reached to go ahead with revised proposal.
- Per December 2011 meeting notes, Ross Turner submitted revised MN 1303.2200 Simplified Wind Loads, (see attached). Background—1st written for adoption of 2003 IBC, modified when state adopted 2006 IBC. Now an alternate method under 2012 IBC. Difference: new 'risk' categories, no importance factors, 3 wind speeds (ultimate), also load factors have changed for alternate method, still needs conversions, modify wind pressure equation? Discussion: Tom Lorenz—2 columns/2 methods (ultimate)? Ross Turner to write SONAR (Statement of Need and Reasonableness) for March meeting with revisions suggested by Tom and Abi.
- IRC-142, R602.10.11 Cripple wall bracing, submitted by Karen Linner, Builders Association of Minnesota (see attached). Trevor moved to accept proposal as submitted, Ron Shaffer seconded, consensus reached for approval with Abi Assadi abstaining.
- Requirements for solar panels: follow roof slope for residential, structural engineer for commercial projects, loading—not attachments. This is covered under IRC 23, however, MN does not adopt IRC Chapter 23 (mechanical). Discussion to leave to local building official's decision; however, increased volume of solar panel projects.
- Cantilever foundation walls—MN 1309.0404: discussion to keep tables, any change to tables increases cost of construction? Also, top of wall support? MN code re-written to its own section, lateral support of foundation walls. IRC 404.1 connection, etc. deleted from model code, however, located in some sections elsewhere—but no prescriptive guidance. Discussion: additional table, graduated table, simplified version or move forward with providing table replacement? (Problem with construction industry). Trevor will discuss with Karen Linner.
- Continuing issue from December meeting notes: Special Inspections form in Helpful Information not updated (desirable handbooks and standards also not updated). Different form suggestions from municipalities? CASE maintains and sends to MN DLI. Dan Kelsey and Mike Lederle to research.
- Reminder: March 21, 2012 meeting is the last Structural Advisory Committee. All new and outstanding structural issues need to be addressed and/or resolved at this meeting.

A bill for an act
relating to labor and industry; directing the commissioner of labor and industry to implement window cleaning safety measures; amending Minnesota Statutes 2010, section 326B.106, by adding a subdivision; proposing coding for new law in Minnesota Statutes, chapter 182.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. **[182.6526 WINDOW CLEANERS.**

The commissioner shall adopt the Code of Federal Regulations, title 29, part 1910.66(i)(1), as the training standard which shall apply to the window cleaning industry when window cleaning work is performed 14 feet or more above a surface. This section shall be enforced by the commissioner under sections 182.66 and 182.661. Any violation of this section is subject to the penalties provided under section 182.666.

Sec. 2. Minnesota Statutes 2010, section 326B.106, subd. 4 is amended by adding a subdivision to read:

(n). **Window cleaning safety.** The code must require the installation of dedicated anchorages for the purpose of suspended window cleaning on (1) new buildings four stories or greater; and (2) buildings four stories or greater where any reconstruction, alteration or repair includes the exposure of primary structural components of the roof.

Diem, Beth (DLI)

From: Trevor Axner <Trevor.Axner@ulteig.com>
Sent: Wednesday, February 08, 2012 1:35 PM
To: Diem, Beth (DLI); Chirhart, Colleen (DLI); Craig Oswell; Dale Thomas; Dan Murphy; Doug Whitney; Dr. Abi Assadi; Frank Berg; Gene Abbott; James R. McDonagh; Mike Lederle; Peter Liukkonen; Randy Johnson; Ron Shaffer; Ross Turner; Rudy Rudina; Scott Knudson; Tom Lorentz; Trevor Axner; Kelsey, Daniel (DLI)
Subject: 1309.0602

We discussed the following change at our last meeting.

1309.0602 - Tall wall table footnote proposed modification:

Add to the end of footnote 'd'.

- Studs shall be continuous full height. Where studs do not extend full height due to a wall opening, full height studs shall be provided on each side of the opening, equal in number to the spacing of the required full height studs multiplied by half the width of the opening, plus one stud. Where multiple openings occur adjacent to one another, framing between openings is to include the total of all full height studs required for both openings combined.

A bit wordy, feel free to suggest different verbage.
We could either write our own SONAR or ask if Rick Davidson would be willing to revise his SONAR.

We can discuss tomorrow.
Thanks,

Trevor Axner, PE, SE, LEED® AP
Engineer
5201 East River Road Suite 308 • Minneapolis, MN 55421
Direct: (763)277-6255 • Mobile: (612)859-8849
www.ulteig.com

Find Ulteig on: Facebook | Twitter | LinkedIn | YouTube

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443 Lafayette Road N.
St. Paul, Minnesota 55155
www.dli.mn.gov

MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

(651) 284-5005
1-800-DIAL-DLI
TTY: (651) 297-4198

ADVISORY COMMITTEE COMMENT FORM
FOR PROPOSED CODE CHANGES
(This form must be submitted electronically)

IRC-142, R602.10.11

Author/requestor: Karen Linner

Email address: Karenl@bamn.org

Telephone number: 651-269-0944

Firm/Association affiliation, if any: Builders Association of Minnesota

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Proposed Code Change - Language

IRC Section R602.10.11 is amended to read as follows:

> **R602.10.11 Cripple wall bracing.**
> Cripple walls shall be constructed in accordance with Section R602.9 and braced in accordance with this section. Cripple walls shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1) and R602.10.3(3), and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4), respectively, except that the length of cripple wall bracing shall be multiplied by a factor of 1.15. ~~The distance between adjacent edges of *braced wall panels* shall be reduced from 20 feet (6096 mm) to 14 feet (4267 mm).~~

Proposed Code Change – Need and Reason

This code change is needed because the deleted sentence increases the cost of construction without providing a life safety benefit in Minnesota's seismic zone.

The purpose of this amendment is to correct an error made in correlating the 2012 braced wall provisions. The reduction in spacing between braced wall panels in a cripple wall originated from cripple wall failures observed in seismic events such as the 1994 Northridge Earthquake. Working through the ICC Ad-Hoc Committee on Wall Bracing, NAHB developed a proposal for the 2009/2010 Code Development Cycle that reorganized the cripple wall bracing provisions and removed the spacing reduction for low-seismic areas. The proposal was approved at the Public Hearings and ratified by the consent agenda vote at the Final Action Hearings. Unfortunately, a separate effort by the Ad-Hoc Committee to correlate their comprehensive reorganization of the wall bracing section with a modification made by the IRC-Building/Energy Committee inadvertently resulted in the spacing reduction being reinstated for low-seismic areas. This amendment corrects that oversight and restores the original intent of the cripple wall proposal.

Proposed Code Change – Cost/Benefit Analysis

Other Factors to Consider Related to Proposed Code Change

1. Is this proposed code change meant to:

   ☒ change language contained in a published code book? If so, list section(s).
   2012 International Residential Code, Section R602.10.11

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

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

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

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

2. Is this proposed code change required by a Minnesota Statute or new legislation? If so, please provide the citation to the Statute or legislation.
   No

3. Will this proposed code change impact other sections of a published code book or of an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
   No

4. Will this proposed code change impact other parts of the Minnesota State Building Code? If so, please list the affected parts of the Minnesota State Building Code.
   No

5. Who are the parties affected or segments of industry affected by this proposed code change?
   Homeowners, building code officials, builders0

6. Can you think of other means or methods to achieve the purpose of the proposed code change? If so, please explain what they are and why your proposed change is the preferred method or means to achieve the desired result.
   No

7. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement.
   No

~~Risk Category II~~

History: *27 SR 1478; L 2007 c 140 art 4 s 61; art 13 s 4*

Posted: *July 11, 2007*

1303.2200 SIMPLIFIED WIND LOADS.

Subpart 1. **Section 2200.**

A. This section applies to the wind loads for the main wind force-resisting systems only.

B. In order to utilize wind loads from this part, the building shall meet the following requirements:

(1) 60 feet or less in height;

(2) height not to exceed least horizontal dimension;

(3) enclosed building;

(4) roof shape - flat, gabled, or hip;

(5) roof slope of 45 degrees maximum;

(6) simple diaphragm building;

(7) not a flexible building;

(8) regular shape and approximately symmetrical;

(9) no expansion joints or separations; and

(10) no unusual response characteristics (for example: vortex shedding, galloping, or buffeting).

Subp. 2. **Simplified design wind pressures.** Ps represents the net pressures (sum of internal and external) to be applied to the horizontal and vertical projections of building surfaces. For the horizontal pressures, Ps is the combination of the windward and leeward net pressures. Ps may be determined from Equation Palt.

$\left(\frac{V_{ult}^2}{115^2}\right)$

Ps = Kzt~~Iw~~Palt **(Equation Palt)**

where:

Kzt = Topographic factor as defined in Chapter ~~6~~ 26 of ASCE 7.

~~Iw = Importance factor as defined in Chapter 6 of ASCE 7.~~ ?

Palt = Alternative simplified design wind pressure from Table Palt.

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1609.6 Alternate all-heights method. IBC 2012

Risk Category	I	II	III & IV
	105	115	120
	11,025	13,225	14,400
	0.83	1.00	1.09

TABLE Palt

Horizontal and Vertical Pressure*

Exp B	15 psf
Exp C	19 psf
Exp D	22 psf

*For vertical pressure, the above values are negative (upward).

Overhang Vertical Pressure*

Exp B	-25 psf
Exp C	-30 psf
Exp D	-35 psf

*Negative values are upward.

Statutory Authority: *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

History: *32 SR 10; L 2007 c 140 art 4 s 61; art 13 s 4*

Posted: *July 11, 2007*

1303.2300 SCOPE.

The provisions of parts 1303.2305 to 1303.2330 govern the requirements, methods, and devices used to provide window fall prevention for the occupancy uses specified in part 1303.2310.

Statutory Authority: *MS s 326B.02; 326B.101; 326B.106; 326B.13*

History: *33 SR 1859*

Posted: *July 1, 2009*

1303.2305 DEFINITIONS.

Subpart 1. **Scope.** The definitions in this part apply to parts 1303.2300 to 1303.2330.

Subp. 2. **ASTM F 2006.** "ASTM F 2006" means the ASTM F 2006-00, Standard/Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows.

Subp. 3. **ASTM F 2090.** "ASTM F 2090" means the ASTM F 2090-01A, Specification for Window Fall Prevention Devices - with Emergency Escape (Egress) Release Mechanisms.

Statutory Authority: *MS s 326B.02; 326B.101; 326B.106; 326B.13*

History: *33 SR 1859*

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Structural Advisory Committee Meeting/2012 International Codes
Date: 2/9/12

Committee Member	Representing	Signature
Dr. Abi Assadi Peter Liukkonen	MnSPE MnSPE (Alt)	
Trevor Axner	BAM	
Frank Berg Gene Abbott	AMBO AMBO (Alt)	
Beth Diem	MN DLI/CCLD	
Randy Johnson Scott Knudson	AMBO AMBO (Alt)	
Dan Kelsey	MN DLI/CCLD	
Mike Lederle	MNSEA	
Tom Lorentz ✓ Dale Thomas	ASCE ASCE (Alt)	
James McDonagh	NAFE	
Dan Murphy Craig Oswell	MNSEA MNSEA (Alt)	
Rudy Rudina LUCIO PALMIERI	ASME	
Ron Shaffer Ross Turner	MNSEA MNSEA (Alt)	
Doug Whitney	AMBO (Alt)	

Guests

Name	Representing	Address	E-Mail