PART II – IRC

Revise as follows:

R403.1.6.1 Foundation anchorage in Seismic Design Categories C, D_0, D_1 and D_2. In addition to the requirements of Section R403.1.6, the following requirements shall apply to wood light-frame structures in Seismic Design Categories D_0, D_1 and D_2 and wood light-frame townhouses in Seismic Design Category C.

1. Plate washers conforming to Section R602.11.1 shall be provided for all anchor bolts over the full length of required braced wall lines except where approved anchor straps are used. Properly sized cut washers shall be permitted for anchor bolts in wall lines not containing braced wall panels.
2. Interior braced wall plates shall have anchor bolts spaced at not more than 6 feet (1829 mm) on center and located within 12 inches (305 mm) of the ends of each plate section when supported on a continuous foundation.
3. Interior bearing wall sole plates shall have anchor bolts spaced at not more than 6 feet (1829 mm) on center and located within 12 inches (305 mm) of the ends of each plate section when supported on a continuous foundation.
4. The maximum anchor bolt spacing shall be 4 feet (1219 mm)for buildings over two stories in height.
5. Stepped cripple walls shall conform to Section R602.11.3.
6. Where continuous wood foundations in accordance with Section R404.2 are used, the force transfer shall have a capacity equal to or greater than the connections required by Section R602.11.1 or the braced wall panel shall be connected to the wood foundations in accordance with the braced wall panel-to-floor fastening requirements of Table R602.3(1).

R602.11.1 Wall anchorage. Braced wall line sills shall be anchored to concrete or masonry foundations in accordance with Sections R403.1.6 and R602.11. For all buildings in Seismic Design Categories D_0, D_1 and D_2 and townhouses in Seismic Design Category C, plate washers, a minimum of 0.229 inch by 3 inches by 3 inches (5.8mm by 76mm by 76 mm) in size, shall be installed between the foundation sill plate and the nut, except where approved anchor straps are used. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (5 mm) larger than the bolt diameter and a slot length not to exceed 1 3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and the nut.

Reason: (IBC) Revise the code to allow strap anchors in higher seismic regions, or clarify code that strap anchors are permitted in higher seismic regions, depending on how you look at it.

Recent cyclic testing of foundation anchor straps on long and short walls by Simpson Strong-Tie has shown that they perform very well under cyclic loading. This is partly because they wrap around the sill plate at the sheathing nailing location, thereby helping to prevent cross-grain bending of the sill plate. Since prevention of cross-grain bending is the primary reason for using plate washers, anchor straps can be substituted for anchor bolts with plate washers. However, most anchor straps are not a one-for-one substitution for anchor bolts, so it is necessary to add the wording "spaced as required to provide equivalent anchorage'. For shear walls, the designer will determine the required spacing based on the tested allowable load of the strap anchor. For conventional construction, builders can refer to manufacturer's literature for equivalent spacing to anchor bolts.

(IRC) Some building officials have interpreted this section as prohibiting the use of anchor straps to anchor sill plates when the 3 by 3 washer is required. Recent cyclic testing of foundation anchor straps on long and short shear walls by Simpson Strong-Tie has shown that they perform very well under cyclic loading. This is partly because they wrap around the sill plate at the sheathing nailing location, thereby helping to prevent cross-grain bending of the sill plate. Since prevention of cross-grain bending is the primary reason for using plate washers, anchor straps can be substituted for anchor bolts with plate washers. Although it is true that most anchor straps are not a one-for-one substitution for anchor bolts, the IRC already contains the wording "spaced as required to provide equivalent anchorage to ½-inch diameter anchor bolts" in Section R403.1.6. Builders and building officials can refer to manufacturer's literature for equivalent spacing to anchor bolts. This change limits the permission to "anchor straps" because that is what has been tested.

Cost Impact: The code change proposal will not increase the cost of construction. It will allow additional options.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S91–06/07
2306.1

Proponent: Zeno Martin, P.E., APA- The Engineered Wood Association

Revise as follows:

SECTION 2306
ALLOWABLE STRESS DESIGN

2306.1 Allowable stress design. The structural analysis and construction of wood elements in structures using allowable stress design shall be in accordance with the following applicable standards:

American Forest & Paper Association.
NDS National Design Specification for Wood Construction

American Institute of Timber Construction.
AITC 104 Typical Construction Details
AITC 110 Standard Appearance Grades for Structural

Glued Laminated Timber
AITC 113 Standard for Dimensions of Structural Glued Laminated Timber
~~AITC 117 Standard Specifications for Structural Glued Laminated Timber of Softwood Species~~
AITC 119 Structural Standard Specifications for Glued Laminated Timber of Hardwood Species
AITC A190.1 Structural Glued Laminated Timber
AITC 200 Inspection Manual

(Standards not shown do not change)

Reason: Remove a non-consensus standard. The code currently restricts acceptance to AITC 117, which represents approximately 30% of US glulam production (the APA EWS Y117 represents approximately 70% of US glulam production). The AITC 117 is not a consensus standard. This code change proposal creates equal treatment of the two similar industry standards.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S92–06/07
2306.1, Chapter 35

Proponent: Zeno Martin, P.E., APA- The Engineered Wood Association

1. Revise as follows:

2306.1 Allowable stress design. The structural analysis and construction of wood elements in structures using allowable stress design shall be in accordance with the following applicable standards:

APA—The Engineered Wood Association.
Panel Design Specification
Plywood Design Specification Supplement 1 - Design & Fabrication of Plywood Curved Panel
Plywood Design Specification Supplement 2 - Design & Fabrication of Glued Plywood-Lumber Beams
Plywood Design Specification Supplement 3 - Design & Fabrication of Plywood Stressed-Skin Panels
Plywood Design Specification Supplement 4 - Design & Fabrication of Plywood Sandwich Panels
Plywood Design Specification Supplement 5 - Design & Fabrication of All-Plywood Beams
EWS T300 Glulam Connection Details
EWS S560 Field Notching and Drilling of Glued Laminated Timber Beams
EWS S475 Glued Laminated Beam Design Tables
EWS X450 Glulam in Residential Construction
EWS X440 Product and Application Guide: Glulam
EWS R540 Builders Tips: Proper Storage and Handling of Glulam Beams
<u>EWS Y117 Glulam Design Properties and Lay-up Combinations</u>

2. Add standard to Chapter 35 as follows:

APA
<u>EWS Y117 Glulam Design Properties and Layup Combinations.</u>

Reason: Add a reference standard. The code currently unfairly restricts acceptance to AITC 117. AITC membership represents approximately 30% of US glulam production whereas, the APA membership represents approximately 70%. This code change proposal creates equal treatment of the two similar standards. This proposal will improve the code because the APA EWS Y117 standard represents a majority of the industry and includes several lay-up combinations that are not in AITC 117. Both AITC 117 and EWS Y117 are based on consensus standards ANSI A190.1 and ASTM D 3737. While neither are consensus documents, they provide invaluable information to the designer that is difficult to find elsewhere and together they cover 100% of the glulam industry.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: It is ICC staff opinion that the proposed standard, APA EWS Y117, does not comply with Section 3.6 of the ICC Code Development Process. The standard is not maintained by a consensus procedure.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S93–06/07

2306.2.1, Table 2306.2.1

Proponent: Philip Brazil, P.E., Reid Middleton, Inc., representing himself

Revise as follows:

2306.2.1 Wall stud bending ~~stress~~ design value increase. The AF & PA NDS ~~fiber stress in~~ reference bending (F_b) design values for sawn lumber wood studs resisting out of plane wind loads shall be increased by the factors in Table 2306.2.1, in lieu of the 1.15 repetitive member factor. These increases take into consideration the load sharing and composite actions provided by the wood structural panels as defined in Section 2302.1. The increases shall apply where the studs are designed for bending and spaced no more than 16 inches (406 mm) o.c., covered on the inside with a minimum of 1/2-inch (12.7 mm) gypsum board fastened in accordance with Table 2306.4.5, and sheathed on the exterior with a minimum of 3/8-inch (9.5 mm) wood structural panel sheathing. All panel joints shall occur over studs or blocking and shall be attached using a minimum of 8d common nails spaced a maximum of 6 inches o.c. (152 mm) at panel edges and 12 inches o.c. (305 mm) at intermediate framing members.

TABLE 2306.2.1
MODIFIED WALL STUD ~~BENDING STRESS INCREASE~~ REPETITIVE MEMBER FACTORS

STUD SIZE	~~SYSTEM~~ FACTOR
2x4	1.5
2x6	1.35
2x8	1.25
2x10	1.2
2x12	1.15

Reason: Section 1605.3.1.1 on the ASD basic load combinations does not permit stress increases specified in the materials sections of the IBC or referenced standards to be used with the load combinations except for the load duration adjustment factor (C_D) specified in the AF&PA National Design Specification (NDS). Section 2306.2.1 permits increases in the reference bending design value (F_b), as specified in Table 2306.2.1, in lieu of the repetitive member adjustment factor (C_r), also specified in the NDS. The increases specified in Table 2306.2.1 are intended to modify the repetitive member adjustment factor, which is typically 1.15. The title of Table 2306.2.1, however, refers to stress increases, which had lead some designers to conclude that the increases in Table 2306.2.1 are not permitted to be used with the load combinations with the ASD basic load combinations of Section 1605.3.1. The proposed revisions will clarify that the intent is to permit their use.

The change from "fiber stress in bending design value" to "reference bending design value" is for consistency with the notation in Section 1.6 of the 2005 edition of the AF&PA NDS.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S94–06/07

2306.3, 2508.5, Table 2508.5, 2306.4, 2306.4.1, Table 2306.4.1, 2306.4.2, 2306.4.3, Table 2306.4.3, 2306.4.4, Table 2306.4.4, 2306.4.5 and Table 2306.4.5

Proponent: Philip Brazil, P.E., Reid Middleton, Inc.

Revise as follows:

2306.3 ~~Wood~~ Diaphragms.

2306.3.1 General. The design and construction of diaphragms shall comply with Section 2306.3. Panel sheathing edges shall occur over and be fastened to framing members. Adjacent panel sheathing edges shall occur over and be fastened to common framing members.

Exception: Adjacent panel sheathing joints are not required to occur over and be fastened to common framing members provided the design of the diaphragm is based upon the allowable shear capacities for unblocked diaphragms.

2306.3.2 Wood structural panel diaphragms. Wood structural panel diaphragms are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.3.1 or 2306.3.2. The allowable shear capacities are permitted to be ~~calculated by~~ determined in accordance with well-established principles of mechanics ~~without limitations by using~~ provided the values for fastener strength ~~in~~ are obtained from the AF&PA NDS ~~structural design properties for wood structural panels based on DOC PS-1 and DOC PS-2 or~~ and wood structural panel design properties ~~given in~~ are obtained from the APA Panel Design Specification (PDS).

2306.3.2.1 Shear capacities modifications. The allowable shear capacities in Tables 2306.3.1 and 2306.3.2 for horizontal wood structural panel diaphragms ~~shall~~ are permitted to be increased 40 percent for wind design.

TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [h]

No change to table entries.

a. For framing members of other species: (1) Find specific gravity for species of lumber in AFPA National Design Specification. (2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species. (3) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
b. (No change to current text)
c. Framing members at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where nails are spaced 2 inches o.c. or 2-1/2 inches o.c.
d. Framing members at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches o.c. or less.

h. through e. (No change to current text)

TABLE 2306.3.2
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS FIR, LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [b, g, h]

(No change to table entries)

a. For framing members of other species: (1) Find specific gravity for species of framing lumber in AFPA National Design Specification. (2) For staples, find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species. (3) For nails, find shear value from table above for nail size of actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.

b. through h. (No change to current text)

2306.3.3 Diagonally sheathed lumber diaphragms. Diagonally sheathed lumber diaphragms shall be nailed in accordance with Table 2306.3.3. Diagonally sheathed lumber diaphragms shall also comply with Section 2306.3.4 or 2306.3.5.

TABLE 2306.3.3
DIAGONALLY SHEATHED LUMBER DIAPHRAGM NAILING SCHEDULE

(No change to table entries)

2306.3.4 Single diagonally sheathed lumber diaphragms.

2306.3.4.1 General. Single diagonally sheathed lumber diaphragms shall be constructed of minimum 1-inch (25 mm) thick nominal sheathing boards laid at an angle of approximately 45 degrees (0.78 rad) to the supports. The allowable shear capacity for single diagonally sheathed lumber diaphragms of southern pine or Douglas fir-larch shall not exceed 300 plf (4378 N/m) of width. The shear capacities shall be adjusted by reduction factors of 0.82 for framing members of

species with a specific gravity equal to or greater than 0.42 but less than 0.49 and 0.65 for species with a specific gravity of less than 0.42, as ~~contained~~ specified in the AF&PA NDS.

2306.3.4.2 End joints. End joints in adjacent boards shall be separated by at least one stud or joist space and there shall be at least two boards between joints on the same support.

2306.3.4.3 ~~Single diagonally sheathed lumber~~ Diaphragms of 2-inch nominal lumber sheathing. Single diagonally sheathed lumber diaphragms made up of 2-inch (51 mm) nominal diagonal lumber sheathing fastened with 16d nails shall be designed with the same shear capacities as shear panels using 1-inch (25 mm) boards fastened with 8d nails, provided there are ~~not~~ no splices in adjacent boards on the same support and the supports are not less than 4 inch (102 mm) nominal depth or 3 inch (76 mm) nominal thickness.

2306.3.5 Double diagonally sheathed lumber diaphragms. Double diagonally sheathed lumber diaphragms shall be constructed of two layers of diagonal sheathing boards at 90 degrees (1.57 rad) to each other on the same face of the supporting members. Each chord shall be considered as a beam with uniform load per foot equal to 50 percent of the unit shear due to diaphragm action. The load shall be assumed as acting normal to the chord in the plan of the diaphragm in either direction. The span of the chord or portion thereof shall be the distance between framing members of the diaphragm, such as the joists, studs and blocking that serve to transfer the assumed load to the sheathing. The allowable shear capacity of double diagonally sheathed diaphragms of Southern pine or Douglas fir-larch shall not exceed 600 plf (8756 kN/m) of width. The shear capacity shall be adjusted by reduction factors of 0.82 for framing members of species with a specific gravity equal to or greater than 0.42 but less than 0.49 and 0.65 for species with a specific gravity of less than 0.42, as ~~contained~~ specified in the AF&PA NDS. ~~Nailing of diagonally sheathed lumber diaphragms shall be in accordance with Table 2306.3.3.~~

2306.3.6 Gypsum board diaphragm ceilings. Gypsum board shall be permitted to be used on wood joists to create a horizontal diaphragm ceiling in accordance with Section 2306.3.6. The allowable shear capacities for gypsum board diaphragm ceilings shall be in accordance with ~~Section 2508.5~~ Table 2306.3.6.

Delete without substitution:

~~**2508.5 Horizontal gypsum board diaphragm ceilings.** Gypsum board shall be permitted to be used on wood joists to create a horizontal diaphragm ceiling in accordance with Table 2508.5.~~

Revise as follows:

TABLE ~~2508.5~~ 2306.3.6
ALLOWABLE SHEAR ~~CAPACITY~~ FOR HORIZONTAL WOOD FRAMED GYPSUM BOARD DIAPHRAGM CEILING ASSEMBLIES FOR WIND OR SEISMIC LOADING

MATERIAL	THICKNESS OF MATERIAL (MINIMUM) (inches)	SPACING OF FRAMING MEMBERS (MAXIMUM) (inches)	SHEAR VALUE [a, b] (plf of ceiling)	MIMIMUM FASTENER SIZE
Gypsum board	1/2	16 o.c.	90	5d cooler or wallboard nail; 1-5/8 inch long; 0.086-inch shank; 15/64-inch head [c]
Gypsum board	1/2	24 o.c.	70	5d cooler or wallboard nail; 1-5/8 inch long; 0.086-inch shank; 15/64-inch head [c]

For SI: 1 inch = 25.4 mm.

a. Values are not cumulative with other horizontal diaphragm values and are for short-term loading due to wind or seismic loading. Values shall be reduced 25 percent for normal loading.
b. Values shall be reduced 50 percent in Seismic Categories D, E and F.
c. 1-1/4 inch, No. 6 Type S or W screws are permitted to be substituted for the listed nails.

~~2508.5.1~~ 2306.3.6.1 Diaphragm proportions. No change to text.

~~2508.5.2~~ 2306.3.6.2 Installation. No change to text.

~~2508.5.3~~ 2306.3.6.3 Blocking of perimeter edges. No change to text.

~~2508.5.4~~ **2306.3.6.4 Fasteners.** No change to text.

~~2508.5.5~~ **2306.3.6.5 Lateral force restrictions.** No change to text.

2306.4 Shear walls.

2306.4.1 General. The design and construction of shear walls shall comply with Section 2306.4. Panel sheathing ~~joints in shear walls~~ edges shall occur over ~~studs or blocking~~ and be fastened to framing members. Adjacent panel sheathing ~~joints~~ edges shall occur over and be ~~nailed~~ fastened to common framing members ~~(see Section 2305.3.1 for limitations on shear wall bracing materials)~~. Framing members shall be 2 inches (51 mm) nominal or wider.

2306.4.~~1~~2 Wood structural panel shear walls. The allowable shear capacities for wood structural panel shear walls shall be in accordance with Table ~~2306.4.1~~ 2306.4.2. These capacities are permitted to be increased 40 percent for wind design. ~~Shear walls~~ Allowable shear capacities are permitted to be ~~calculated by~~ determined in accordance with well-established principles of mechanics ~~without limitations by using~~ provided the values for ~~nail~~ fastener strength ~~given in~~ are obtained from the AF&PA NDS and wood structural panel design properties ~~given in~~ are obtained from the APA Panel Design Specification.

TABLE ~~2306.4.1~~ 2306.4.2
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [b, h, i, j, l]

(No change to table entries)

a. For framing members of other species: (1) Find specific gravity for species of lumber in NDS. (2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species. (3) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], Where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
b. Panel edges ~~backed with~~ shall occur over and be fastened to 2-inch nominal or wider framing members. Install panels either horizontally or vertically. Space fasteners maximum 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center. For other conditions and panel thickness, space fasteners maximum 12 inches on center on intermediate supports.

c. and d. (No change to current text)

e. Framing members at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where nails are spaced 2 inches on center.
f. Framing members at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where both of the following conditions are met: (1) 10d (3" x 0.148") nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches on center.
g. (No change to current text)
h. Where panels are applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members. Or framing members shall be 3-inch nominal or ~~thicker~~ wider at adjoining panel edges and nails on each side shall be staggered.

i. through l. (No change to current text)

~~**2306.4.2 Lumber sheathed shear walls.** Single and double diagonally sheathed lumber diaphragms are permitted using the construction and allowable load provisions of Sections 2306.3.4 and 2306.3.5.~~

2306.4.3 Particleboard shear walls. The ~~design~~ allowable shear ~~capacity of~~ capacities for particleboard shear walls shall be in accordance with Table 2306.4.3. Shear panels shall be constructed with particleboard sheets not less than 4 feet by 8 feet (1219 mm by 2438 mm), except at boundaries and changes in framing. Particleboard panels shall be designed to resist shear only, and chords, collector members and boundary elements shall be connected at all corners. Panel edges shall ~~be backed with~~ occur over and be fastened to 2-inch (51 mm) nominal or wider framing members. Sheets are permitted to be installed either horizontally or vertically. For 3/8-inch (9.5 mm) particleboard sheets installed with the long dimension parallel to the studs spaced 24 inches (610 mm) o.c. or greater, nails shall be spaced at a maximum of 6 inches (152 mm) o.c. along intermediate framing members. For all other conditions, nails of the same size shall be spaced at a maximum of 12 inches (305 mm) o.c. along intermediate framing members. Particleboard panels less than 12 inches (305 mm) wide shall be blocked with 2-inch (51 mm) nominal or wider framing members. Particleboard shall not be used to resist seismic forces in structures ~~in~~ assigned to Seismic Design Category D, E or F.

TABLE 2306.4.3
ALLOWABLE SHEAR FOR PARTICLEBOARD SHEAR WALL SHEATHING FOR WIND OR SEISMIC LOADING [b]

No change to table entries.
No change to footnotes.

2306.4.4 Fiberboard shear walls. The ~~design~~ allowable shear ~~capacity of~~ capacities for fiberboard shear walls shall be in accordance with Table 2306.4.4. The fiberboard sheathing shall be applied vertically or horizontally to wood studs not less than 2 inches (51 mm) in nominal thickness spaced a maximum of 16 inches (406 mm) o.c. Blocking not less than 2 inches (51 mm) in nominal ~~in~~ thickness shall be provided at ~~horizontal~~ unblocked joints. Fiberboard shall not be used to resist seismic forces in structures ~~in~~ assigned to Seismic Design Category D, E or F.

TABLE 2306.4.4
ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF FIBERBOARD SHEATHING BOARD CONSTRUCTION FOR TYPE V CONSTRUCTION ONLY [a, b, c, d, e, f, g, h]

(No change to table entries)

a. (No change to current text)
b. Panel edges shall ~~be backed with~~ occur over and be fastened to 2 inch nominal or wider framing members of Douglas fir-larch or Southern pine.
c. and d. (No change to current text)
e. Fasteners shall be spaced a maximum of 6 inches on center along intermediate framing members.
f. For framing members of other species: (1) Find specific gravity for species of lumber in AF&PA National Design Specification, and (2) Multiply the shear value from the above table by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.
g. The same values can be applied when staples are used as ~~described~~ specified in Table 2304.9.1.
h. (No change to current text)

2306.4.5 Shear walls sheathed with other materials. The allowable shear capacities for walls sheathed with lath and plaster, and gypsum board shall be in accordance with Table 2306.4.5. Shear walls sheathed with lath, plaster and gypsum board shall be constructed in accordance with Chapter 25 and Section 2306.4.5.1. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.

TABLE 2306.4.5
ALLOWABLE SHEAR FOR WIND OR SEISMIC ~~FORCES FOR~~ LOADING ON SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES [a]

(No change to table entries)

a. These shear walls shall not be used to resist loads imposed by masonry or concrete construction ~~(see Section 2305.1.5)~~. Values shown are for short-term loading due to wind or seismic load. Walls resisting seismic loads shall be subject to the limitations of Section 12.2.1 of ASCE 7. Values shown shall be reduced 25 percent for normal loading.
b. through d. (No change to current text)
e. Except as noted, shear values are based on a maximum framing member spacing of 16 inches on center.
f. Maximum framing member spacing of 24 inches on center.
g. All edges are blocked, and edge fastening ~~is~~ shall be provided at all supports and all panel edges.
h. through k. (No change to current text)

Reason: The purpose of the proposal is to update the provisions for diaphragms and shear walls by providing charging language where it is lacking and by using consistent language as much as possible. The title of Section 2306.3 is Wood Diaphragms but Section 2306.3.6 applies to gypsum board diaphragm ceilings. The title is changed to the Diaphragms in recognition of this.

Charging language is proposed in a new Section 2306.3.1 for diaphragms and a new Section 2306.4.1 for shear walls. A portion of the proposed language in proposed Section 2306.4.1 for shear walls is currently in existing Section 2306.4 and the charging language in proposed Section 2306.3.1 for diaphragms was developed to be consistent Section 2306.4.1. References to code sections below will be according to the numbering in this proposal.

The revisions to Sections 2306.3.2 and 2306.4.2 were done for consistency with similar language in Section 1604.4. The lack of a reference to DOC PS 1and DOC PS 2 in Section 2306.4.2 lead to the decision to propose deletion of the reference in Section 2306.3.2.

"Framing" is changed to "framing members" at several locations for consistency with the more common use of "framing members" elsewhere in the provisions. The last sentence of Section 2306.3.5 for double diagonally sheathed lumber diaphragms is deleted because it is redundant given the same statement in Section 2306.3.3 for diagonally sheathed lumber diaphragms. Note that the same sentence is not specified in Sections 2306.3.4 through 2306.3.4.2 for single diagonally sheathed lumber diaphragms. Because of this, a charging statement is added to Section 2306.3.3 specifying compliance with Section 2306.3.4 or 2306.3.5.

Table 2508.5 containing allowable shear values for the support of wind or earthquake loads by horizontal wood framed gypsum board diaphragm ceiling assemblies and Section 2508.5 containing requirements for their construction are relocated to Section 2306.3 for consistency with Table 2306.4.5 containing allowable shear values for support of wind or earthquake loads by shear walls of lath and plaster or gypsum board wood framed wall assemblies and Section 2306.4.5 containing similar construction requirements.

Footnote (b) to Table 2306.4.1, Section 2306.4.3, and Footnote (b) to Table 2306.4.4 on the location and fastening of panel edges is revised for consistency with Sections 2306.3.1 and 2306.4.1. The addition of the requirement that framing members shall be 2 inches nominal or wider, in Section 2306.4.1 for wood structural panel shear walls, is for consistency with similar statements in the provisions for wood structural panel diaphragms (i.e., Table 2306.3.1, Table 2306.3.2).

The addition of "or greater" in Section 2306.4.3 is to eliminate the possibility of specifying a support spacing of 24.1 inches o.c. to avoid the requirement for a maximum nail spacing of 6 inches at intermediate framing members.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S95–06/07

Table 2306.3.1, Table 2306.4.1

Proponent: Edwin T. Huston, Smith & Huston Inc., representing National Council of Structural Engineering Associations

Revise as follows:

TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [h]

c. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where ~~nails are spaced~~ panel edge nailing is specified at ~~2 inches o.c. or~~ 2-1/2 inches o.c. or less.
d. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1-1/2 inches and (2) ~~nails are spaced~~ panel edge nailing is specified at 3 inches o.c. or less.

(Portions of table and footnotes not shown do not change)

TABLE 2306.4.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [b, h, i, j, l]

e. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where ~~nails are spaced~~ panel edge nailing is specified at 2 inches on center or less.
f. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails shall be staggered where both of the following conditions are met: (1) 10d (3" x 0.148") nails having penetration into framing of more than 1-1/2 inches and (2) ~~nails are spaced~~ panel edge nailing is specified at 3 inches on center or less.

(Portions of table and footnotes not shown do not change)

Reason: Substitute revised material for current provision of the Code.

The purpose of the proposal is to establish technically sound language in the footnotes that require the staggering of nails based on their spacing. The allowable shear values in Tables 2306.3.1 and 2306.4.1 are based on specified spacing of panel edge nailing. The in-place spacing, however, can vary substantially. The requirements for staggering are intended to be based on the specified spacing from which allowable shear values are determined. The current language in the footnotes, however, implies that the requirements are based on the in-place spacing. The proposed revisions will establish that the requirements are based on the specified spacing.

The term "or less" is added to Footnotes (e) and (f) of Table 2306.4.1 for consistency with Footnote (d) of Table 2306.3.1. It is also done to eliminate the possibility of specifying, for example, panel edge nailing at 1.9 inches o.c. to avoid the requirements in Footnote (e) of Table 2306.4.1 for 3-inch nominal framing members and staggered nailing. Footnote (c) of Table 2306.3.1 is revised for a similar reason: eliminate the possibility of specifying panel edge nailing at 2.4 or 1.9 inches o.c. to avoid the requirements for 3-inch nominal framing members and staggered nailing.

Cost Impact: The code change proposal will not increase the cost of construction

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S96–06/07

Table 2306.3.1, Table 2306.4.1, Table 2306.4.4

Proponent: Philip Brazil, P.E., Reid Middleton, Inc., representing himself

Revise tables as follows:

TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [h]

(No change to table entries)
a. (No change to current text)
b. Space fasteners a maximum of 12 inches o.c. along intermediate framing members, except ~~(~~6 inches o.c. where supports are spaced 48 inches o.c.~~)~~ or greater.
c. Framing at adjoining panel edges shall be 3 inches nominal or wider~~,~~ and nails shall be staggered where the nails are spaced 2 inches o.c. or 2-1/2 inches o.c.
d. Framing at adjoining panel edges shall be 3 inches nominal or wider~~,~~ and nails shall be staggered where both of the following conditions are met: (1) 10d nails having a penetration into the framing of more than 1-1/2 inches are installed and (2) the nails are spaced 3 inches o.c. or less.
e. through h. (No change to current text)

TABLE 2306.4.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [b, h, i, j, l]

(No change to table entries)
a. (No change to current text).
b. Panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners a maximum of 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center or greater. For other conditions and panel thickness, space fasteners a maximum of 12 inches on center on intermediate supports.
c. 3/8-inch panel thickness or siding with a span rating of 16 inches on center is the minimum recommended where applied directly to framing as exterior siding.
d. Allowable shear values are permitted to be increased to values shown for 15/32-inch sheathing with the same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) ~~if~~ panels are applied with their long dimension across studs.
e. Framing at adjoining panel edges shall be 3 inches nominal or wider~~,~~ and nails shall be staggered where the nails are spaced 2 inches on center.
f. Framing at adjoining panel edges shall be 3 inches nominal or wider~~,~~ and nails shall be staggered where both of the following conditions are met: (1) 10d ~~(3" x 0.148")~~ nails a having penetration into the framing of more than 1-1/2 inches are installed and (2) the nails are spaced 3 inches on center.
g. Values apply to all-veneer plywood. Thickness at the point of fastening on panel edges governs shear values.
h. through l. (No change to current text).

TABLE 2306.4.4
ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF FIBERBOARD SHEATHING BOARD CONSTRUCTION FOR TYPE V CONSTRUCTION ONLY [a, b, c, d, e, f, g, h]

(No change to table entries)
a. Fiberboard sheathing diaphragms shall not be used to ~~brace~~ resist loads imposed by concrete or masonry ~~walls~~ construction.
b. Panel edges shall be backed with 2 inch nominal or wider framing of Douglas fir-larch or Southern pine.
c. Fiberboard sheathing on one side only.
d. Fiberboard panels ~~are~~ shall be installed with their long dimension parallel or perpendicular to the studs.
e. Fasteners shall be spaced a maximum of 6 inches on center along intermediate framing members.
f. (No change to current text)
g. The same values can be applied when staples are used as ~~described~~ specified in Table 2304.9.1.
h. (No change to current text)

Reason: The revisions are proposed as grammatical improvements and for consistency with the footnotes in Tables 2306.3.2 and 2306.4.5. The addition of "except" in Footnote (b) of Table 2306.3.1 is for consistency with Footnote (c) of Table 2306.3.2. The deletion of the parenthetical reference to 3-inch by 0.148-inch nails in Footnote (f) of Table 2306.4.1 is because it is superfluous given the condition that the nails have a penetration into the framing of at least 1-1/2 inches and for consistency with Footnote (d) of Table 2306.3.1. The revision to Footnote (a) of Table 2306.4.4 is for consistency with Footnote (a) of Table 2306.4.5. The revision to Footnote (d) of Table 2306.4.4 is to establish mandatory language.

The addition of "or greater" at the end of Footnote (b) to Table 2306.3.1 is to eliminate the possibility of specifying a support spacing of 48.1 inches o.c. to avoid the requirement for a maximum fastening spacing of 6 inches at intermediate framing members. A similar revision is proposed in Footnote (b) to Table 2306.4.1 to eliminate the possibility of specifying a stud spacing of 24.1 inches o.c. to avoid the same requirement (maximum fastening spacing of 6 inches at intermediate framing members). Both revisions are also proposed for consistency with Footnote (b) to Table 2306.3.2, which specifies a maximum fastening spacing of 6 inches at intermediate framing members for spans greater than 32 inches.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S97–06/07
Table 2306.3.1, Table 2306.4.1, 2307.1.1

Proponent: Edwin T. Huston, Smith & Huston, Inc., representing National Council of Structural Engineering Associations

Revise as follows:

TABLE 2306.3.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [h]

c. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails <u>at all panel edges</u> shall be staggered where nails are spaced 2 inches o.c. or 2-1/2 inches o.c.
d. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails <u>at all panel edges</u> shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches o.c. or less.

(Portions of table and footnotes not shown do not change)

TABLE 2306.4.1
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE [a] FOR WIND OR SEISMIC LOADING [b, h, i, j, l]

e. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails <u>at all panel edges</u> shall be staggered where nails are spaced 2 inches on center.
f. Framing at adjoining panel edges shall be 3 inches nominal or wider, and nails <u>at all panel edges</u> shall be staggered where both of the following conditions are met: (1) 10d (3" x 0.148") nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches on center.
h. Where panels are applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members. Or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails ~~on each side~~ <u>at all panel edges</u> shall be staggered.
i. In Seismic Design Category D, E or F, where shear design values exceed 350 pounds per lineal foot, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered ~~in all cases~~ <u>at all panel edges</u>. See Section 2305.3.11 for sill plate size and anchorage requirements.

(Portions of table and footnotes not shown do not change)

2307.1.1 Wood structural panel shear walls. In Seismic Design Category D, E or F, where shear design values exceed 490 pounds per foot (7154 N/m), all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch (76 mm) nominal member or two 2-inch (51 mm) nominal members fastened together in accordance with AF&PA NDS to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered ~~in all cases~~ <u>at all panel edges</u>. See Section 2305.3.11 for sill plate size and anchorage requirements.

Reason: Substitute revised material for current provision of the code. There is confusion among designers, code officials and contractors concerning application of the requirement for staggering of nails at the panel edges of wood structural panel sheathing. The intent is to stagger the nails transversely and longitudinally along each panel edge at a recommended spacing of 3/8 to 1/2 inch, thus creating two lines of resistance along each panel edge. The confusion comes from the mistaken assumption that the staggering can occur transversely back and forth at the edges of abutting panels, rather than along each panel edge. The proposed revisions will clarify that the staggering of the nails is required at each panel edge.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S98–06/07
Table 2306.4.5

Proponent: Ben L. Schmid, Consulting Structural Engineer

Revise as follows:

TABLE 2306.4.5
ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES FOR SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES

TYPE OF MATERIAL	THICKNESS OF MATERIAL	WALL CONSTRUCTION	FASTENER SPACING[b] MAXIMUM (inches)	SHEAR VALUE[a, e] (plf)	MINIMUM FASTNER SIZE[c,d,j,k]
Gypsum lath, plain or perforated	⅜" lath and ½" plaster	Unblocked	5	~~100~~ 180	No. 13 gage, 1⅛" long, $^{19}/_{64}$" head, plasterboard nail ~~16 Ga. Galv. Staple, a ⅛" long~~ 0.120" Nail, min ⅜" head, 1¼" long

(Portions of table not shown do not change)

Reason: The purpose of this proposal is to revise the outdated Shear Value for 3/8" gypsum lath and ½" plaster from 100 (plf) to 180 (plf).

All the sheathing material listed in Table 2306.4.5 with shear values for Seismic Force-Resisting Systems are contained in ASCE 7-05 Table 12.2.1 Bearing Wall Systems A.14-Light-framed walls with shear panels of all other materials, resulting with a Response Modification Coefficient, R of 2 (Limited Ductility).

The current code shear value for 3/8" Gypsum lath and ½" plaster is greatly undervalued and has been for over 50 years. Comparison is made of ½" thick Gypsum board, unblocked, with nails at 4 inches on center with a shear value of 125 (plf), listed as Item 4 Table 2306.4.5 with Item 2: 7/8" thick Gypsum lath and plaster, with similar nails at 5 inches on center. In an 8 foot by 8 foot panel, there would be 180 nails in the ½" thick Gypsum board versus 260 similar nails in the 7/8" thick Gypsum lath and plaster.

Factoring $\frac{260}{180}$ nails x $\frac{0.375"}{0.50"}$ nail bearing x $\frac{0.875"}{0.50"}$ gypsum thickness x 125 (plf) for ½" Gypsum board results in 236 (plf) for 7/8" thick Gypsum lath and plaster.

As an accredited expert on wood frame structures, the Author has observed and reported on damage to such sheathed wood framed structures in the past 9 earthquakes in California. The 1971 San Francisco and 1994 Northridge Earthquakes provided comparison of damage to one and two story residences sheathed with stucco exterior walls and ½" Gypsum board versus 7/8" Gypsum lath and plaster on interior walls due to each earthquake. In each geographic area with equal Modified Mercalli (MMI) shaking of between 7 and 9 intensity, the ½" Gypsum board sheathed residences has extensive and severe damage as compared to 7/8" lath and plaster. Combined with the required Cornerite 2" x 2" expanded metal reinforcing at each intersecting wall and ceiling, each room becomes a box and supports its tributary lateral loading including walls, ceilings or floor joists and roof area due to the continuity furnished by 7/8" lath and plaster.

Immediately after the 1994 Northridge Earthquake, the City and County of Los Angeles funded cyclic load testing of plywood, stucco and Gypsum board sheathing at the Civil Engineering Laboratory at the University of California an Irvine. The tests verified that the Allowable Stress Design values should have been reduced 50 per cent per note 1 in Table 25-I in the 1994 UBC.

The Board of Directors of the Structural Engineers Association of Southern California authorized and funded cyclic testing, using the testing protocol developed for the sheathing testing at UC Irvine, for 7/8" Gypsum lath and plaster. The three 8 foot by 8 foot tested panels developed an average of 205 (plf). The testing was done at the Specialized Testing Laboratory, ICC-ES certified. Ben Schmid, S.E. and Ted Christensen, S.E. continuously observed the tests. The test allowed the conclusion that the existing Shear Value shown in Table 2306.4.5 is overly restrictive.

Data for cyclic tests and resulting Load/Deflection curves are submitted for 7/8" thick Gypsum lath and plaster, ½" and 5/8" Gypsum Board. Allowable Stress Design (ASD) values are developed from the curve data at effective Strength Limit State multiplied by 0.65 for Load and Resistance Factor Design (LRFD), then divided by 1.4 for ASD.

Bibliography:

1. Gypsum Board tests number 7 and 8 reported in Final Report of a Testing Program of Light-framed Walls with Wood Sheathed Shear Panels by the Structural Engineers Association of Southern California and Department of Civil and Environmental Engineering, University of California, Irvine, dated December, 2001. Research Award Number "FEMA-DR-1008-8011."

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S99–06/07
2307.1

Proponent: Jeffrey B. Stone, American Forest & Paper Association

Revise as follows:

2307.1 Load and resistance factor design. The structural analysis and construction of wood elements and structures using load and resistance factor design shall be in accordance with AF&PA NDS and AF&PA SDPWS.

Reason: Adds reference to the AF&PA Special Design Provisions for Wind and Seismic (SDPWS) to Section 2307 pertaining to load and resistance factor design (LRFD) for wood elements and structures. The AF&PA SDPWS is currently adopted by reference.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee AS AM D
Assembly: ASF AMF DF

S100–06/07
2308.2; IRC R301.3

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Kirk Grundahl, Wood Truss Council of America, representing the Structural Building Components Industry

PART I – IBC

Revise as follows:

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.

1. Buildings shall be limited to a maximum of three stories above grade plane. For the purposes of this section, for buildings in Seismic Design Category D or E as determined in Section 1613, cripple stud walls shall be considered to be a story.

   Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm)in height need not be considered a story.

2. Bearing wall ~~floor-to-floor heights~~ story height shall not exceed a stud height of 10 feet (3048 mm) plus a height of floor framing not to exceed 16 inches (406 mm). Floor framing height shall be permitted to exceed this limit provided the story height limit is not exceeded.

(No changes to items 3 through 7)

PART II – IRC

Revise as follows:

R301.3 Story height. Buildings constructed in accordance with these provisions shall be limited to story heights of not more than the following:

1. For wood wall framing, the laterally unsupported bearing wall stud height permitted by Table R602.3(5) plus a height of floor framing not to exceed 16 inches.

   Exception: For wood framed wall buildings with bracing in accordance with Table R602.10.1, the wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet without requiring an engineered design for the building wind and seismic force resisting systems provided that the length of bracing required by Table R602.10.1 is increased by multiplying by a factor of 1.20.Wall studs are still subject to the requirements of this section.

2. For steel wall framing, a stud height of 10 feet, plus a height of floor framing not to exceed 16 inches.
3. For masonry walls, a maximum bearing wall clear height of 12 feet plus a height of floor framing not to exceed 16 inches.

   Exception: An additional 8 feet is permitted for gable end walls.

4. For insulating concrete form walls, the maximum bearing wall height per story as permitted by Section 611 tables plus a height of floor framing not to exceed 16 inches.

Individual walls or walls studs shall be permitted to exceed these limits as permitted by Chapter 6 provisions, provided story heights are not exceeded. Floor framing height shall be permitted to exceed these limits provided the story height

limit is not exceeded An engineered design shall be provided for the wall or wall framing members when they exceed the limits of Chapter 6. Where the story height limits are exceeded, an engineered design shall be provided in accordance with the International Building Code for the overall wind and seismic force resisting systems.

Reason: (IBC) The purpose of this proposed code change is to clarify the code language regarding story height limitations and how stud height limitations and floor framing limitations are to be interpreted.

The current story height requirements were introduced in the 2003 code cycle into the IRC by BCCS (RB39-02). The final proposal was extensively modified from the original proposal which dealt only with the stud height issue. The committee reason for accepting RB39-02 as modified was given as follows:

Committee Reason: Based on proponent's published reason. This code change has been modified from that originally submitted to the ICC in order to coordinate with the material limits currently contained in (and, in the case of wood, currently being added to) the IRC. The exception to Item 1 has been added at the request of other interested parties to accommodate the high ceilings that are currently common in some parts of the country.

No technical supporting documentation was provided on the 16 inch limitation on floor framing. Our assumption is that the intent of the code modification was to arrive at a maximum story height by setting a maximum floor framing depth to be used with a maximum stud height. However, the way the current language has been interpreted, there becomes a limit of 16 inches on floor framing regardless of stud height. Both I-joist and floor truss depths can exceed a 16 inches. Unless technical justification can be provided otherwise, there is no reason to limit the depth of the floor framing if the story height is not exceeded.

The IRC 16 inch floor framing limitation was brought into the IBC Conventional Light-Frame Construction section in the 2006 code change cycle in S191 with the following reasoning and was accepted as submitted:

Reason: Table 2308.9.1 of the IBC contains the spacing requirement for 10 foot studs, and it is assumed that 10 foot studs can be used for walls in buildings built under the conventional construction provisions of Section 2308. However, the current wording of Section 2308.2 of the code limits the floor-to-floor height to 10 feet, which precludes the use of 10-foot studs in bearing walls. The proposed change will make the scope of the section consistent with the requirements contained therein and also limit floor-to-floor heights for conventional light-frame construction provisions. A similar limitation can be found in Section R301.3 of the International Residential Code.

As in the case of the IRC, the intention was to limit story height not to limit floor framing height. Chapter 5 defines story height as follows: HEIGHT, STORY. The vertical distance from top to top of two successive finished floor surfaces; and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

There are no general limits on floor framing height elsewhere in the IBC, nor are there any limitations on floor framing height in chapter 23.

(IRC) Current limitations are based on a floor height of 16 inches. The current story height requirements were introduced in the 2003 code cycle by BCCS (RB39-02). The final proposal was extensively modified from the original proposal which dealt only with the stud height issue. The committee reason for accepting RB39-02 as modified was given as follows:

Committee Reason: Based on proponent's published reason. This code change has been modified from that originally submitted to the ICC in order to coordinate with the material limits currently contained in (and, in the case of wood, currently being added to) the IRC. The exception to Item 1 has been added at the request of other interested parties to accommodate the high ceilings that are currently common in some parts of the country.

No technical supporting documentation was provided for the 16 inch limitation on floor framing. Our assumption is that the intent of the code modification was to arrive at a maximum story height by setting a maximum floor framing depth to be used with a maximum stud height. However, the way the current language has been interpreted, a limit of 16 inches on floor framing regardless of stud height. Both I-joist and floor truss depths can exceed a 16 inches. Unless technical justification can be provided otherwise, there is no reason to limit the floor framing if the story height is not exceeded.

Chapter 2 defines story height as follows: HEIGHT, STORY. The vertical distance from top to top of two successive tiers of beams or finished floor surfaces; and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

Chapter 5 includes no limits on floor framing height, nor are there any limitations on floor framing in any of the individual material requirement sections.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S101–06/07
2308.2

Proponent: Randall Shackelford, Simpson Strong-Tie Co.

Revise as follows:

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.

1. Buildings shall be limited to a maximum of three stories above grade plane. For the purposes of this section, for buildings in Seismic Design Category D or E as determined in Section 1613, cripple stud walls shall be considered to be a story.

Exception: Solid blocked cripple walls not exceeding 14 inches (356 mm) in height need not be considered a story.

2. Bearing wall floor-to-floor heights shall not exceed a stud height of 10 feet (3048 mm) plus a height of floor framing not to exceed 16 inches (406 mm).
3. Loads as determined in Chapter 16 shall not exceed the following:

   3.1. Average dead loads shall not exceed 15 psf (718 N/m^2) for combined roof and ceiling, exterior walls, floors and partitions.

   Exceptions:

   1. Subject to the limitations of Sections 2308.11.2 and 2308.12.2, stone or masonry veneer up to the lesser of 5 inches (127 mm) thick or 50 psf (2395 N/m^2) and installed in accordance with Chapter 14 is permitted to a height of 30 feet (9144 mm) above a noncombustible foundation, with an additional 8 feet (2438 mm) permitted for gable ends.
   2. Concrete or masonry fireplaces, heaters and chimneys shall be permitted in accordance with the provisions of this code.

   3.2. Live loads shall not exceed 40 psf (1916 N/m^2) for floors.
   3.3. Ground snow loads shall not exceed 50 psf (2395 N/m^2).

4. Wind speeds shall not exceed 100 miles per hour (mph) (44 m/s) (3-second gust).

   Exception: Wind speeds shall not exceed 110 mph (48.4 m/s) (3-second gust) for buildings in Exposure Category B <u>that are not located in a hurricane prone region</u>.

5. Roof trusses and rafters shall not span more than 40 feet (12 192 mm) between points of vertical support.
6. The use of the provisions for conventional light-frame construction in this section shall not be permitted for Occupancy Category IV buildings assigned to Seismic Design Category B, C, D, E or F, as determined in Section 1613.
7. Conventional light-frame construction is limited in irregular structures in Seismic Design Category D or E, as specified in Section 2308.12.6.

Reason: The purpose of this proposal is to revise wind limitation in the IBC to match the IRC

Studies conducted by the Institute for Business and Home Safety show that the conventional construction requirements of the IBC and IRC are frequently inadequate for wood buildings built where the design windspeed exceeds 100 mph. The IRC was revised to reflect this last code change cycle, but the IBC was not. This change will make the IRC and IBC have the same limitations.

Cost Impact: The code change proposal will increase the cost of construction in areas between 100 and 110 miles per hour if the buildings are currently being built without consideration of wind forces.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S102–06/07
2308.11.2, 2308.12.2

Proponent: David W. Ware, Owens Corning

Revise as follows:

2308.11.2 Concrete or masonry. Concrete or masonry walls <u>and stone</u> or masonry veneer shall not extend above the basement.

Exceptions:

1. <u>Stone and</u> masonry veneer is permitted to be used in the first two stories above grade plane or the first three stories above grade plane where the lowest story has concrete or masonry walls in Seismic Design Category B, provided that structural use panel wall bracing is used and the length of bracing provided is one- and one-half times the required length as determined in Table 2308.9.3(1).
2. <u>Stone and</u> masonry veneer is permitted to be used in the first story above grade plane or the first two stories above grade plane where the lowest story has concrete or masonry walls in Seismic Design Category B or C.

3. Stone and masonry veneer is permitted to be used in the first two stories above grade plane in Seismic Design Categories B and C, provided the following criteria are met:
   3.1. Type of brace per Section 2308.9.3 shall be Method 3 and the allowable shear capacity in accordance with Table 2306.4.1 shall be a minimum of 350 plf (5108 N/m).
   3.2. The bracing of the top story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 40 percent of the braced wall line. The bracing of the first story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 35 percent of the braced wall line.
   3.3. Hold-down connectors shall be provided at the ends of braced walls for the second floor to first floor wall assembly with an allowable design of 2,000 pounds (8896 N). Hold-down connectors shall be provided at the ends of each wall segment of the braced walls for the first floor to foundation with an allowable design of 3,900 pounds (17 347 N). In all cases, the hold-down connector force shall be transferred to the foundation.
   3.4. Cripple walls shall not be permitted.

2308.12.2 Concrete or masonry. Concrete or masonry walls and stone or masonry veneer shall not extend above the basement.

Exception: ~~M~~ Stone and masonry veneer is permitted to be used in the first story above grade plane in Seismic Design Category D, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.9.3 shall be Method 3 and the allowable shear capacity in accordance with Table 2306.4.1 shall be a minimum of 350 plf (5108 N/m).
2. The bracing of the first story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable design of 2,100 pounds (9341 N).
4. Cripple walls shall not be permitted.

Reason: This proposal ensures that requirements for masonry and stone materials are equally applied to all veneer type materials and provides consistency of terminology throughout relevant code sections. The intent of this code change is coordination and clarification.
Past code language for stone and masonry materials has not clearly delineated specific provisions applying to adhered versus anchored systems. These proposed code changes build on approved modifications to these and ancillary code sections approved last year.
The type of veneer is broadened to include stone and masonry, consistent with IBC Chapter 14 and IRC Section 703; and is consistent with changes approved last year to IBC Section 2308.2.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S103–06/07
2403.1

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Glazing Industry Code Committee

Revise as follows:

2403.1 Identification. Each pane shall bear the manufacturer's mark designating the type ~~and thickness~~ of the glass or glazing material. The identification shall not be omitted unless approved and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved construction documents that comply with the provisions of this chapter. Safety glazing shall be identified in accordance with Section 2406.2.

Each pane of tempered glass, except tempered spandrel glass, shall be permanently identified by the manufacturer. The identification mark shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that, once applied, cannot be removed without being destroyed.

Tempered spandrel glass shall be provided with a removable paper marking by the manufacturer.

Reason: The thickness of the glass is not necessary to determine code compliance. Where a specific performance is required, such as safety glazing, the manufacturer's mark is required to identify the test standard to which the glass has been tested and that is what is necessary to determine code compliance. Although ANSI Z97.1 previously required the thickness it is now an optional marking and 16 CFR 1201 does not require thickness to be part of the marking. It should also be noted that the current code requirements do not require the thickness to be identified if the option to use the affidavit is utilized.

There is only one section of the Code that requires a specific thickness. However, that section also requires compliance with a test standard. A companion code change has been submitted to revise the section which includes eliminating the specified thickness. See the GICC proposed code change to Section 2407.1.

If the thickness of glass is necessary to verify compliance with wind load requirements, a relatively inexpensive, portable tool is available to measure the thickness of glass in the field.

When replacing glass, a glazing contractor will typically measure the thickness of the glass instead of looking for or relying on the information provided in the manufacturer's designation. It is this measured thickness and not a nominal thickness required by a code section that should be used.

More importantly today is the concern for building security. In August 2004 when the terror alert was raised to orange in certain East Coast cities, it was noted that terrorists had been methodically casing buildings. In order to access the vulnerability of certain buildings, the information collected included the thickness of the glass. Since including the thickness of the glass in the manufacturer's mark is not necessary for purposes of code enforcement or glass replacement and since the thickness of glass is considered a building security issue, there is no reason to include the information on the glass.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S104–06/07
2405.5

Proponent: Charlie Curcija, Carli, Inc., representing Skylight Collaborative

Revise as follows:

2405.5 Unit skylights. Unit skylights shall be tested and labeled as complying with AAMA/WDMA/CSA 101/I.S.2/A440. The label shall state the name of the manufacturer, the approved labeling agency, the product designation and the performance grade rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440. If the product manufacturer has chosen to have the performance grade of the skylight rated separately for positive and negative design pressure, then the label shall state both performance grade ratings as specified in AAMA/WDMA/CSA 101/I.S.2/A440 and the skylight shall comply with Section 2405.5.2. If the skylight is not rated separately for positive and negative pressure, then the performance grade rating shown on the label shall be the performance grade rating determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 for both positive and negative design pressure and the skylight shall conform to Section 2405.5.1.

Exception: The minimum design pressure for plastic glazed unit skylights, positive or negative, shall be 20 psf (958 Pa), with a minimum ultimate test (structural) pressure for positive loads 60 psf (2873 Pa) and for negative loads 40 psf (1915 Pa).

Reason: Currently there is no definitive method for analytically determining the structural integrity of thermally formed plastic glazing materials used in plastic unit skylights, taking into consideration all factors including but not limited to material properties, such as dome rise, aspect ratio and plastic material thickness. Until analytical tool is fully developed (current work in process), it is necessary to provide higher minimum design criteria, commensurate with current proven practice and technology. Design programs are currently available for flat glass configurations and have been used with predictable results. Thus, lesser safety factors (200%) referenced in AAMA/WDMA/CSA 101/I.S.2/A440 can be applied to glass unit skylights.

1. More than 60% of plastic glazed residential and commercial unit skylights installed in the past three decades have been designed and manufactured to a positive design pressure (load) of 20 psf with an ultimate test (structural) positive pressure (load) of 60 psf (300% Safety factor), and a negative design pressure (load) of 20 psf with an ultimate test (structural) negative pressure (load) of 40 psf (200% Safety Factor) and have provided excellent performance.
2. Plastic glazed unit skylights are manufactured in various shapes and materials and predicting performance analytically is difficult, requiring testing to a proven safety factor to insure desired performance.
3. There is no material performance specification for plastic glazing material (such as ASTM B209 for aluminum), making product testing to a proven safety factor necessary.
4. Testing one to three skylights to a particular performance requirement is a very small statistical sample in relation to a population of thousands of manufactured products, which would require a higher safety factor.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S105–06/07
2406.1.1, 2406.2, Chapter 35; IRC R308.3, R308.3.1

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Glazing Industry Code Committee

PART I – IBC

1. Revise as follows:

2406.1.1 ~~CPSC 16 CFR 1201.~~ Impact test. Except as provided in Sections 2406.1.2 through 2406.1.4, all glazing shall pass the impact test requirements of ~~CPSC 16 CFR 1201, listed in Chapter 35~~ Section 2406.2. ~~Glazing shall comply with the CPSC 16 CFR, Part 1201 criteria, for Category I or II as indicated in Table 2406.1.~~

2. Add new text as follows:

2406.2 Impact test. Where required by other sections of the Code, glazing shall be tested in accordance with CPSC 16 CFR 1201. Glazing shall comply with the test criteria for Category I or II as indicated in Table 2406.2(1)

Exception: Glazing not in doors or enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A or B as indicated in Table 2406.2(2).

3. Revise table as follows:

TABLE ~~2406.1~~ 2406.2(1)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING CPSC 16 CFR 1201

(No change to table entries)

4. Add new table as follows:

TABLE 2406.2(2)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING ANSI Z97.1

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE	GLAZING IN STORM OR COMBINATION DOORS (Category class)	GLAZING IN DOORS (Category class)	GLAZED PANELS REGULATED BY ITEM 7 OF SECTION 2406.3 (Category class)	GLAZED PANELS REGULATED BY ITEM 6 OF SECTION 2406.3 (Category class)	DOORS AND ENCLOSURES REGULATED BY ITEM 5 OF SECTION 2406.3 (Category class)	SLIDING GLASS DOORS PATIO TYPE (Category class)
9 square feet or less	B	B	No requirement	B	A	A
More than 9 square feet	A	A	A	A	A	A

5. Revise Chapter 35 as follows:

ANSI
Z97.1-~~84 (R1994)~~ 04

PART II – IRC

1. Revise as follows:

R308.3 Human impact loads. Individual glazed areas, including glass mirrors in hazardous locations such as those indicated as defined in Section R308.4, shall pass the test requirements of ~~CPSC 16 CFR, Part 1201~~ Section 308.3.1. ~~Glazing shall comply with CPSC 16 CFR, Part 1201 criteria for Category I or Category II as indicated in Table R308.3.~~

Exception: Louvered windows and jalousies shall comply with Section R308.2.

2. Add new text as follows:

R308.3.1 Impact Test. Where required by other sections of the Code, glazing shall be tested in accordance with CPSC 16 CFR 1201. Glazing shall comply with the test criteria for Category I or II as indicated in Table R308.3.1(1).

Exception: Glazing not in doors or enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A or B as indicated in Table R308.3.1 (2).

3. Revise table as follows:

TABLE ~~R308.3~~ R308.3.1(1)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING CPSC 16 CFR 1201

(Portions of table not shown do not change)

3. Add new table as follows:

TABLE R308.3.1(2)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING ANSI Z97.1

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE GLAZING IN	GLAZING IN STORM OR COMBINATION DOORS (Category class)	GLAZING IN DOORS (Category class)	GLAZED PANELS REGULATED BY ITEM 7 OF SECTION 2406.3 (Category class)	GLAZED PANELS REGULATED BY ITEM 6 OF SECTION 2406.3 (Category class)	DOORS AND ENCLOSURES REGULATED BY ITEM 5 OF SECTION 2406.3 (Category class)	SLIDING GLASS DOORS PATIO TYPE (Category class)
9 square feet or less	B	B	No requirement	B	A	A
More than 9 square fee	A	A	A	A	A	A

For SI: 1 square foot = 0.0929 m^2.

Reason: In 1977, the U.S. Consumer Products Safety Commission ("CPSC") adopted as a mandatory federal safety regulation *Safety Standard for Architectural Glazing Materials*, codified at 16 CFR Part 1201. The CPSC amended its *Safety Standard for Architectural Glazing Materials* on several occasions subsequent to its initial adoption, the last time on June 28, 1982.

Set forth below are the more significant differences between these two standards, both standards applicable to safety glazing materials used in architectural applications. This reason statement makes no attempt to summarize all pertinent provisions of the two standards, only their significant differences.

The principal differences between the CPSC's 16 CFR 1201 standard and the ANSI Z97.1-2004 standard relate to their scope and function. The CPSC standard is not only a test method and a procedure for determining the safety performance of architectural glazing, but also a federal standard that mandates where and when safety glazing materials must be used in architectural applications and preempts any non-identical state or local standard. In contrast, ANSI Z97 is only a voluntary safety performance specification and test method. It does not purport to indicate where and when safety glazing materials must be used, leaving those determinations up to the building codes and to glass and fenestration specifiers. In this instance, the IBC provides the requirements regarding the safety performance of architectural glazing beyond that which is covered by the federal standard.

The CPSC requires the installation of safety glazing materials meeting 16 CFR 1201 only in storm doors, combination doors, entrance-exit doors, sliding patio doors, closet doors, and shower and tub doors and enclosures. Other than that, meeting CPSC's requirements is necessary only when and if a building code authority or other jurisdiction adopting safety glazing laws specifically mandates that safety glazing comply with the CPSC standard, 16 CFR 1201 -- and most building codes do. ANSI Z97, as a voluntary standard, applies only when, where, and if it is adopted by a building code authority or is specified in the approved plans and specifications of the architect, building contractor, or other glass specifier.

Test Specimens: For impact testing, the CPSC requires only one specimen of each nominal thickness be submitted for testing and specifies it must be the largest size the manufacturer produces up to a maximum of size of 34″ by 76″. ANSI Z97 requires that four specimens of each nominal thickness and size must be impact-tested. The manufacturer has the option of testing either 34″ by 76″ specimens or the largest size it commercially produces less than 34″ by 76″, but with a minimum size of 24″ by 30″. A nominal thickness is defined as +/- ⅛-inch.

Types of Glass: The CPSC standard has no performance tests for plastics or for bent glass. ANSI Z97 has specific tests for both. The CPSC standard does not prohibit the use of ordinary annealed glass in hazardous locations as long as it passes the appropriate impact tests, consistent with the concept of a performance based impact test. (Thick, heavy annealed glass is likely to pass the CPSC 18-inch drop-height and 48-inch drop-height impact tests for Category I and II locations.) ANSI Z97.1-2004 contains an express limitation on annealed glass: "Monolithic annealed in any thickness is not considered safety glazing material under this standard."

Asymmetrical Glazing Material: The CPSC standard requires all asymmetrical glazing materials to be impacted on both sides of each specimen and then evaluated under the pass-fail criteria. There is no exception. ANSI Z97 requires that, with the exception of mirror glazing, all asymmetrical glass specimens must be impacted on both sides, two on one side and two on the other. With respect to mirror glazing products using reinforced or non-reinforced organic adhesive backing, all four specimens must be impacted only on the non-reinforced side "and with no other material applied."

Impact Categories or Levels: The CPSC standard has two distinct impact levels or categories, Category I and Category II, and specifies which defined hazardous location must contain Category II safety glazing materials and which may use Category I glazing materials. Glazing material successfully passing the impact test of a 48-inch drop height, a 400 foot-pound impact, is classified as "Category II" glass. Glazing material passing the 18-inch drop height, a 150 foot-pounds impact, is classified as "Category I" glass. ANSI Z97 has adopted three separate impact categories or classes, based upon impact performance. ANSI Z97's Class A glazing materials are comparable to the CPSC's Category II glazing materials, passing a 48-inch drop height test, and its Class B glazing materials are comparable to the CPSC's Category I glazing materials, passing the 18-inch drop height test. ANSI Z97 also has a product-specific Class C impact test, a 12-inch drop height test, applicable only for fire-resistant glazing materials. However, the proposed code change does not identify Class C as an acceptable product for use in hazardous locations.

Pass-Fail Impact Criteria: The CPSC standard, like the ANSI standard, offers alternative criteria for evaluating whether a test specimen passes the impact test. The CPSC standard considers the specimen a pass if a 3-inch diameter solid steel ball, weighing 4 lbs., will not pass through the opening when placed on the specimen for one second. ANSI uses the 3-inch sphere measure, but does not require the sphere be a steel ball and does not specify the weight of the 3-inch sphere, but does require that the sphere not pass freely through the opening when a force of 4 lbs. is applied to the sphere. There is no time element associated with this alternative.

A second alternative pass-fail criterion under the CPSC standard involves weighing the 10 largest particles selected within five minutes after the impact test -- they must weigh no more than the equivalent weight of 10 square inches of the original specimen. The ANSI standard has an almost identical criterion, except the 10 largest particles must be "crack-free." It also includes additional product-specific qualifications applicable solely to selecting the 10 largest particles of tempered glass and offers a formula for determining the weight of 10 square inches of the original specimen. The CPSC standard has no separate pass-fail impact criteria for the scenario in which the glass specimen separates from the frame after impact and breaks or produces a hole in the glass. The ANSI standard has a special criterion for that scenario -- to pass, the glass is subjected to the same 3-inch sphere measure or to the weight criterion for the 10 largest crack-free particles.

The CPSC standard involves impact-testing of only a single specimen of each nominal glass thickness. Accordingly, if that specimen passes, all glass of that type and thickness is deemed to pass. Under the ANSI standard, four specimens of each type, size, and thickness must be impact tested, and if any one of the four specimens fails, there is a failure of that specific type, thickness, and size.

Impact Testing Apparatus: Relatively minor technical differences exist between the test frames and impactors specified in the CPSC standard and those in ANSI Z97.1. The ANSI standard prescribes special test frame and subframe configurations for impact-testing bent glass; the CPSC standard has no provisions for testing bent glass. The ANSI standard includes detailed specifications for the impactor suspension device and traction and release system and for their operation; the CPSC standard does not.

Weathering Tests: The CPSC standard requires a weathering test only for organic coated glass. ANSI requires a weathering test for laminated glass and plastics as well as for organic coated glass.

The CPSC accelerated weathering test (only for organic coated glass) uses the xenon arc Weather-Ometer. The ANSI standard gives the manufacturer the choice of one of three weathering exposure alternatives, the xenon arc exposure, the enclosed twin carbon arc exposure, or the one-year outdoor exposure in South Florida. The ANSI prescribed xenon arch apparatus and procedure are the more current versions of the pertinent ASTM standards, ASTM G 155 and ASTM D 2565-92A, than the versions referenced in the CPSC standard. The CPSC's xenon arc procedure for interpreting results of the adhesion test requires an average adhesion value or pull force of no less than 90% of the average of the unexposed organic-coated glass specimens in order to "pass," whereas the ANSI standard requires no less than 75% of the average of the unexposed specimens.

Indoor Aging Tests: The CPSC standard does not prescribe any indoor aging test; the ANSI standard requires specified indoor aging tests for plastics and organic coated glass intended for indoor-use only, followed by impact tests.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S106–06/07

2406.2.1, 2407.1, 2408.2.1, 2408.3; IRC R308.1.1

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Glazing Industry Code Commitee

PART I – IBC

Revise as follows:

2406.2.1 Multilight assemblies. Multilight glazed assemblies having individual lights not exceeding 1 square foot (0.09 m2) in exposed areas shall have at least one light in the assembly marked as indicated in Section 2406.2. Other lights in the assembly shall be marked "CPSC 16 CFR 1201" "or ANSI Z97.1," as appropriate.

2407.1 Materials. Glass used as a handrail assembly or a guard section shall be constructed of either single fully tempered glass, laminated fully tempered glass or laminated heat-strengthened glass. Glazing in railing in-fill panels shall be of an approved safety glazing material that conforms to the provisions of Section 2406.1.1. For all glazing types, the minimum nominal thickness shall be 1/4 inch (6.4 mm). Fully tempered glass and laminated glass shall comply with Category II of CPSC 16 CFR 1201, or Class A of ANSI Z97.1, listed in Chapter 35.

2408.2.1 Testing. Test methods and loads for individual glazed areas in racquetball and squash courts subject to impact loads shall conform to those of CPSC 16 CFR~~, Part~~ 1201 or ANSI Z97.1, listed in Chapter 35, with impacts being applied at a height of 59 inches (1499 mm) above the playing surface to an actual or simulated glass wall installation with fixtures, fittings and methods of assembly identical to those used in practice.

Glass walls shall comply with the following conditions:

1. A glass wall in a racquetball or squash court, or similar use subject to impact loads, shall remain intact following a test impact.
2. The deflection of such walls shall not be greater than 11/2 inches (38 mm) at the point of impact for a drop height of 48 inches (1219 mm).

Glass doors shall comply with the following conditions:

1. Glass doors shall remain intact following a test impact at the prescribed height in the center of the door.
2. The relative deflection between the edge of a glass door and the adjacent wall shall not exceed the thickness of the wall plus 1/2 inch (12.7 mm) for a drop height of 48 inches (1219 mm).

2408.3 Gymnasiums and basketball courts. Glazing in multipurpose gymnasiums, basketball courts and similar athletic facilities subject to human impact loads shall comply with Category II of CPSC 16 CFR 1201, or Class A of ANSI Z97.1, listed in Chapter 35.

PART II – IRC

Revise as follows:

R308.1.1 Identification of multiple assemblies. Multipane assemblies having individual panes not exceeding 1 square foot (0.09 m^2) in exposed area shall have at least one pane in the assembly identified in accordance with Section R308.1. All other panes in the assembly shall be labeled "CPSC 16 CFR 1201" or "ANSI Z97.1" as appropriate.

Reason: (IBC) For the most part the proposal is a companion to the GICC proposal to recognize ANSI Z97.1 as an alternative test procedure to CPSC 16 CFR 1201 for products not regulated by the federal standard. However, the proposal also addresses some other editorial issues.
Section 2406.2.1 – returns to the language in the 2003 Edition of the IBC recognizing both test standards.
Section 2407.1 – recognizes the ANSI Z97.1 test standard.
Section 2408.2.1 – editorial clean-up with respect to the reference to the CPSC standard for consistency purposes and recognizes the ANSI Z97.1 test standard.
Section 2408.1 – recognizes the ANSI Z97.1 test standard.
It should be noted that Section 2409 already recognizes both test standards so a change was not necessary.
(IRC) The proposal is a companion to the GICC proposal to recognize ANSI Z97.1 as an alternative test procedure to CPSC 16 CFR 1201 for products not regulated by the federal standard. The proposal also inserts the letters "CPSC" in the mark to be consistent with the requirements in the IBC.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S107–06/07
2407.1, Chapter 35

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Glazing Industry Code Committee

Revise as follows:

2407.1 Materials. Glass used as a handrail assembly or a guard section shall be constructed of either single fully tempered glass, laminated fully tempered glass or laminated heat-strengthened glass. Glazing in railing in-fill panels shall be of an approved safety glazing material that conforms to the provisions of Section 2406.1.1. ~~For all glazing types, the minimum nominal thickness shall be 1/4 inch (6.4 mm).~~ Glass in railing systems, guards, and balustrades shall comply with ASTM E 2353 and installed in accordance with the requirements for Levels 2, 3, or 4 as defined in ASTM E 2358. Fully tempered glass and laminated glass shall comply with Category II of CPSC 16 CFR 1201, listed in Chapter 35.

2407.1.1 Loads. The panels and their support system shall be designed to withstand the loads specified in Section 1607.7. A safety factor of four shall be used.

2407.1.2 Support. Each handrail or guard section shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached handrail or guard.

Exception: A top rail shall not be required if the glass balusters are laminated glass with two or more glass plies of equal thickness and the same glass type. The panels shall be designed to withstand the loads specified in Section 1607.7.

2. Add standards to Chapter 35 as follows:

ASTM

ASTM E 2353-04, Standard Test Methods for Performance of Glass in Permanent Glass Railing Systems, Guards, and Balustrades
ASTM E 2358-04, Standard Specification for the Performance of Glass in Permanent Glass Railing Systems, Guards, and Balustrades

Reason: The two proposed ASTM standards are new standards intended to address the testing and installation of glass in permanent railing systems, guards, and balustrades. The test methods and installations apply to railing, guard, and balustrade systems having glass as the major structural component or the infill panel. The test methods cover procedures for determining the static strength, impact performance, and post breakage retention characteristics of railing systems, guards, and balustrades with a glass component installed in one, two, three, and four side support systems that are fastened to concrete, masonry, wood, and metal as well as related products. The proposed test method and specification provide far better guidance than a requirement for a minimal nominal thickness of the glass.

Regarding the proposed new exception, at the time the provisions of Section 2407.1.2 were developed the dominant glass used for baluster panels was single tempered glass. This glass was structurally adequate and had been successfully used. The reason for the required top rail was to provide a degree of protection should one baluster fail for any reason. Tempered glass characteristically may fail in a manner where it evacuates the opening.

In some applications the use of a top rail is an undesirable visual barrier. A typical example is the guard at the front of the spectator levels of sport arenas and theaters. In a number of these installations the top rail has been eliminated. The balusters have been laminated heat-strengthened or tempered glass complying with the IBC structural requirements for top rails. Variances from Section 2407.1.2 have been historically granted by building officials.

If one ply of the laminated glass breaks, the glass will remain in place and therefore provide a safer condition in comparison to a single tempered glass which would vacate the opening upon breakage.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: Results of review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S108–06/07
2407.1.2

Proponent: William E. Koffel, P.E., Koffel Associates, Inc., representing Glazing Industry Code Committee

Revise as follows:

2407.1.2 Support. Each handrail or guard section shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached handrail or guard.

Exception: A top rail shall not be required where the glass balusters are laminated glass with two or more glass plies of equal thickness and the same glass type. The panels shall be designed to withstand the loads specified in Section 1607.7.

Reason: At the time the provisions of Section 2407.1.2 were developed the dominant glass used for baluster panels was single tempered glass. This glass was structurally adequate and had been successfully used. The required top rail was to provide a degree of protection should one baluster fail for any reason. Tempered glass characteristically may fail in a manner where it evacuates the opening.

In some applications the use of a top rail is an undesirable visual barrier. A typical example is the guard at the front of the spectator levels of sport arenas and theaters. In a number of these installations the top rail has been eliminated. The balusters have been laminated heat-strengthened or tempered glass complying with the IBC structural requirements for top rails. Variances from Section 2407.1.2 have been historically granted by building officials.

If one ply of the laminated glass breaks, the glass will remain in place. Unlike single tempered glass, it will not evacuate the opening. Even in the rare instance where both plies may simultaneously fail, the glass will remain in place.

It should be noted that the GICC has submitted another code change which proposes to delete Section 2407.1.2 in favor of reference two ASTM standards. If the section is deleted as recommended in the other proposal, the proposed exception is not required and this proposal should be recommended for Disapproval.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S109–06/07
2410 (New), Chapter 35

Proponent: Donn Harter, Fire & Safety Glazing Council, representing American Glass Association

1. Add new text as follows:

SECTION 2410
SHOWER ENCLOSURES

2410.1 General. Glazing and installation of framed and frameless shower units shall be in accordance with manufacturer's instructions and the AGA Industry Frameless Shower Standards (AGA-SH1) and comply with Category II of CPSC 16 CFR 1201.

2410.1.1 Structural framing. The entire surround of a shower opening shall be no less than nominal wood stud construction or steel studs with wood furring.

2410.1.2 Jumping retainers. A device shall be installed in the header that prevents a sliding panel from accidentally vacating the opening.

2410.1.3 Towel bars and handles. Horizontal bars and handles shall not be mounted to the interior of the glass surfaces. A vertical handle may be mounted to the interior of the door.

2410.1.4 Doors. Hinged doors shall open outward and provide a minimum of 22 inches (559 mm) clear opening when opened to 90° (1.57 rad). No portion of a bi-fold door may open into the shower area.

Exception: Self centering doors that swing both ways are permitted provided there is no restriction for the door to open outward to 90° (1.57 rad).

2410.1.5 Steam/canopied enclosures. The roof or enclosed glass top of a shower enclosure shall be 3/8 inch (9.5 mm) tempered/laminated glass or 3/8 inch (9.5 mm) plastic and shall not exceed 36 inches (914 mm) in the short dimension.

2410.2 Frameless light glass shower enclosures.

2410.2.1 Frameless light hinging and sliding shower doors. Frameless light hinging and sliding shower doors shall be a minimum of 3/16 inch (4.8 mm) tempered glass.

2410.2.2 Size limitation. Compression hinged doors shall not exceed 28 inch (711 mm) in width. Compression attached rollers to sliding doors shall not exceed 32 inches (813 mm) in width. Neither may exceed 70 inches (1778 mm) in height

Exception: When ¼ inch (6.4 mm) tempered glass is used with through glass fastening, hinged doors shall not exceed 36 inches (914 mm) in width and 96 inches (2438 mm) in height.

2410.2.3 Panels. All 3/16 inch (4.8mm) or 1/4 inch (6.4mm) panels shall be framed and attached to three sides.

2410.3 Frameless heavy glass shower enclosures.

2410. 3.1 Hinges. Hinge weights shall not exceed the manufacturer's tested maximum load. Each hinge shall be labeled with it's load rating and the label may not be removed before inspection. Three hinges are allowed only when a plumb substrate is provided.

2410.3.2 Screws. Stainless steel screws shall be used of minimum size #10 and a length sufficient to make a minimum penetration into the wood frame of 1½ inch (38 mm). This penetration into the substrate shall be sealed with a non-hardening, asphalt base sealant.

2410.3.3 Hinged shower doors and stationary panels. Hinged shower doors and stationary panels shall be a minimum of 3/8 inch (9.5 mm) tempered glass.

2410.3.4 Recommended clearances. Clearance between a door and panel or door and wall shall be no less than 1/8 inch (3.2 mm). Clearance at the bottom of the door shall be no less than 3/16 inch (4.7 mm) between the exposed glass edge and the curb or threshold.

2410.4 Size limitation.

2410.4.1 Shower doors. Shower doors shall not exceed 38 inches (965 mm) in width or 150 pounds (68 kg) in weight.

Exception: These limits may be exceeded where a registered design professional submits a stamped calculation.

2410.4.2 Non-load bearing panels. 3/8 inch (9.5 mm) panels shall not exceed 110 (2794 mm) united inches, width + height (UI). 1/2 inch (12.7 mm) panels shall not exceed 120 (3048 mm) UI. Height shall not exceed 84 inches (2134 mm).

Exception: Where three sides of the panel are attached to the structure, the UI limitations may shall not apply.

2410.5 Mechanical fastening hardware. Metal clips, header or transom, tube bracing and channels shall comply with this section.

2410.5.1 U channels. U channels shall be fastened to the finished shower wall. Penetration through the finished shower wall shall be limited to the mounting screws for clips, channels, and hinges. Reglet design is not permitted.

2410.5.2 Clip location. Clips on the long edge of the glass shall be located between 4 inches (102 mm) and 8 inches (203 mm) from each end of the glass. A third clip shall be on the long edge if the glass exceeds 48 inches (1219mm) in length. Clips shall be centered on the short edge on panels up to 16 inches (406 mm) in width. For greater widths, two clips shall be used, one at each one-third point.

2410.5.3 Non-load-bearing side panels. Non-load-bearing side panels shall be mounted by mechanical fasteners on the bottom and the top or bottom and one vertical side.

> **Exception:** For two in-line side panels (such as a buttress design) and/or to a return panel, the vertical butt joint(s) shall be sealed with a structural silicone sealant and shall be secured at the top with a joint spanning clip(s) or header.

2410.5.4 Load-bearing side panels and any return panel. Load-bearing side panels and any return panel shall be secured with mechanical fasteners on three sides. The minimum width of a load-bearing panel shall be 5 inches (127 mm).

2. Add standard to Chapter 35 as follows:

AGA (American Glass Association)
SH1 Industry Frameless Shower Standard

Reason: The following is an excerpt of my response to a building official who felt that this should not be a code requirement.

I recognize the two Sections in the UBC and IBC referring to four side glazing support. The frameless shower designs do not have four sided support and they are rarely designed by a structural engineer.

The problem is evolutionary. Until 15 years ago, all shower enclosures (except tub enclosures) were framed glass units. This posed little problem for the installing glazing contractor because the manufacturer had complete control over any design specifications that exceeded there recommendations.

The situation today is quite different with the advent of the frameless units. Most frameless shower enclosure manufacturers produce the hardware; pivots, hinges, handles, towel bars, mounting brackets, channels, headers, and posts. Very few produce the tempered glass. For the 50% of complete units (including glass) furnished by the enclosure manufacturer from the design measurements by the glazing contractor, they control safety limitations over panel sizes. However, the other 50% of the units installed are through the glazier's purchasing the hardware only from independent manufacturers of hardware. This saves the installer the additional mark-up of the most expensive part of the enclosure, the tempered glass. This also, blocks the hardware manufacturer (if they care) form any knowledge of how their product is being used.

Most glazing contractors will follow the architect's or owner's design without regard to ultimate safety. Even when the glazing contractor knows from experience there will be a problem from some designs, he has no guidelines to prove his point to the owner or architect. The same goes for the architect and the building inspector.

This is where our task group came into being. It took place after numerous complaints from building inspectors who noted unacceptable deflection on load bearing panels (where the door hinges off the side panel). One jurisdiction placed a moratorium on all frameless units until we helped them with some limitations. These were subsequently adopted by all jurisdictions in that county. The initial problem stemmed from excessive deflection. This in itself was not a problem for the glass, but neither the owner nor the inspector could tolerate the awesome bending of the glass.

The Manufacturer

Our task group made up of over 32 shower enclosure manufacturers, contract glaziers, hardware manufacturers, and temperers from across the U.S. to develop the code amendments after 30 months of deliberations.

During this period we discovered that some of the shower manufacturers actually did not produce or require performance testing on their hinges. Further, all of the shower enclosure manufactures produced inside towel bars.

None of the manufacturers required the installation of anti-jumping devices for sliding units.

Where the shower manufacturer required an intermediate hinge for heavy shower doors, there was no warning that the door could fail if the three hinges were not installed on a plumb substrate.

All of these were serious conditions that could lead to premature enclosure failure. In our proposed code, we require the hinge manufacturer to test and label hinges. The hinge rating label may not be removed until after inspection. Towel bars are prohibited on the inside of glass panels or doors. Towel bars will be used as grab bars and have caused numerous glass failures. Anti-jumping devices shall be provided with all sliding door units.

Slamming of sliding doors without anti-jumping devices have caused the door to vacate the opening with severe sequences. If three hinges are not mounted to a plumb surface, the unit is doomed to failure.

The Installer

Since (as we have already stated, 50% of glaziers buy all the parts and assemble the enclosure into the existing location, and this number is growing) the installer makes the final determination on how and what is a safe design and installation. The glazier must have safe limitations as design guidelines despite the architectural design or the owner's insistence. For instance, there are many installers that will silicone a panel to the shower surface without mechanical fasteners. This is not permitted in our code proposal since silicone alone can not sustain a permanent connection. Many architects and owners want that smooth see through look of a glass panel being "buried" into the wall, in other words, recessed through the shower wall surface. This practice has led to water penetration through the substrate into the structural framing. This practice is not permitted in our code proposal. The glazier has had no guideline to determine maximum sizes of load and non-load bearing panels and doors.

Testing

In testing the unframed tempered glass panels, there were three criteria:

1. Tolerable deflection.
2. Degradation of hinges, clips, and silicone joints.
3. Failure of the tempered glass.

Deflection of the glass is strictly a subjective condition. In general however, we found from field complaints by owners (even when the installer warned them that deflection would be greater than they could bear) that load bearing panels that deflected more than 1" from the corner, were

"scary" for the user. In actual tests, we submitted repeated corner loading to pressures short of mounting degradation. The deflection was marginally tolerable by different viewers. Increasing the pressure to the point that clips, screws, and silicone separation became evident was considered failure. Increased pressure was still exerted in an effort to cause glass failure. This never happened. The clips, channels, screws, and silicone failed first.

The bottom line is that this industry needs guidelines that are subject to inspection and verification. As you can see, the glazing contractor is the true "responsible party". The hardware manufacturer must test their products and issue instructions for proper use and installation. In the end, it is the glazier who must tow the safety line. This means that our association will produce for their use a public manual explaining the limitations of unframed glass panels and not leaving the onus totally on the shoulders of the honest glazier who wants to maintain life safety.

We believe this is needed to guide designer, installer and inspector. This is not much different from Sloped Glazing when it was a run-away roof without guidelines. We made those amendments in the name of life safety.

Since 1967, I have been amending and interpreting glazing codes. There are many changes that still need to be done for clarification. This is one of the reason we have formed the Fire & Safety Glazing Council (FSGC) to aid the building code industry with honest, unbiased code amendment and development. The FSGC is so organized that no special interest can ever dominate. Our chairman is a building official. Glazing contractors, architects, testing, fire personnel, glass manufacturers, and etc. are voting members of the Council. It is not dominated by the well healed manufacturers that prevail in the standard setting groups. We subsidize the expertise that can not afford the high costs of meetings.

This can only be done with the expertise and participation of members of the building inspection industry.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: Analysis: Results of review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S110–06/07

2508.4, Chapter 35

THIS CODE CHANGE PROPOSAL IS ON THE AGENDA FOR THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEE. PLEASE SEE THE HEARING ORDER FOR THE IBC FIRE SAFETY CODE CHANGE COMMITTEE.

Proponent: Marcelo M. Hirschler, GBH International, representing American Fire Safety Council

1. Revise as follows:

2508.4 Joint treatment. Gypsum board fire-resistance-rated assemblies shall have joints and fasteners treated.

Exceptions:

1. Joint and fastener treatment need not be provided where any of the following conditions occur:
   - 1.1. Where the gypsum board is to receive a decorative finish such as wood paneling, battens, acoustical finishes or any similar application that would be equivalent to joint treatment.
   - 1.2. On single-layer systems where joints occur over wood framing members.
   - 1.3. Square edge or tongue-and-groove edge gypsum board (V-edge), gypsum backing board or gypsum sheathing.
   - 1.4. On multilayer systems where the joints of adjacent layers are offset from one to another.
   - 1.5. Assemblies tested without joint treatment.
2. Fire-resistance rated gypsum board assemblies shall be permitted to be fastened with a listed elastomeric joint material instead of being fastened with joint compound and joint tape where the following apply:
   - 2.1. The complete assembly, with the elastomeric joint material, meets a one hour fire resistance rating
   - 2.2. When tested in accordance with ASTM E 119, the elastomeric joint material complies with ASTM C 920, and
   - 2.3. The elastomeric joint material exhibits a modulus of 20 pounds per square inch (psi) or less at 100 percent elongation, when tested in accordance with ASTM C 1523 (both before and after artificial weathering).

2. Add standard to Chapter 35 as follows:

ASTM

C 920-05	Standard Specification for Elastomeric Joint Sealants
C 1523-04	Standard Test Method for Determining Modulus, Tear and Adhesion Properties of Precured Elastomeric Joint Sealants.

Reason: Elastomeric joint compound materials exist which can replace traditional joint compound and joint tape (traditional mud and tape joint) and generate a gypsum board assembly with a 1 hour fire resistance rating which outperforms (in terms of fire resistance rating) the traditional joint system. Test results from a screening test conducted at a nationally recognized test lab show that heat transfer to the unexposed side (as evidenced by temperature rise) takes longer with some elastomeric materials than with the traditional system (report is attached for information). Full scale ASTM E 119 tests are underway. The elastomeric systems have been in use for many years in residential environments because the use of a single component system makes application simpler. In recent years types of elastomeric compound have been developed which can meet the fire performance requirement needed to create 1 hour fire resistance rated assemblies. However, they cannot be used in applications where a 1 hour fire resistance rating is required, unless a change is made to the IBC.

The additional properties are also important for a successful elastomeric sealant to be able to meet the full range of needs of the drywall industry. Today, in residential construction, successful elastomeric sealants already are used to replace the typical "mud" and tape joint materials for residential wood stud framing. However, sealants that meet the fire resistance requirements should also provide great resistance to cracking if moderate movement should occur in the drywall – which is becoming a more prevalent problem than in decades past due to the growing use in the construction trade of fast-growth lumber, which is less dimensionally stable than the old-growth lumber that was prevalent in years or decades past. In order for a joint material to resist cracking successfully, it has been found that the more resilient the sealant, at low modulus, the better. It is important, given the tendency of drywall paper to tear or delaminate under stress, that a sealant exhibit a modulus not exceeding 20 psi, at 100% elongation. The lower the modulus the less adhesive stress is applied to the bond-line of the drywall/sealant interface when movement occurs and the less chance the drywall paper will fail. In order for an elastomeric sealant to successfully resist cracking for the longest possible period of time after installation, it is important for the sealant not to lose its initial elastomeric and low modulus properties over time. Thus, the modulus should remain the same even after weathering or aging. Sealants that are formulated with no plasticizers, which readily migrate from sealants that contain them and leave them relatively rigid and higher in modulus over time, are far superior and are able to perform over many years without failure. It is also likely that the common plasticizers used in elastomeric sealants make those sealants less fire resistant because such plasticizers are low molecular weight organic oils that readily burn.

It has been reported that numerous drywall contractors around the US have used low modulus, high performance latex sealants for several years to seal the joints in drywall. This has been done by those contractors to prevent the kind of cracking they have otherwise experienced when they have used the traditional joint tape and mud in many situations where relatively extreme shrinkage movement has occurred in the underlying framing lumber. Now that it is possible to provide not only crack resistance but also fire resistance in such a low modulus, high performance sealant, the drywall finishing trade has a new means of providing high quality drywall finishing, with no compromise in fire safety.

The new referenced standards are: ASTM C 920, Standard Specification for Elastomeric Joint Sealants, and ASTM C 1523, Standard Test Method for Determining Modulus, Tear and Adhesion Properties of Precured Elastomeric Joint Sealants. The ASTM C 920 specification does not include a test method for modulus, which is critical for long-term performance. The ASTM C 1523 test method contains the test method for modulus as well as a weathering test method, which needs to be used to assess whether the modulus is still suitably high after aging of the assembly. ASTM C 1442 (weathering practice) and ASTM C 717 (terminology) are also attached for information.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: Analysis: Results of review of the proposed standard(s) will be posted on the ICC website by August 20, 2006.

Public Hearing:				
	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S111–06/07

2509.2; IRC R702.3.8, R702.4.2

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: Cliff Black, United States Gypsum Company

PART I – IBC

Revise as follows:

2509.2 Base for tile. Cement, fiber-cement, ~~or~~ glass mat gypsum backers or fiber-reinforced gypsum backers in compliance with ASTM ~~C 1178~~ C 1288, C 1325, ~~or~~ C 1178 or C 1278, respectively, and installed in accordance with manufacturer recommendations shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas. Water resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C 840 and manufacturer recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C 840.

PART II – IRC

Revise as follows:

R702.3.8 Water-resistant gypsum backing board. Gypsum board used as the base or backer for adhesive application of ceramic tile or other required nonabsorbent finish material shall conform to ASTM C 630 ~~or~~, C 1178 or C 1278. Use of water-resistant gypsum backing board shall be permitted on ceilings where framing spacing does not exceed 12 inches (305 mm) on center for 1/2-inch-thick (12.7 mm) or 16 inches (406 mm) for 5/8-inch-thick (15.9 mm) gypsum board. Water-resistant gypsum board shall not be installed over a vapor retarder in a shower or tub compartment. All cut or exposed edges, including those at wall intersections, shall be sealed as recommended by the manufacturer.

R702.4.2 Cement, fiber-cement, ~~and~~ glass mat gypsum backers and fiber-reinforced gypsum backers. Cement, fiber-cement, ~~or~~ glass mat gypsum backers or fiber-reinforced gypsum backers in compliance with ASTM C 1288, C 1325, ~~or~~ C 1178 or C 1278, respectively, and installed in accordance with manufacturers' recommendations shall be used as backers for wall tile in tub and shower areas and wall panels in shower areas.

Reason: The purpose of this proposal is to revise ASTM material standards for current provisions of the IBC & IRC.

(IBC) The code change proposal of the current code provisions represents a less restrictive and more robust cross-section of material standards appropriate for use as a backer for wall tile in tub and shower areas and wall and ceiling panels in shower areas.

The current code provisions are overly restrictive excluding an ASTM product standard which is recognized in the industry as a tile backer for use in tub and shower areas and wall and ceiling panels in shower areas. ASTM C 1278 products are engineered and manufactured specifically for interior water-resistant backing board, exterior sheathing, and interior abuse-resistant applications.

A comparison of ASTM Standard Specifications for C 1278 and C 1178 products reveals that C 1278 product physical properties meet or exceed those of C 1178.

Such a restriction within the Code has the potential for increasing the cost of construction due to narrowly defined prescriptive material reference language without acknowledging more robust performance-based material references.

(IRC) The change to section R702.3.8 represents a less restrictive and more robust cross-section of material standards appropriate for use as water-resistant gypsum backing board.

The current code provisions are overly restrictive excluding an ASTM product standard which is recognized in the industry as a tile backer for use in tub and shower areas and wall and ceiling panels in shower areas. ASTM C 1278 products are engineered and manufactured specifically for interior water-resistant backing board, exterior sheathing, and interior abuse-resistant applications.

The change to section R702.4.2 represents a less restrictive and more robust cross-section of material standards appropriate for use as a backer for wall tile in tub and shower areas and wall panels in shower areas.

The current code provisions are overly restrictive excluding an ASTM product standard which is recognized in the industry as a water-resistant backer panel. ASTM C 1278 products are engineered and manufactured specifically for interior water-resistant backing board, exterior sheathing, and interior abuse-resistant applications.

A comparison of ASTM Standard Specifications for C 1278 and C 1178 products reveals that C 1278 product physical properties meet or exceed those of C 1178.

Such a restriction within the Code has the potential for increasing the cost of construction due to narrowly defined prescriptive material reference language without acknowledging more robust performance-based material references.

Substantiation:

ASTM Standard Specification Comparisons – C 1278 – C 1178

ASTM C 1278:
5.1 Physical Properties of Interior Fiber-Reinforced Gypsum Panels
6.1 Physical Properties of Water-Resistant Fiber-Reinforced Gypsum Backing Panels
7.1 Physical Properties of Exterior Fiber-Reinforced Gypsum Soffit Panels
8.1 Physical Properties of Water-Resistant Exterior Fiber-Reinforced Gypsum Sheathing Panels

ASTM C 1178:
5. Physical Properties of Water-Resistant Gypsum Backing Panel

Bibliography:

ASTM Standard Specification Comparisons – C 1278 – C 1178
Fiberock Interior Panels Aqua-Tough Submittal Sheet – F134/rev. 1-06 – United States Gypsum Company
Fiberock Sheathing Aqua-Tough Submittal Sheet – F135/rev. 1-06 – United States Gypsum Company
Fiberock Aqua-Tough Tile Backerboard Submittal Sheet – F222/rev. 12-04 – United States Gypsum Company
USG Web Site for the Control of Moisture and Mold – www.getmoldfacts.com/products.jsp

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S112–06/07

2509.2; IRC R702.4.2

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL AND THE IRC BUILDING/ENERGY CODE DEVELOPMENT COMMITTEES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

Proponent: John Mulder, James Hardie Building Products, Inc.

PART I – IBC

Revise as follows:

2509.2 Base for tile. Glass mat gypsum, ~~Cement,~~ fiber-cement or glass mat gypsum backers in compliance with ASTM C 1178, C 1288 or C 1325 and installed in accordance with manufacturer recommendations shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas. Water-resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with

GA-216 or ASTM C 840 and manufacturer recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C 840.

PART II – IRC

Revise as follows:

R702.4.2. ~~Cement~~ Fiber-mat reinforced, fiber-cement and glass mat gypsum backers. ~~Cement~~ Fiber-mat reinforced, fiber-cement or glass mat gypsum backers in compliance with ASTM C 1325, C 1288, ~~C1325~~ or C 1178 and installed in accordance with manufacturers' recommendations shall be used as backers for wall tile in tub and shower areas and wall panels in shower areas.

Reason: The current Code language does not adequately describe the "cement" backer within the context of its published Standard definition: "fiber-mat reinforced products, n – manufactured thin section composites of hydraulic cementitious matrices and non-asbestos fibers in two-dimensional scrim(s)" [published definition in ASTM C 1154-02]. Additionally, the order of the list of compliance specifications does not coincide with the order of the recognized product listing.

Description of product per ASTM C 1325-04, Non-Asbestos Fiber-mat Reinforced Cement Substrate Sheets. Definition per ASTM C 1154-02, Standard Terminology for Fiber-Reinforced Cement Products.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

PART II – IRC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

S113–06/07

Table 1405.2, Table 2511.1.1, 2512.2, Table 2512.6, 2513.3

Proponent: Stephen V. Skalko, P.E., Portland Cement Association

Revise as follows:

TABLE 1405.2
MINIMUM THICKNESS OF WEATHER COVERINGS

COVERING TYPE	MINIMUM THICKNESS (INCHES)
Stucco or exterior ~~portland~~ cement plaster	

(Portions of table not shown do not change)

TABLE 2511.1.1
INSTALLATION OF PLASTER CONSTRUCTION

MATERIAL	STANDARD
Lathing and furring (cement plaster)	ASTM C 1063
~~Portland~~ Cement plaster	ASTM C 926
Steel framing	ASTM C 754; C 1007

(Portions of table not shown do not change)

2512.2 Plasticity agents. Only approved plasticity agents and approved amounts thereof shall be added to portland cement or blended cements. When plastic cement or masonry cement is used, no additional lime or plasticizers shall be added. Hydrated lime or the equivalent amount of lime putty used as a plasticizer is permitted to be added to cement plaster or cement and lime plaster in an amount not to exceed that set forth in ASTM C 926.

TABLE 2512.6
CEMENT PLASTERS[a]

c. Finish coat plaster is permitted to be applied to interior ~~portland~~ cement plaster base coats after a 48-hour period.
(Portions of table and footnotes not shown do not change)

2513.3 Bedding coat proportions. The bedding coat for interior or exterior surfaces shall be composed of one-part portland cement~~,~~ and one-part Type S lime; or one-part blended cement and one-part Type S lime; or masonry cement; or plastic cement, and a maximum of three parts of graded white or natural sand by volume. The bedding coat for interior surfaces shall be composed of 100 pounds (45.4 kg) of neat gypsum plaster and a maximum of 200 pounds (90.8 kg) of graded white sand. A factory-prepared bedding coat for interior or exterior use is permitted. The bedding coat for exterior surfaces shall have a minimum compressive strength of 1,000 pounds per square inch (psi) (6895 kPa).

Reason: This proposal is to provide consistency within Chapters 14 and 25 of the IBC on the use of cements for interior and exterior plaster (stucco) work. The changes can be summarized as follows:

The word portland is being deleted from Table 1405.2 for type of weathering covering since cement plaster is a defined term in Chapter 25 and can be comprised of portland cement, blended cement, masonry cement and plastic cement.

The word portland is being deleted from Table 2511.1 and Footnote (c) to Table 2512.6 for the type of plaster since cement plaster is a defined term in Chapter 25 and can be comprised of portland cement, blended cement, masonry cement and plastic cement.

ASTM C926 also permits blended cements to be used in cement plaster mixes in combination with plasticity agents. This change adds these acceptable cementitious materials to the list of cementitious materials regulated by Section 2512.2

ASTM C926 also permits blended cements, masonry cements and plastic cements to be used in cement plaster mixes. This change adds these acceptable cementitious materials to the list of cementitious materials regulated by Section 2513.3

Cost Impact: This code change proposal will not increase the cost of construction

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S114–06/07
2512.1

Proponent: Stephen V. Skalko, P.E., Portland Cement Association

Revise as follows:

2512.1 General. Plastering with cement plaster shall be not less than three coats when applied over metal lath or wire fabric lath or gypsum board backing as specified in Section 2510.5 and shall be not less than two coats when applied over masonry~~,~~ or concrete ~~or gypsum board backing as specified in Section 2510.5~~. If the plaster surface is to be completely covered by veneer or other facing material, or is completely concealed by another wall, plaster application need only be two coats, provided the total thickness is as set forth in ASTM C 926.

Reason: ASTM C 926 specifies that two-coat plaster is only to be used over surfaces of solid bases that are rigid such as masonry, stone or concrete. Three-coat finishes are intended to be applied over other less rigid bases such as gypsum board, wood or rigid foam-board type products. This proposal makes the code consistent with ASTM C926.

Cost Impact: The code change will not increase the cost of construction.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S115–06/07
Chapter 43

Proponent: Standards Writing Organization

Revise standards as follows:

AA

The Aluminum Association
1525 Wilson Blvd, Suite 600
Arlington, VA 22209

Standard reference number	Title
ADM1 2005 ~~00~~	Aluminum Design Manual: Part I-A Specification for Aluminum Structures - Allowable Stress Design; and Part I-B Specification for Aluminum Structures - Building Load and Resistance Factor Design

APA

APA-Engineered Wood Association
P. O. Box 11700
Tacoma,WA 98411-0700

Standard reference number	Title
EWS R540-02 ~~96~~	Builders Tips: Proper Storage and Handling of Glulam Beams
EWS-T300-05 ~~02~~	Glulam Connection Details
EWS X440-03 ~~00~~	Product Guide - Glulam

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title
A 6/A 6M-05a ~~04a~~	Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
A 36/A 36M-05 ~~04~~	Specification for Carbon Structural Steel
A 82/A 2M-05a ~~02~~	Specification for Steel Wire, Plain, for Concrete Reinforcement
A 153/A153M-05 ~~03~~	Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware
A 185/A 185M-05a ~~02~~	Specification for Steel Welded and Seamless Steel Pipe Piles
A 307-04~~03~~	Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
A 421/A 421M-05 ~~02~~	Specification for Uncoated Stress-relieved Steel Wire for Prestressed Concrete
A 480A/A 480M–05 ~~02~~	Specification for General Requirements for Flt-rolled Stainless and Heat-resisting Steel Plate, Sheet and Strip
A 496/A 496M-05 ~~02~~	Specification for Steel Wire, Deformed for Concrete Reinforcement
A 497 A 497M- 05a ~~01~~	Specification for Steel Welded Reinforcement Deformed, for Concrete
A 568/A 568M-05a ~~03~~	Specification for Steel, Sheet, Carbon, and High-Strength, Low-Allow, Hot-rolled and Cold-rolled, General Requirements for
A 588/A 588M-05 ~~04~~	Specification for High-strength Low-allow Structural Steel with 50 ksi (345 Mpa) Minimum Yield Point to 4 inches (100mm) Thick
A 615/A 615M-05a ~~04a~~	Specification for Deformed and Plain Billet-steel Bars for Concrete Reinforcement
A 690/A 690M-05 ~~00a~~	Standard Specification for High Strength Low-allow Steel H-Piles and Sheet Piling for Use in Marine Environments
A 706/A 706M-05a ~~04a~~	Specification for Low-alloy Steel Deformed and Plain Bars for Concrete Reinforcement
A 722/A 722M-05 ~~98(2003)~~	Specification for Uncoated High-strength Steel Bar for Prestressing Concrete
A 767/A 767M-05 ~~00b~~	Specification for Zinc-coated (Galvanized) Steel Bars for Concrete Reinforcement
A 775/A 775M-04a	Specification for Epoxy-coated Steel Reinforcing Bars
A 884-04 ~~02~~	Specification for Epoxy-coated Steel Wire and Welded Wire Fabric for Reinforcement
A 992/A 992M-04a	Standard Specification for Structural Shapes
A 996/A 996M-05a ~~04~~	Specification for Rail-steel and Axle-steel Deformed Bars for Concrete Reinforcement
A 1008/A 1008M-05b ~~04b~~	Specification for Steel, Sheet, Cold-rolled, Carbon, Structural, High-strength Low-allow and High-strength Low-alloy with Improved Formability
B 695-04 ~~00~~	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
C 22/C-22M-00(2005)e01	Specification for Gypsum
C 28/C-28M-00~~e01~~(2005)	Specification for Gypsum Plasters
C 31/31M-03a ~~98~~	Practice for Making and Curing concrete Test Specimens in the Field
C 35-01(2005 4) ~~95~~	Specification for Inorganic Aggregates for Use in Gypsum Plaster
C 56-~~96(2001)~~ 05	Specification for Structural Clay Non-Load-Bearing Tile
C 62-05 ~~041~~	Specification for Building Brick (Solid Masonry Units Made From Clay or Shale)
C 67-05 ~~03ae01~~	Test Methods of Sampling and Testing Brick and Structural Clay Tile
C 90-06 ~~03a~~	Specification for Loadbearing Concrete Masonry Units
C 91-05 ~~03a~~	Specification for Masonry Cement
C 109/C 109M-05 ~~02~~	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
C 126-99(2005)	Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units
C 150-05 ~~04a~~	Specification for Portland Cement
C 199-84 (2005 ~~0~~)	Test Method for Pier Test for Refractory Mortars
C 207-06 ~~04~~	Specification for Hydrated Lime for Masonry Purposes
C 216-05a ~~04a~~	Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale)
C 270-05a ~~04~~	Specification for Mortar for Unit Masonry

C 317/C 317M-00(2005)	Specification for Gypsum Concrete
C 473-05 03	Test Methods for Physical Testing of Gypsum Panel Products
C 503-05 03	Specification for Marble Dimension Stone (Exterior)
C 578-05a 04	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
C 587-04 02	Specification for Gypsum Veneer Plaster
C 595-05 03	Specification for Blended Hydraulic Cements
C 631-95a(2000 4)	Specification for Bonding Compounds for Interior Gypsum Plastering
C 645-04a	Specification for Nonstructural Steel Framing Members
C 652-05a 04a	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale
C 744-05 99	Specification for Prefaced Concrete and Calcium Silicate Masonry Units
C 840-05 04	Specification for Application and Finishing of Gypsum Board
C 844-04 99	Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster
C 887-05 79a(2001)	Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar
C 897-05 00	Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters
C 926-98a(2005)	Specification for Application of Portland Cement-Based Plaster
C 932-05 03	Specification for Surface-Applied Bonding Agents for Exterior Plastering
C 933-05 04	Specification for Welded Wire Lath
C 954-04 00	Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch (2.84 mm) in Thickness
C 1002-04 01	Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
C1019-05 03	Test Method for Sampling and Testing Grout
C 1047-05 99	Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
C 1072-05b 00a	Standard Text Method for Measurement of Masonry Flexural Bond Strength
C 1177/C 1177M-04e01	Specification for Glass Mat Gypsum Substrate for Use as Sheathing
C 1178/C 1178M-04e01	Specification for Glass Mat Water-Resistant Gypsum Backing Panel
C 1261-05 04	Specification for Firebox Brick for Residential Fireplaces
C 1278/C 1278M-03e01	Specification for Fiber-Reinforced Gypsum Panels
C 1288-99(2004) 01	Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets
C 1328-05 03a	Specification for Plastic (Stucco Cement)
C 1329-05 04	Specification for Mortar Cement
C 1395/C 13956M-04	Specification for Gypsum Ceiling Board
C 1405-00a05a	Standard Specification for Glazed Brick (Single Fired, Solid Brick Units)
D 25-99e01(2005)	Specification for Round Timber Piles
D 1557-02e01	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft3(2,700kN-m/m3))
D 2166-00e01	Test Method for Unconfined Compressive Strength of Cohesive Soil
D 2216-05 98	Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
D 2843-99(2004)e01	Test for Density of Smoke from the Burning or Decomposition of Plastics
D 3200-74(2005)	Standard Specification and Test Method for Establishing Recommended Design Stresses for Round Timber Construction Poles
D 3737-05 03	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)
D 4318-05 00	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
D 5055-05 04	Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists
D 5456-05a 03	Specification for Evaluation of Structural Composite Lumber Products
E 72-05 02	Standard Test Methods of Conducting Strength Tests of Panels for Building Construction

E 605-93(2006) ~~00~~	Test Method for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members
E 736-00(2006)	Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members
E 1886-05 ~~04~~	Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials
E 1996-05b ~~04~~	Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes

AWPA

American Wood-Preservers' Association
P. O. Box 361784
Birmingham, AL 35236-1784

Standard reference number	Title
M4-~~02~~ 06	Standard for Care of Preservative-Treated Wood Products
U1-~~04~~ 06	USE CATEGORY SYSTEM: User Specification for Treated wood except Section 7 Commodity Specification H

DOC

U. S. Department of Commerce
National Institute of Standards and Technology
100 Bureau Drive Stop 3460
Gaithersburg, MD 20899

Standard reference number	Title
PS 2-04 ~~95~~	Performance Standard for Wood-Based Structural-Use Panels

HPVA

Hardwood Plywood Veneer Association
1825 Michael Faraday Drive
Reston, VA 20190-5350

Standard reference number	Title
HP-1-2004 ~~2000~~	Standard for Hardwood and Decorative Plywood

UL

Underwriters Laboratories,Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

Standard reference number	Title
641-95	Type L Low-temperature Venting Systems-with Revisions through August 2005 ~~April 1999~~

Reason: The *ICC Code Development Process for the International Codes* (Procedures) Section 4.5* requires the updating of referenced standards to be accomplished administratively, and be processed as a Code Proposal. In May 2005, a letter was sent to each developer of standards that are referenced in the I-Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Above is the list received of the referenced standards under the maintenance responsibility of the IRC Committee.

***4.5 Updating Standards:** The updating of standards referenced by the Codes shall be accomplished administratively by the appropriate code development committee in accordance with these full procedures except that multiple standards to be updated may be included in a single proposal.

Public Hearing: Committee: AS AM D
Assembly: ASF AMF DF

S116–06/07
1607.11.2, 1613.6.1

Proponent: Philip Brazil, P.E., Reid Middleton, Inc., representing himself

Revise as follows:

1. 1607.11.2 Reduction in roof live loads. The minimum uniformly distributed roof live loads, L_o, in Table 1607.1 are permitted to be reduced ~~according to the following provisions~~ in accordance with Section 1607.11.2.1 or 1607.11.2.2.

1607.11.2.1 Flat, pitched and curved roofs. No change to text.

1607.11.2.2 Special-purpose roofs. No change to text.

~~1607.11.2.3~~ 1607.11.3 Landscaped roofs. No change to text.

~~1607.11.2.4~~ 1607.11.4 Awnings and canopies. No change to text.

2. 1613.6.1 Assumption of flexible diaphragm. Add the following text at the end of Section 12.3.1.1 of ASCE 7.

Diaphragms constructed of wood structural panels or untopped steel decking shall also be permitted to be idealized as flexible, provided all of the following conditions are met:

1. Toppings of concrete or similar materials are not placed over wood structural panel diaphragms except for nonstructural toppings no greater than 1-1/2 inches (38 mm) thick.
2. Each line of vertical elements of the ~~lateral~~ seismic-force-resisting system complies with the allowable story drift of Table 12.12-1.
3. Vertical elements of the ~~lateral~~ seismic-force-resisting system are light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets.
4. Portions of wood structural panel diaphragms that cantilever beyond the vertical elements of the lateral-force-resisting system are designed in accordance with Section 2305.2.5 of the International Building Code.

Reason: Item 1 clarifies which provisions are intended to be referenced. Also, current Sections 1607.1.2.3 and 1607.11.2.4 do not contain provisions for the reduction of roof live loads and are renumbered accordingly. Item 2 rewording is needed because ASCE 7-05 does not define or use the term “lateral-force-resisting system.”

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF