3. Delete and substitute as follows:

~~**TABLE R602.10.4.6**~~
~~**HEADER TO JACK STUD STRAP AND THE NUMBER OF ADDITIONAL JACK STUDS REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO 6:1 ASPECT RATIO WALLS LOCATED IN WIND EXPOSURE CATEGORIES C AND D**~~

~~Required~~	~~Wall Height (ft)~~	~~Wind Exposure Category C~~			~~Wind Exposure Category D~~		
		~~85 mph~~	~~90 mph~~	~~less than 110 mph~~	~~85 mph~~	~~90 mph~~	~~less than 110 mph~~
~~Strap Capacity(lb)[a]~~	~~10 and less~~	~~1000~~	~~1200~~	~~2275~~	~~1375~~	~~1750~~	~~3050~~
~~Number of additional 2x4 Jack Studs[b]~~	~~8~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~1~~
	~~9~~	~~—~~	~~—~~	~~1~~	~~—~~	~~1~~	~~2~~
	~~10~~	~~—~~	~~1~~	~~2~~	~~1~~	~~2~~	~~3~~

~~a. If 2x6 framing is used, then the required strap capacity may be multiplied by 0.65, but in no case shall the required strap capacity be less than 000 lb.~~
~~b. If 2x6 framing is used, then no additional framing shall be required.~~

TABLE R602.10.4.6
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO 6:1 ASPECT RATIO WALLS[a,b]

Minimum Wall Stud Framing Nominal Size and Grade	Maximum Pony Wall Height (ft)	Maximum Total Wall Height (ft)	Maximum Opening Width (ft)	Basic Wind Speed (mph)					
				85	90	100	85	90	100
				Exposure B			Exposure C		
				Tension strap capacity required (lbf)[a,b]					
2x4 No. 2 Grade	0	10	18	1000	1000	1000	1000	1000	1000
	1	10	9	1000	1000	1000	1000	1000	1275
			16	1000	1000	1750	1800	2325	3500
	2	10	9	1000	1000	1025	1075	1550	2500
			16	1525	2025	3125	3200	3900	NP
	2	12	9	1000	1200	2075	2125	2750	4000
			16	2600	3200	NP	NP	NP	NP
	4	12	9	1775	2350	3500	3550	NP	NP
			16	4175	NP	NP	NP	NP	NP
2x6 Stud Grade	2	12	9	1000	1000	1325	1375	1750	2550
			16	1650	2050	2925	3000	3550	NP
	4	12	9	1125	1500	2225	2275	2775	3800
			16	2650	3150	NP	NP	NP	NP

a. NP = not permitted
b. Strap shall be installed in accordance with manufacturer's recommendations

Reason: This code change proposal provides a prescriptive solution to the common construction practice of building a pony wall (short stem wall) above the header when using the 6:1 aspect ratio bracing segment. The proposed provisions are based on wind loads applied perpendicular to the wall surface as requested by the ICC Ad Hoc Committee on Wall Bracing. The wind pressures considered are in accordance with 2006 IRC Table R301.2(2) and assume all load from the opening is distributed into the wall segment. For example, a common case using a 16-ft wide garage door distributes the wind pressures acting on the door into the jack studs next to the opening via the garage door track. These provisions ensure that this braced wall segment framing can resist the large forces resulting from wind pressures on the wall surface including the wind pressures acting on adjacent openings. The resistance to the wind load is based on principles of mechanics and rational analysis. The complete load and resistance analysis is rather lengthy and complex but a sample calculation along with the complete tabulated procedure and values can be downloaded from: **http://www.apawood.org/pdfs/TSD/portal_frame_pony_wall.pdf**

It should be noted that out of plane loads from wind blowing on the wall surface, particularly concentrated at framing adjacent to garage doors, is not unique to this wall bracing segment. All wall framing and bracing types are subject to the same wind pressures. What is unique is that this bracing segment is a prescriptive solution for not only wall bracing (racking loads in the plane of the wall) but also to resist out of plane wind pressures.

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

Committee Action: **Approved as Submitted**

Committee Reason: This change addresses an often used method of construction of short walls over headers.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Gary J. Ehrlich, P.E., National Association of Home Builders (NAHB), requests Approval as Modified by this Public Comment.

Modify proposal as follows:

TABLE R602.10.4.6
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO 6:1 ASPECT RATIO WALLS[a,b]

Minimum Wall Stud Framing Nominal Size and Grade	Maximum Pony Wall Height (ft)	Maximum Total Wall Height (ft	Maximum Opening Width (ft	Basic Wind Speed (mph)					
				85	90	100	85	90	100
				Exposure B			Exposure C		
				Tension strap capacity required (lbf)[a,b]					
2x4 No. 2 Grade	0	10	18	1000	1000	1000	1000	1000	1000
	1	10	9	1000	1000	1000	1000	1000	1275
			16	1000	1000	1750	1800	2325	3500
			18	1000	1200	2100	2175	2725	DR
	2	10	9	1000	1000	1025	1075	1550	2500
			16	1525	2025	3125	3200	3900	DR~~NP~~
			18	1875	2400	3575	3700	DR	DR
	2	12	9	1000	1200	2075	2125	2750	4000
			16	2600	3200	DR~~NP~~	DR~~NP~~	DR~~NP~~	DR~~NP~~
			18	3175	3850	DR	DR	DR	DR
	4	12	9	1775	2350	500	3550	DR~~NP~~	DR~~NP~~
			16	4175	DR~~NP~~	DR~~NP~~	DR~~NP~~	DR~~NP~~	DR~~NP~~
2x6 Stud Grade	2	12	9	1000	1000	1325	1375	1750	2550
			16	1650	2050	2925	3000	3550	DR~~NP~~
			18	2025	2450	3425	3500	4100	DR~~NP~~
	4	12	9	1125	1500	2225	2275	2775	3800
			16	2650	3150	DR~~NP~~	DR~~NP~~	DR~~NP~~	DR~~NP~~
			18	3125	3675	DR	DR	DR	DR

a. DR = design required ~~NP = not permitted~~
b. Strap shall be installed in accordance with manufacturer's recommendations.

Commenter's Reason: As part of their comprehensive load and resistance analysis made available for the Palm Springs hearings, APA calculated the strap and jack stud requirements for doors up to 18'-0" in width. NAHB's marketing data shows the majority of houses currently being constructed incorporate two-car garages, and 18'-0" x 10'-0" doors are increasingly popular to accommodate SUVs and boats. It therefore makes sense to incorporate the 18'-0" opening width into the proposed table. Further, the "NP" abbreviation, denoting "not permitted", is replaced by "DR", denoting "design required". This is similar to the concrete foundation wall table in Chapter 4, and clearly denotes that an engineered solution is acceptable, whereas "not permitted" could be taken to imply that the configuration is disallowed even if calculations are submitted. NAHB asks for your support of this public comment modifying the proposal which was approved by the IRC-B/E committee.

Public Comment 2:

Edward L. Keith, APA – The Engineered Wood Association, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R602.10.4.6 6:1 aspect ratio segments used with continuous structural panel sheathing. Wall segments having a maximum 6:1 height to width ratio shall be permitted to be built in accordance with Figure R602.10.4.6 and Table R602.10.4.6. The maximum 6:1 height-to-width ratio is based on height being measured from top of the header to the bottom of the wall segment bottom plate. For purposes of calculating the percentage of panel bracing required by Table R602.10.1, the width of the full height sheathing segment shall be equal to its measured width. Corners at ends of walls using this option shall be constructed in accordance with Figure R602.10.4.3(1). The reduction factors for continuously braced walls from Section R602.10.4.4 shall be applied when calculating applicable percentages of wall bracing. The number of wall segments having a maximum 6:1 height to length ratio in a wall line shall not exceed four. In multi-story buildings, wall segments having a maximum 6:1 height to length ratio shall not be permitted to be directly stacked vertically. For purposes of resisting wind pressures acting perpendicular to the wall, the requirements of Figure R602.10.4.6 and Table R602.10.4.6 shall be met. There shall be a maximum of two braced wall segments per header and header length shall not exceed ~~20'-8"~~ 22'-0". Tension straps shall be installed in accordance with the manufacturer's recommendations.

Commenter's Reason: The header length is changed to 22'-0" to be consistent with using two 2-ft wide wall sections on either side of an 18-ft wide opening. (2'+2'+18'=22').

Final Action: AS AM AMPC____ D

RB164-07/08

R602.10.5, Figure R602.10.5(1) (New), Figure R602.10.5(2) (New)

Proposed Change as Submitted:

Proponent: Robert Rice, Grants Pass, OR, representing Josephine County Building Safety and Southern Oregon Chapter International Code Council

1. Revise as follows:

R602.10.5 (Supp) Braced wall panel ~~support~~ **connections.** Braced wall panels shall be **connected** ~~supported on floor framing or foundations~~ as follows:

1. Where ~~joists~~ floor or roof framing members are perpendicular to exterior braced wall lines above or below, solid blocking shall be provided between the ~~joists~~ framing members at braced wall panel locations ~~to permit fastening of wall plates in accordance with~~ and shall extend to within 2 inches of the bottom side of the roof sheathing and shall be fastened in accordance with Table R602.3(1).

   Exceptions:

   1. For Seismic Design Category C and wind speed zones less than 100 mph; Where the framing members are perpendicular to the wall line below and the height of the roof or floor diaphragm is less than 9 ¼" from the top plate of the wall line, solid, full-height blocking need not be provided when the perpendicular framing members or a parallel member such as a continuous rim joist or header is attached to the wall line per Table R602.3(1)
   2. Where the height of the blocking required for top plate connection is over 9 ¼ inches (235 mm) exterior braced wall panel top plates are permitted to be connected in accordance with one of the following methods:
      1. In accordance with Figure R602.10.5 (1)
      2. In accordance with Figure R602.10.5 (2)
      3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM). Roof or floor sheathing above shall be attached to the blocking panels and the blocking panels shall be attached to top of wall in accordance with Table R602.3(1).
      4. Designed in accordance with accepted engineering methods. Where floor or roof framing members are perpendicular to interior braced wall lines above or below, blocking shall be provided between the framing members at braced wall panel locations and attached per Table R602.3(1). Blocking at interior braced wall panels need not extend to floor or roof sheathing above.

2. Where ~~joists~~ floor or roof framing members are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at ~~the~~ braced wall panels. ~~To permit fastening of wall plates per Table R602.3(1).~~ Roof or floor sheathing above shall be attached to the framing member and the framing member shall be attached to top of wall plates per Table R602.3(1)

~~3. Braced wall panels shall be permitted to be supported on cantilevered floor joists meeting the cantilever limits of Section R502.3.3 provided joists are blocked at the nearest bearing wall location, except such blocking shall not be required in Seismic Design Categories A, B, and C for cantilevers not exceeding 24 inches where a full height rim joist is provided.~~

~~4. Elevated post or pier foundations supporting braced wall panels shall be designed in accordance with accepted engineering practice.~~

2. Add new figures as follows:

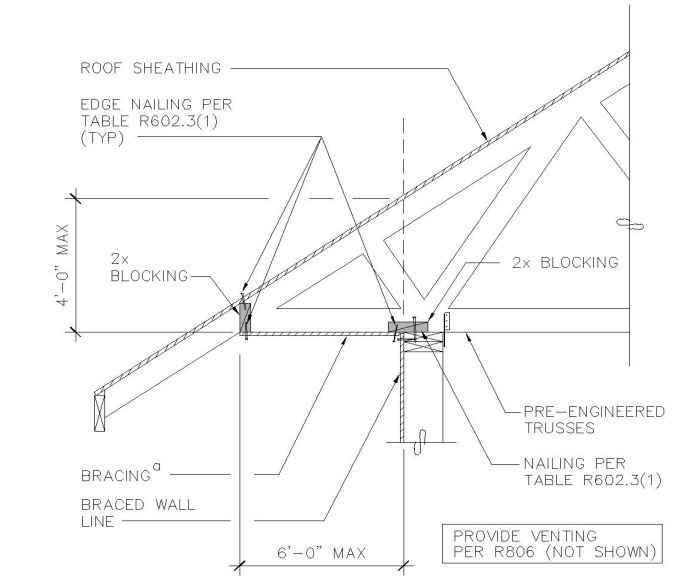


FIGURE R602.10.5(1)
ALTERNATE BRACED WALL PANEL TOP PLATE CONNECTION

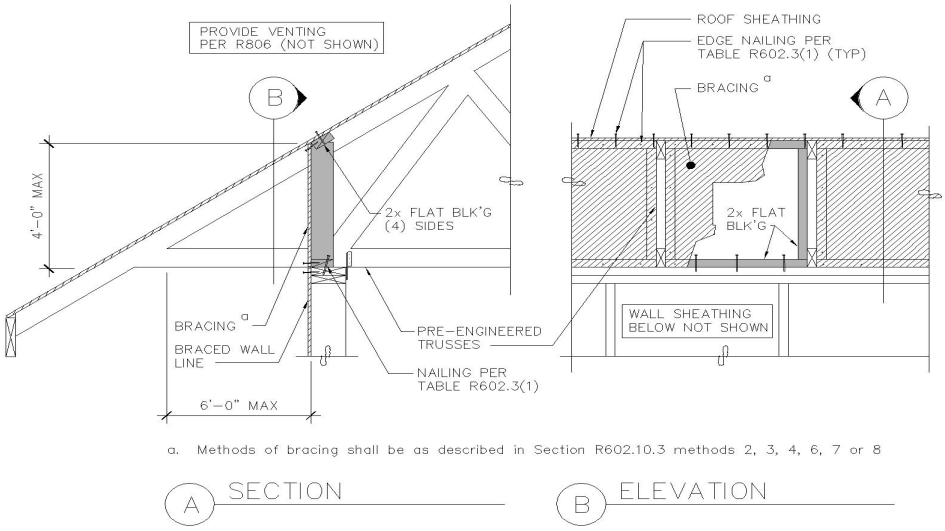


FIGURE R602.10.5(2)
ALTERNATE BRACED WALL PANEL TOP PLATE CONNECTION

Reason: The intent of the original code section, "R602.10.8 Connections", is to describe braced wall connections to framing above and below to provide a complete load path for lateral forces (i.e. wind or seismic). In the proposed modification that was approved for the 2007 supplement the change in the first sentence, "supported on floor framing or foundation ", changes the focus of the section and seems to exclude connections to framing above. In spite of that, item 1 of the proposal specifically accounts for the connection of braced walls below to framing above directly conflicting with the proposed title and first sentence. Furthermore, in the original code text it says, "…shall be connected to the framing above….". I propose changing the title and first sentence to reflect the intent of the section.

I propose changing the word "joists" to "floor or roof framing members" and "framing members" as applicable. Considering item 1, the braced wall could be connecting to floor joists, ceiling joists, rafters or trusses. The term "framing members" is already used in the current code language.

I propose adding the to separate exterior braced wall connections from interior braced walls. The intent of the required blocking in the original code language is to provide a complete load path of the lateral forces in the floor or roof sheathing above to the braced wall line. Also, when the braced walls are above typically the blocking provides bearing as well.

In both items 1 and 2 the language for the reference to Table R602.3(1) has been modified from the original proposal that more clearly states where and how attachments are to occur. The attachment requirements themselves do not change with this modification.

Item 4 is deleted. This condition is already covered by other code sections and confuses this section. The existing code states;
Section "**R602.10 Wall bracing**. All exterior walls shall be braced in accordance with this section."
Section "**R403.2 General**. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, wood foundations, or other approved structural systems....."

The code currently requires that all exterior walls are braced wall lines and are to be on foundations per code. If they are not, it already requires design.

Cost Impact: Currently, without a prescriptive provision to accomplish load path, engineering would be required. This proposal would provide a prescriptive solution without requiring engineering costs and delays. This would result in reduced cost.

Committee Action: **Disapproved**

Committee Reason: Based upon the proponent's testimony and the Bracing Ad-hoc Committee that this needs more work. The proponent will rework and include the "out of order" modification and bring to the Final Action.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Robert Rice, Josephine County Building Safety, representing Josephine County Building Safety & Southern Oregon Chapter of the ICC, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

(Delete proposed re-wording of R602.10.5 from original RB164 and replace with text and Figures from RB163.)

~~**R602.10.5 (Supp) Braced wall panel connections.** Braced wall panels shall be connected as follows:~~

~~1. Where floor or roof framing members are perpendicular to exterior braced wall lines above or below, solid blocking shall be provided between the framing members at braced wall panel locations and shall extend to within 2 inches of the bottom side of the roof sheathing and shall be fastened in accordance with Table R602.3(1).~~

~~**Exceptions:**~~

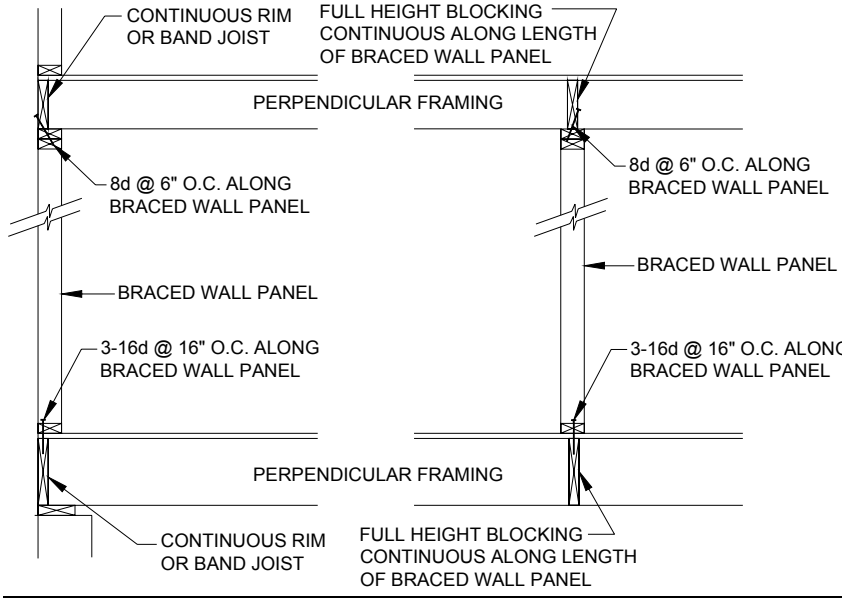
~~1. For Seismic Design Category C and wind speed zones less than 100 mph;
Where the framing members are perpendicular to the wall line below and the height of the roof or floor diaphragm is less than 9 ¼" from the top plate of the wall line, solid, full-height blocking need not be provided when the perpendicular framing members or a parallel member such as a continuous rim joist or header is attached to the wall line per Table R602.3(1)~~
~~2. Where the height of the blocking required for top plate connection is over 9 ¼ inches (235 mm)~~ exterior braced wall panel top ~~plates are permitted to be connected in accordance with one of the following methods:~~
~~1. In accordance with Figure R602.10.5 (1)~~
~~2. In accordance with Figure R602.10.5 (2)~~
~~3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM). Roof or floor sheathing above shall be attached to the blocking panels and the blocking panels shall be attached to top of wall in accordance with Table R602.3(1).~~
~~4. Designed in accordance with accepted engineering methods.~~
~~Where floor or roof framing members are perpendicular to interior braced wall lines above or below, blocking shall be provided between the framing members at braced wall panel locations and attached per Table R602.3(1). Blocking at interior braced wall panels need not extend to floor or roof sheathing above.~~
~~2. Where floor or roof framing members are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at braced wall panels. Roof or floor sheathing above shall be attached to the framing member and the framing member shall be attached to top of wall plates per Table R602.3(1)~~

R602.10.5 Braced wall panel connections. Braced wall panels shall be connected to framing or foundations according to this section.

R602.10.5.1 Connections to floor or ceiling framing. Braced wall panels shall be connected to floor and ceiling framing as follows:

1. Where joists are perpendicular to a braced wall panel above or below, a rim joist, band joist or blocking shall be provided along the entire length of the braced wall panel in accordance with Figure R602.10.5.1(1). Fastening of top and bottom wall plates to framing, rim joist, band joist and/or blocking shall be in accordance with Table R602.3(1).
2. Where joists are parallel to a braced wall panel above or below, a rim joist, end joist or other parallel framing member shall be provided directly above and below the braced wall panel in accordance with Figure R602.10.5.1(2). Where a parallel framing member cannot be located directly above and below the panel, full-depth blocking at 16 inch (406 mm) spacing shall be provided between the parallel framing members to each side of the braced wall panel in accordance with Figure R602.10.5.1(2). Fastening of blocking and wall plates shall be in accordance with Table R602.3(1) and Figure R602.10.5.1(2).
3. Connections of braced wall panels to concrete or masonry shall be in accordance with Section R403.1.6.

R602.10.5.2 Braced wall panel connections for Seismic Design Categories D_0, D_1 and D_2. Braced wall panels shall be fastened to required foundations in accordance with R602.11.1, and top plate lap splices shall be face-nailed with at least eight 16d nails on each side of the splice.



For SI: 1 inch = 25.4 mm

FIGURE R602.10.5.1 (1)
BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

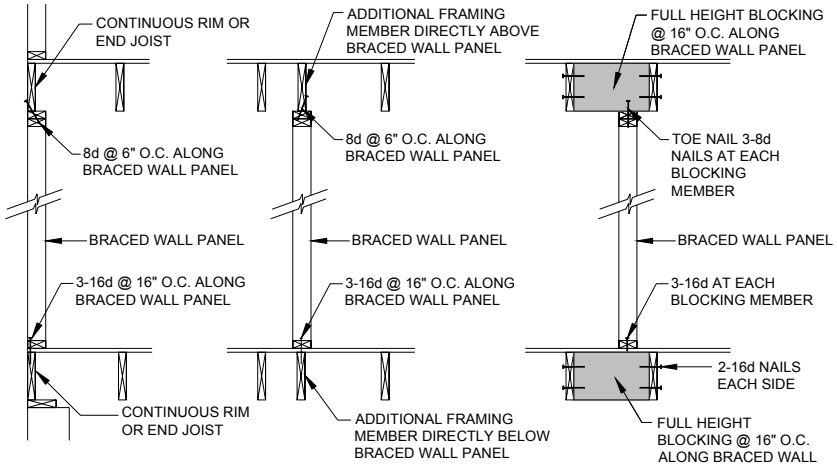


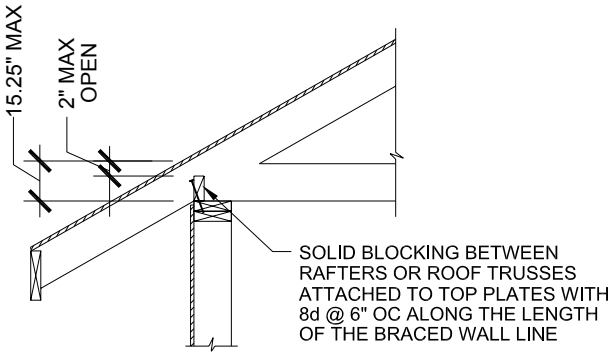
FIGURE R602.10.5.1(2)
BRACED WALL PANEL CONNECTION WHEN PARALLES TO FLOOR/CEILING FRAMING

R602.10.5.3 Connections to roof framing. Exterior braced wall panels shall be connected to roof framing as follows.

1. Parallel rafters or roof trusses shall be attached to the top plates of braced wall lines in accordance with Table R602.3(1).
2. For SDC A, B and C and wind speeds less than 100mph, where the distance from the top of the rafters or roof trusses and perpendicular top plates is 9.25 inches or less, the rafters or roof trusses shall be connected to the top plates of braced wall lines in accordance with Table R602.3(1) and blocking need not be installed. Where the distance from the top of the rafters or roof trusses and perpendicular top plates is between 9.25 inches and 15.25 inches the rafters or roof trusses shall be connected to the top plates of braced wall panels with blocking in accordance with Figure R602.10.5.2(1) and attached in accordance with Table R602.3(1).

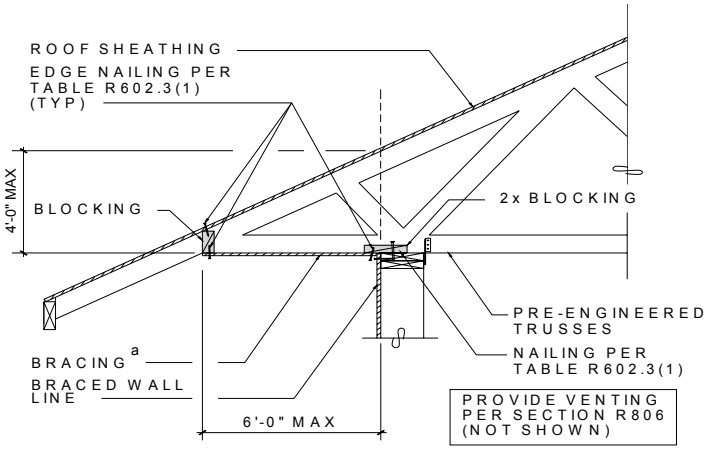
3. For SDC D_0, D_1 and D_2 or wind speeds of 100 mph or greater, where the distance between the top of rafters or roof trusses and perpendicular top plates is 15.25 inches or less. rafters or roof trusses shall be connected to the top plates of braced wall panels with blocking in accordance with Figure R602.10.5.2(1) and attached in accordance with Table R602.3(1).
4. For all Seismic Design Categories and wind speeds, where the distance between the top of rafters or roof trusses and perpendicular top plates exceeds 15.25 inches, perpendicular rafters or roof trusses shall be connected to the top plates of braced wall panels in accordance with one of the following methods
    1. In accordance with Figure R602.10.5.2(2).
    2. In accordance with Figure R602.10.5.2(3).
    3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM). Both the roof and floor sheathing shall be attached to the blocking panels in accordance with Table R602.3(1).
    4. Designed in accordance with accepted engineering methods.

Lateral support for the rafters and ceiling joists shall be provided in accordance with Section R802.8. Lateral support for trusses shall be provided in accordance with Section R802.10.3. Ventilation shall be provided in accordance with R806.1.



For SI: 1 inch = 25.4 mm

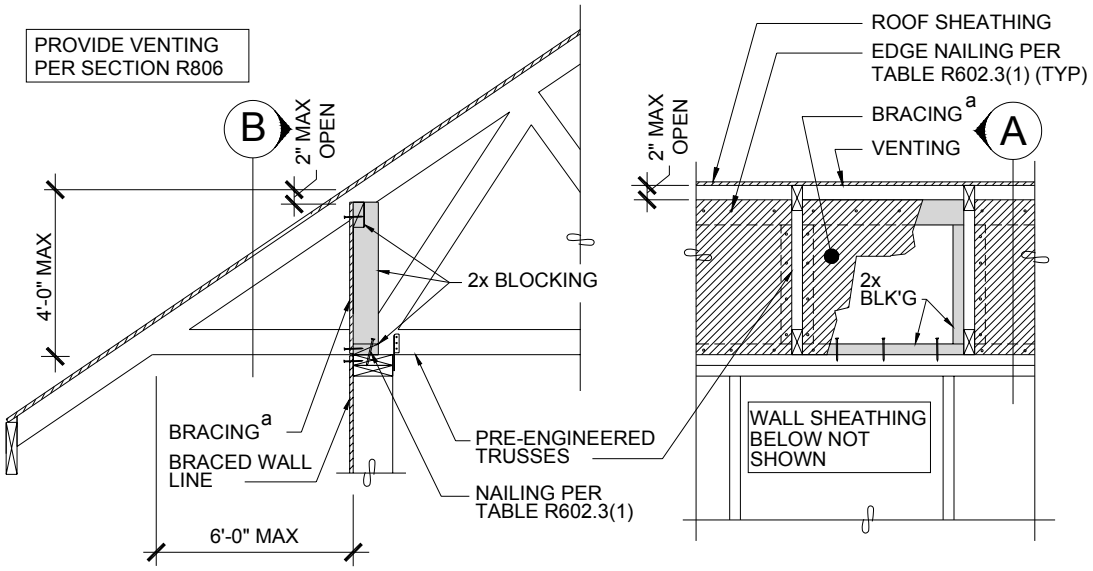
FIGURE R602.10.5.2 (1)
BRACED WALL PANEL CONNECTION
TO PERPENDICULAR RAFTERS OR ROOF TRUSSES



a. Methods of bracing shall be as described in Section R602.10.3 method 2, 3, 4, 6, 7 or 8

For SI: 1 inch = 25.4 mm

FIGURE R602.10.5.2 (2)
BRACED WALL PANEL CONNECTION OPTION
TO PERPENDICULAR RAFTERS OR ROOF TRUSSES



a. Methods of bracing shall be as described in Section R602.10.3 methods 2, 3, 4, 6, 7 or 8

For SI: 1 inch = 25.4 mm

FIGURE R602.10.5.2 (3)
BRACED WALL PANEL CONNECTION OPTION
TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

Commenter's Reason: RB163 and RB164 modify the same section of code for clarity. RB164 additionally provides prescriptive methods of connecting roofs (diaphragms) to braced wall lines. The proposed re-write of R602.10.5 from the Ad Hoc Wall Bracing Committee (RB163) reads very well. This modification replaces the original text from RB164 with the text and figures from RB163 and retains the main component of RB164 which is roof connections, particularly high heel trusses.

Therefore, this modification, in effect, is identical to RB163 and adds section R602.10.5.3 and prescriptive roof connection details from RB164 with the following modifications;

As a result of dialog with industry professionals, the trigger height for solid blocking was changed to 15.25 inches in recognition of 2x 14 lumber or engineered wood products such as rim-board that can be used as blocking in Figure R602.10.5.2(1). Figure R602.10.5.2(3) was modified to allow a 2" vent space above the blocking panel.

Purpose

The current code does not clearly state the intention of connecting the braced wall line to the roof or floor diaphragm. RB163 and RB164 re-word the code section to make it more clear. RB163 adds new figures to connect ceiling and floor framing to braced wall lines. However, RB163 lacks roof connections. RB164 provides a detail to show solid blocking, when required and adds prescriptive options for accomplishing the connection to roofs when solid blocking in not possible due to the height.

The prescriptive lateral bracing requirements in the International Residential Code are based on the engineering concept of horizontal (or nearly horizontal) diaphragms connected to shearwalls (braced wall lines) to transfer lateral loads, both wind and seismic, to the foundation as evidenced throughout the code. For example;

Section **"R301.1 Design**. ……shall result in a system that provides a complete load path capable of transferring all loads from their point of origin through the load-resisting elements to the foundation."

Section "**R301.1.2** The requirements of the code are based on platform and balloon-frame construction for light-frame buildings."

Section "**R301.2.2.2.2 Irregular buildings**. , Item 2: When a section of floor or roof is not laterally supported by shear walls or braced wall lines on all edges."

Per the code, a "**Diaphragm**" is defined as, "A horizontal or nearly horizontal system acting to transmit lateral forces to the vertical resisting elements. …" (i.e. Roof or floor sheathing to braced wall lines.).

Typically, the connection in normal rafter or truss applications occurs via the 2x blocking at the eave. This is inherent in the engineering concept to complete the load path. The blocking is connected per Table R602.3(1) with (3) 8d each block to the top plate. This is illustrated in Figure R602.10.5.2(1). Based on research data, the text exempts the blocking for lower SDC and wind speed areas for low heel heights.

However, in certain construction applications, such as raised-heel trusses & cantilevered trusses, it's not possible to connect the roof diaphragm to the braced wall line with solid 2x blocking. Therefore, it is not uncommon that no connection from roof diaphragm to braced wall line occurs and there is an incomplete load path.

This raised diaphragm condition is becoming more common all the time. In keeping with the intention of prescriptive codes it would be appropriate to provide a solution when solid blocking cannot be used without requiring engineering in each case.

Figure R602.10.5.2(1) shows typical blocking required for low heel trusses in SDC D0, D1 & D2, and in wind speed areas 100 mph and greater.

R602.10.5.2, 3, options 1 and 2 refer to Figures R602.10.5.2 (2) and R602.10.5.2 (3). In concept, both details extend the already defined roof sheathing (diaphragm) to the braced wall either vertically in the truss bays or horizontally through the soffit.

R602.10.5.2, 3 option 3 allows engineered truss blocking with a design value obtained from the American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM), a design document that is already referenced in the IRC in section R301.2.1.1.

R602.10.5.2, 3 option 4 provides for engineered designs per accepted engineering practice.

Without prescriptive provisions in the current code this condition would require engineering or, as stated in 2308.3.2, Exception to item 1 "..by other approved methods." would be left up to the Authority Having Jurisdiction to determine what is acceptable without any guidance or uniformity between jurisdictions.

Typically, the engineering solution would provide details similar to those included in this proposal. Therefore, the solution and construction costs would not change. Costs would be reduced by eliminating additional costs for engineering in most cases where a prescriptive solution works.

Public Comment 2:

Larry Wainright, WTCA, representing the Structural Building Components Industry, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

(Delete original RB164 code change proposal text and replace as follows:)

Add new section R602.10.5.2 and Figures 602.10.5.2 (1), 602.10.5.2(2) and 602.10.5.2(3):

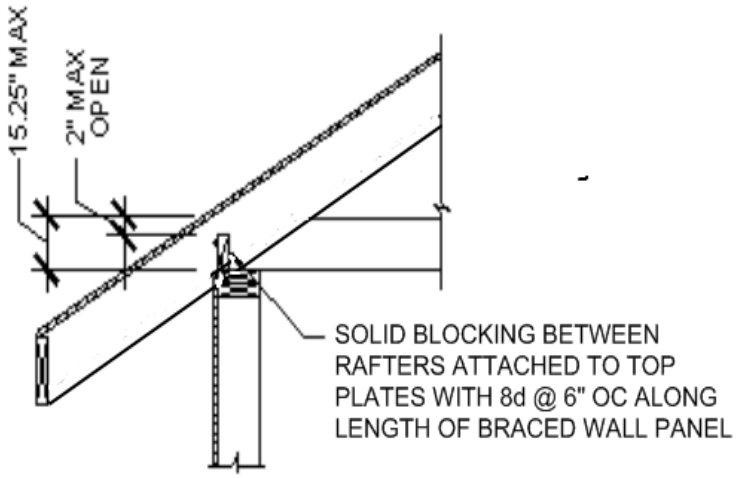
R602.10.5.2 Connections to roof framing. Exterior braced wall panels shall be connected to roof framing as follows.

1. Parallel rafters or roof trusses shall be attached to the top plates of braced wall panels in accordance with Table R602.3(1).
2. For SDC A, B and C and wind speeds less than 100mph, where the distance from the top of the rafters or roof trusses and perpendicular top plates is 9.25 inches or less, the rafters or roof trusses shall be connected to the top plates of braced wall lines in accordance with Table R602.3(1) and blocking need not be installed. Where the distance from the top of the rafters and perpendicular top plates is between 9.25 inches and 15.25 inches the rafters shall be connected to the top plates of braced wall panels with blocking in accordance with Figure R602.10.5.2(1) and attached in accordance with Table R602.3(1). Where the distance from the top of the roof trusses and perpendicular top plates is between 9.25 inches and 15.25 inches the roof trusses shall be connected to the top plates of braced wall panels with blocking in accordance with Table R602.3(1).
3. For SDC D_0, D_1 and D_2 or wind speeds of 100 mph or greater, where the distance between the top of rafters or roof trusses and perpendicular top plates is 15.25 inches or less. rafters or roof trusses shall be connected to the top plates of braced wall panels with blocking in accordance with Figure R602.10.5.2(1) and attached in accordance with Table R602.3(1).
4. For all Seismic Design Categories and wind speeds, where the distance between the top of rafters or roof trusses and perpendicular top plates exceeds 15.25 inches, perpendicular rafters or roof trusses shall be connected to the top plates of braced wall panels in accordance with one of the following methods

    1. In accordance with Figure R602.10.5.2(2),
    2. In accordance with Figure R602.10.5.2(3),
    3. With full height engineered blocking panels designed for values listed in American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM). Both the roof and floor sheathing shall be attached to the blocking panels in accordance with Table R602.3(1).
    4. Designed in accordance with accepted engineering methods.

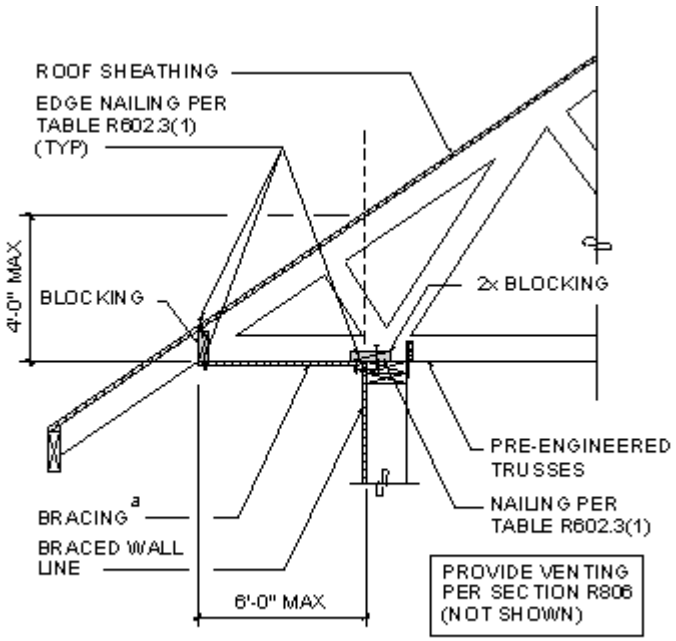
Lateral support for the rafters and ceiling joists shall be provided in accordance with Section R802.8. Lateral support for trusses shall be provided in accordance with Section R802.10.3. Ventilation shall be provided in accordance with R806.1.

Add Figures R602.10.5.2 (1) R602.10.5.2 (2) R602.10.5.2 (3):



For SI: 1 inch = 25.4 mm

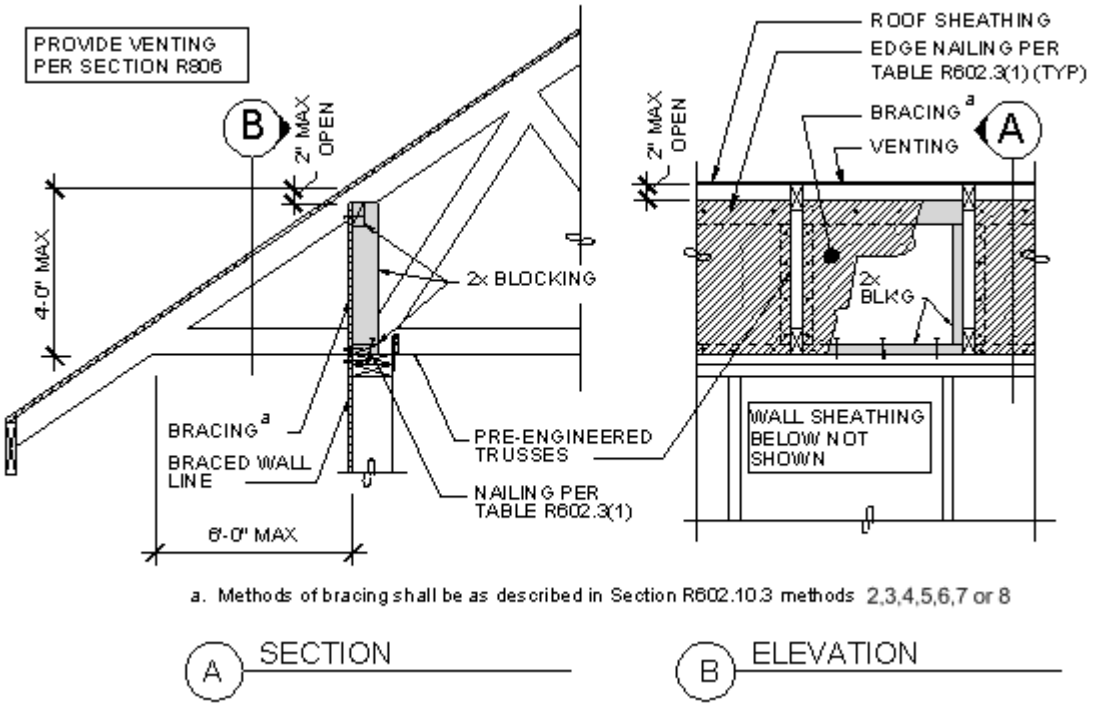
FIGURE R602.10.5.2(1)
BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS



a. Methods of bracing shall be as described in Section R602.10.3 method 2,3,4,5,6,7 or 8.

For SI: 1 inch = 25.4 mm

FIGURE R602.10.5.2(2)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES



a. Methods of bracing shall be as described in Section R602.10.3 methods 2,3,4,5,6,7 or 8

For SI: 1 inch = 25.4 mm

FIGURE R602.10.5.2(3)
BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

Commenter's Reason: The purpose of the proposed modification is to provide some prescriptive direction on ways to control truss and rafter rotation and the transfer of loads from the roof diaphragm into the braced wall panels.. This proposal recognizes that the IRC currently gives some direction on this subject for both roof trusses and rafter framing.

This proposal is intended as an interim solution, allowing our industry to complete its testing of this situation in the coming year. We intend to come back in the next code cycle with a revised solution based the results of those tests.

Currently, Roof trusses are required to be braced to prevent rotation per Section 802.10.3, which directs the user to the construction documents, the truss design drawings, or Building Component Safety Information (BCSI 1-03) Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses. While this section is not directly referring to diaphragm to braced wall panel load transfer, the truss system is getting the necessary loads into the walls through alternate paths. This is currently adequate as we are not aware of any failure where the recommendations of BCSI were followed. This proposal reinforces this by requiring the user to follow the requirements of Section 802.10.3 to prevent rotation of trusses and to Table 602.3(1) for the connection of the braced wall panel to the truss.

Final Action: AS AM AMPC____ D

RB167-07/08

R602.12 (New), R602.12.1 (New), R602.12.1.1 (New), R602.12.1.2 (New), R602.12.1.3 (New), R602.12.1.4 (New), R602.12.1.5 (New), R602.12.1.6 (New), Table R602.12(1) (New), Table R602.12(2) (New), Figure R602.12 (New), R703.7, Table R703.7(1), R703.7(2)

Proposed Change as Submitted:

Proponent: Randall C. Shackelford, PE, Simpson Strong-Tie Co.

1. Add new text, tables and figures as follows:

R602.12 Wall bracing and stone and masonry veneer. Where stone and masonry veneer is installed in accordance with Section R703.7, wall bracing shall comply with this section.

For all buildings in Seismic Design Categories A, B and C, wall bracing at exterior and interior braced wall lines shall be in accordance with Section R602.10 or R603.7, and the additional requirements of Table R602.12(1). For detached one- or two-family dwellings in Seismic Design Categories D_0, D_1 and D_2, wall bracing and hold downs at exterior and interior braced wall lines shall be in accordance with Sections R602.10 and R602.11 and the additional requirements of Section R602.12.1 and Table R602.12(2). In Seismic Design Categories D_0, D_1 and D_2, cripple walls shall not be permitted, and required interior braced wall lines shall be supported on continuous foundations.

R602.12.1 Seismic Design Categories D_0, D_1 and D_2. Wall bracing where stone and masonry veneer exceeds the first story height in Seismic Design Categories D_0, D_1 and D_2 shall conform to the requirements of Section R602.10 and R602.11 and the following requirements.

R602.12.1.1 Percentage of bracing. The percentage of bracing along each braced wall line shall be in accordance with Table R602.12(2).

R602.12.1.2 Braced wall panel location. Exterior braced wall lines shall have a braced wall panel located at each end of the braced wall line and spaced at least every 25 feet on center.

Exception: Braced wall panel shall be permitted to begin no more than 8 feet from each end of the braced wall line provided the end of each braced wall panel closest to the corner shall have a tie-down device providing an uplift allowable design value of at least 1,800 pounds greater than required by Table R602.12(2) and shall be fastened to the stud at the edge of the braced wall panel closest to the corner and to the foundation or framing below.

R602.12.1.3 Braced wall panel construction. Wood structural panels shall be constructed of sheathing with a thickness of not less than 7/16 inch nailed with 8d common nails spaced 4 inches on center at all panel edges and 12 inches on center at intermediate supports. The end of each braced wall panel shall have a holdown device in accordance with Table R602.12(2) installed at each end.

R602.12.1.4 Minimum length of braced panel. Each braced wall panel shall be at least 48 inches in length, covering a minimum of 3 stud spaces where studs are spaced 16 inches on center and covering a minimum of 2 stud spaced where studs are spaced 24 inches on center.

R602.12.1.5 Alternate braced wall panel. Alternate braced wall panels described in Section R602.10.3.2 shall not replace the braced wall panel specification of this section.

R602.12.1.6 Continuously-sheathed wall bracing. Continuously sheathed provisions of Section R602.10.4 shall not be used in conjunction with the wall bracing provisions of this section.

TABLE R602.12(1)
STONE OR MASONRY VENEER WALL BRACING REQUIREMENTS, WOOD OR STEEL FRAMING, SEISMIC DESIGN CATEGORIES A, B AND C

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD OR STEEL FRAMED STORIES	WOOD OR STEEL FRAMED STORY	MINIMUM SHEATHING AMOUNT (percent of braced wall line length)c
A or B	Steel: 1 or 2 Wood: 1, 2 or 3	all	Table R602.10.1 or Table R603.7
C	1	1 only	Table R602.10.1 or Table R603.7
	2	top	Table R602.10.1 or Table R603.7
		bottom	1.5 times length required by Table R602.10.1 or 1.5 times length required by Table R603.7
	Wood only: 3	top	Table R602.10.1
		middle	1.5 times length required by Table R602.10.1
		bottom	1.5 times length required by Table R602.10.1

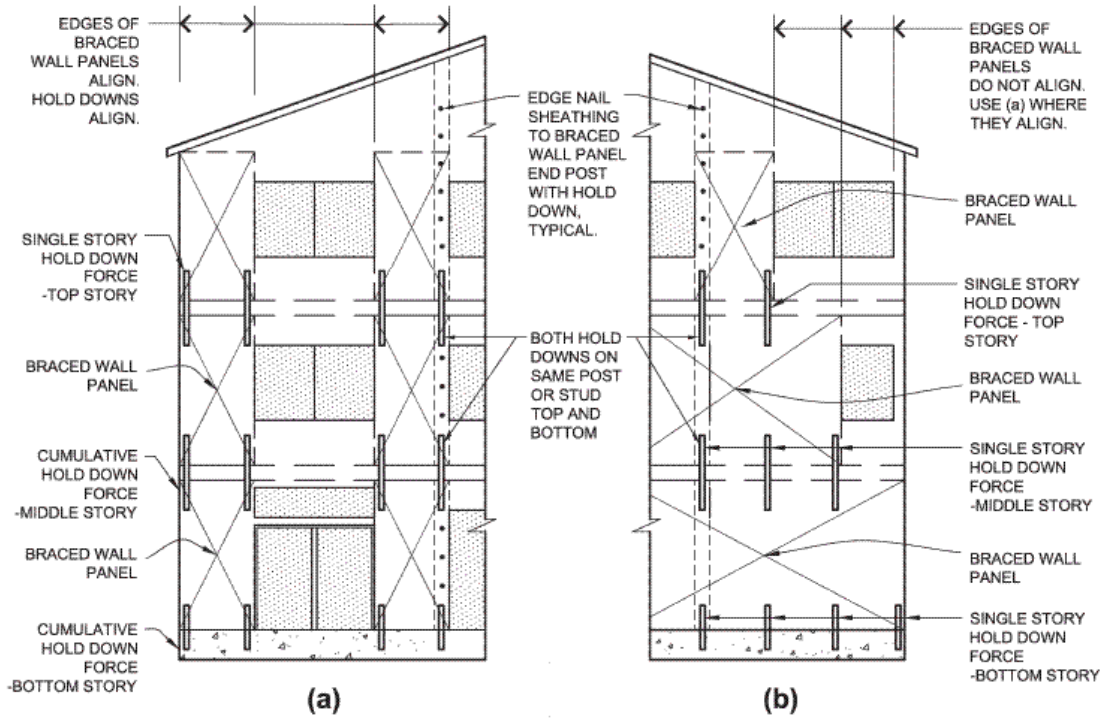
a. Applies to exterior and interior braced wall lines.

TABLE R602.12(2)
STONE OR MASONRY VENEER WALL BRACING REQUIREMENTS, ONE- AND TWO-FAMILY DETACHED DWELLINGS, WOOD FRAMING, SEISMIC DESIGN CATEGORIES D0, D1 AND D2

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD FRAMED STORIES[a]	WOOD FRAMED STORY	MINIMUM SHEATHING AMOUNT (percent of braced wall line length)[c]	MINIMUM SHEATHING THICKNESS AND FASTENING	SINGLE STORY HOLD DOWN FORCE (lb)[d]	CUMULATIVE HOLD DOWN FORCE (lb)[e]
D_0	1	1 only	35	7/16-inch wood structural panel sheathing with 8d common nails spaced at 4 inches on center at panel edges, 12 inches on center at intermediate supports. 8d common nails at 4 inches on center at braced wall panel end posts with hold down attached	N/A	—
	2	top	35		1900	—
		bottom	45		3200	5100
	3	top	40		1900	—
		middle	45		3500	5400
		bottom	60		3500	8900
D_1	1	1 only	45		2100	—
	2	top	45		2100	—
		bottom	45		3700	5800
	3	top	45		2100	—
		middle	45		3700	5800
		bottom	60		3700	9500
D_2	1	1 only	55		2300	—
	2	top	55		2300	—
		bottom	55		3900	6200

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.479 kPa, 1 pound-force = 4.448 N.

a. Cripple walls are not permitted in Seismic Design Categories D_0, D_1 and D_2.
b. Applies to exterior and interior braced wall lines.
c. Hold down force is minimum allowable stress design load for connector providing uplift tie from wall framing at end of braced wall panel at the noted story to wall framing at end of braced wall panel at the story below, or to foundation or foundation wall. Use single story hold down force where edges of braced wall panels do not align; a continuous load path to the foundation shall be maintained. [See Figure R602.12].
d. Where hold down connectors from stories above align with stories below, use cumulative hold down force to size middle and bottom story hold down connectors. [See Figure R602.12].
e. The veneer shall not exceed 20 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable end walls, or 30 feet in height with an additional 8 feet for gable end walls where the lower 10 feet has a backing of concrete or masonry wall. See also story height imitations of Section R301.3.
f. The veneer shall not exceed 30 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable endwalls. See also story height limitations of Section R301.3.



(a) Braced wall panels stacked (aligned story to story). Use cumulative hold down force.
(b) Braced wall panels not stacked. Use single story hold down force.

FIGURE R602.12
HOLD DOWNS AT EXTERIOR AND INTERIOR BRACED WALL PANELS

2. Revise as follows:

R703.7 Stone and masonry veneer, general. Stone and masonry veneer shall be installed in accordance with this chapter, Table R703.4 and Figure R703.7. These veneers installed over a backing of wood or cold-formed steel shall be limited to the first story above-grade and shall not exceed 5 inches (127 mm) in thickness. See section R602.12 for wall bracing requirements for masonry veneer.

Exceptions:

1. For all buildings in Seismic Design Categories A, B and C, exterior stone or masonry veneer, as specified in Table R703.7(1), with a backing of wood or steel framing shall be permitted to the height specified in Table R703.7(1) above a noncombustible foundation. ~~Wall bracing at exterior and interior braced wall lines shall be in accordance with Section R602.10 or R603.7, and the additional requirements of Table R703.7(1).~~
2. For detached one- or two-family dwellings in Seismic Design Categories D_0, D_1 and D_2, exterior stone or masonry veneer, as specified in Table R703.7(2), with a backing of wood framing shall be permitted to the height specified in Table R703.7(2) above a noncombustible foundation. ~~Wall bracing and hold downs at exterior and interior braced wall lines shall be in accordance with Sections R602.10 and R602.11 and the additional requirements of Table R703.7(2). In Seismic Design Categories D0, D1 and D2, cripple walls shall not be permitted, and required interior braced wall lines shall be supported on continuous foundations.~~

TABLE R703.7(1)
STONE OR MASONRY VENEER LIMITATIONS AND REQUIREMENTS, WOOD OR STEEL FRAMING, SEISMIC DESIGN CATEGORIES A, B AND C

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD OR STEEL FRAMED STORIES	MAXIMUM HEIGHT OF VENEER ABOVE NONCOMBUSTIBLE FOUNDATION[a] (feet)	MAXIMUM NOMINAL THICKNESS OF VENEER (inches)	MAXIMUM WEIGHT OF VENEER (psf)b	WOOD OR STEEL FRAMED STORY	~~MINIMUM SHEATHING AMOUNT (percent of braced wall line length)c~~
A or B	Steel: 1 or 2 Wood: 1, 2 or 3	30	5	50	all	~~Table R602.10.1 or Table R603.7~~
C	1	30	5	50	1 only	~~Table R602.10.1 or Table R603.7~~
	2	30	5	50	top	~~Table R602.10.1 or Table R603.7~~
					bottom	~~1.5 times length required by Table R602.10.1 or 1.5 times length required by Table R603.7~~
	Wood only: 3	30	5	50	top	~~Table R602.10.1~~
					middle	~~1.5 times length required by Table R602.10.1~~
					bottom	~~1.5 times length required by Table R602.10.1~~

a. An Additional 8 feet is permitted for gable end walls. See also story height limitations of Section R301.3.
b. Maximum weight is installed weight and includes weight of mortar, grout, lath and other materials used for installation. Where veneer is placed on both faces of a wall, the combined weight shall not exceed that specified in this table.
~~c. Applies to exterior and interior braced wall lines.~~

TABLE R703.7(2)
STONE OR MASONRY VENEER LIMITATIONS AND REQUIREMENTS, ONE- AND TWO-FAMILY DETACHED DWELLINGS, WOOD FRAMING, SEISMIC DESIGN CATEGORIES D0, D1 AND D2

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD FRAMED STORIES[a]	MAXIMUM HEIGHT OF VENEER ABOVE NONCOMBUSTIBLE FOUNDATION OR FOUNDATION WALL (FEET)	MAXIMUM NOMINAL THICKNESS OF VENEER (inches)	MAXIMUM WEIGHT OF VENEER (psf)	~~WOOD FRAMED STORY~~	~~MINIMUM SHEATHING AMOUNT (percent of braced wall line length)[c]~~	~~MINIMUM SHEATHING THICKNESS AND FASTENING~~	~~SINGLE STORY HOLD DOWN FORCE (lb)[d]~~	~~CUMULATIVE HOLD DOWN FORCE (lb)[e]~~
D_0	1	20[f]	4	40	~~1 only~~	~~35~~	~~7/16 inch wood structural panel sheathing with 8d common nails spaced at 4 inches on center at panel edges, 12 inches on center at intermediate supports. 8d common nails at 4 inches on center at braced wall panel end posts with hold down attached~~	~~N/A~~	~~—~~
	2	20[f]	4	40	~~top~~	~~35~~		~~1900~~	~~—~~
					~~bottom~~	~~45~~		~~3200~~	~~5100~~
	3	30[g]	4	40	~~top~~	~~40~~		~~1900~~	~~—~~
					~~middle~~	~~45~~		~~3500~~	~~5400~~
					~~bottom~~	~~60~~		~~3500~~	~~8900~~
D_1	1	20[f]	4	40	~~1 only~~	~~45~~		~~2100~~	~~—~~
	2	20[f]	4	40	~~top~~	~~45~~		~~2100~~	~~—~~
					~~bottom~~	~~45~~		~~3700~~	~~5800~~
	3	20[f]	4	40	~~top~~	~~45~~		~~2100~~	~~—~~
					~~middle~~	~~45~~		~~3700~~	~~5800~~
					~~bottom~~	~~60~~		~~3700~~	~~9500~~
D_2	1	20[f]	3	30	~~1 only~~	~~55~~		~~2300~~	~~—~~
	2	20[f]	3	30	~~top~~	~~55~~		~~2300~~	~~—~~
					~~bottom~~	~~55~~		~~3900~~	~~6200~~

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.479 kPa, 1 pound-force = 4.448 N.
a. Cripple walls are not permitted in Seismic Design Categories D_0, D_1 and D_2.
b. Maximum weight is installed weight and includes weight of mortar, grout and lath, and other materials used for installation.

~~c. Applies to exterior and interior braced wall lines.~~

~~d. Hold down force is minimum allowable stress design load for connector providing uplift tie from wall framing at end of braced wall panel at the noted story to wall framing at end of braced wall panel at the story below, or to foundation or foundation wall. Use single story hold down force where edges of braced wall panels do not align; a continuous load path to the foundation shall be maintained. [See Figure R703.7(1)(b)].~~

~~e. Where hold down connectors from stories above align with stories below, use cumulative hold down force to size middle and bottom story hold down connectors. [See Figure R703.7(1)(a)].~~

~~f~~ c. The veneer shall not exceed 20 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable end walls, or 30 feet in height with an additional 8 feet for gable end walls where the lower 10 feet has a backing of concrete or masonry wall. See also story height imitations of Section R301.3.

~~g~~ d. The veneer shall not exceed 30 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable endwalls. See also story height limitations of Section R301.3.

Reason: The purpose of this change is to clarify the code by moving the wall bracing requirements for brick veneer structures to the wall bracing chapter.

This is mainly an editorial change that moves the requirements for wall bracing of brick veneer structures from the exterior covering chapter to the wall chapter in the wall bracing section.

The wall bracing requirements are more appropriately placed in the wall bracing section.

A couple of subsections were added to clarify conflicts between wall bracing methods permitted in Chapter 6 and the completely different wall bracing method for masonry veneer in Chapter 7.

All wall bracing requirements should be in Chapter 6. Chapter 7 refers to the wall covering only, and should not contain wall bracing requirements. By the time the masonry veneer is applied, it is frequently too late to provide properly constructed wall bracing.

Because the Chapter 7 method of bracing walls with masonry veneer uses a designed shearwall method with hold-downs, these restrained braced wall panels have higher capacity than the braced wall panels of Chapter 6. Therefore, the alternate braced wall panel methods and the continuous sheathing methods do not apply because they do not result in the same allowable shear loads.

Cost Impact: There should be no cost impact as this is primarily editorial.

Committee Action: **Disapproved**

Committee Reason: Based on the proponent's request for disapproval. The committee believes this is headed in the right direction. The proponent will rework this based on the modification that was ruled out of order and bring back to the Final Action.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Randall Shackelford, P.E., Simpson Strong-Tie Co., requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R602.12 Wall bracing and stone and masonry veneer. Where stone and masonry veneer is installed in accordance with Section R703.7, wall bracing shall comply with this section.

For all buildings in Seismic Design Categories A, B and C, wall bracing at exterior and interior braced wall lines shall be in accordance with Section R602.10 ~~or R603.7~~, and the additional requirements of Table R602.12(1).

For detached one- or two-family dwellings in Seismic Design Categories D_0, D_1 and D_2, wall bracing and hold downs at exterior and interior braced wall lines shall be in accordance with Sections R602.10 and R602.11 and the additional requirements of Section R602.12.1 and Table R602.12(2). In Seismic Design Categories D_0, D_1 and D_2, cripple walls shall not be permitted, and required interior braced wall lines shall be supported on continuous foundations.

R602.12.1.2 Braced wall panel location. ~~Exterior braced wall lines shall have a braced wall panel located at each end of the braced wall line and spaced at least every 25 feet on center.~~ Braced wall panels shall begin no more than 8 feet from each end of a braced wall line and shall be spaced a maximum of 25 feet on center.

~~**Exception:** Braced wall panel shall be permitted to begin no more than 8 feet from each end of the braced wall line provided the end of each braced wall panel closest to the corner shall have a tie-down device providing an uplift allowable design value of at least 1,800 pounds greater than required by Table R602.12(2) and shall be fastened to the stud at the edge of the braced wall panel closest to the corner and to the foundation or framing below.~~

R602.12.1.3 Braced wall panel construction. ~~Wood structural~~ Braced wall panels shall be constructed of wood structural panel sheathing with a thickness of not less than 7/16 inch nailed with 8d common nails spaced 4 inches on center at all panel edges and 12 inches on center at intermediate supports. The end of each braced wall panel shall have a holdown device in accordance with Table R602.12(2) installed at each end. Size, height and spacing of wood studs shall be in accordance with Table R602.3(5).

TABLE R602.12(1)
STONE OR MASONRY VENEER WALL BRACING REQUIREMENTS,
WOOD ~~OR STEEL~~ FRAMING, SEISMIC DESIGN CATEGORIES A, B AND C

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD ~~OR STEEL~~ FRAMED STORIES	WOOD ~~OR STEEL~~ FRAMED STORY	MINIMUM SHEATHING AMOUNT (percent of braced wall line length)~~c~~ [a]
A or B	~~Steel: 1 or 2~~ ~~Wood:~~ 1, 2 or 3	all	Table R602.10.1(1) ~~or Table R603.7~~
C	1	1 only	Table R602.10.1(1) ~~or Table R603.7~~
	2	top	Table R602.10.1(1) ~~or Table R603.7~~
		bottom	1.5 times length required by Table R602.10.1(1) ~~or 1.5 times length required by Table R603.7~~
	~~Wood only:~~ 3	top	Table R602.10.1(1)
		middle	1.5 times length required by Table R602.10.1(1)
		bottom	1.5 times length required by Table R602.10.1(1)

a. Applies to exterior and interior braced wall lines.

TABLE R602.12(2)
STONE OR MASONRY VENEER WALL BRACING REQUIREMENTS, ONE- AND TWO-FAMILY DETACHED DWELLINGS, ~~WOOD FRAMING,~~ SEISMIC DESIGN CATEGORIES D0, D1 AND D2

SEISMIC DESIGN CATEGORY	NUMBER OF ~~WOOD FRAMED~~ STORIES [a]	~~WOOD FRAMED~~ STORY	MINIMUM SHEATHING AMOUNT (percent of braced wall line length)~~c~~ [b]	MINIMUM SHEATHING THICKNESS AND FASTENING	SINGLE STORY HOLD DOWN FORCE (lb)~~d~~ [c]	CUMULATIVE HOLD DOWN FORCE (lb)~~e~~ [d]
D_0	1	1 only	35	7/16-inch wood structural panel sheathing with 8d common nails spaced at 4 inches on center at panel edges, 12 inches on center at intermediate supports. 8d common nails at 4 inches on center at braced wall panel end posts with hold down attached	N/A	—
	2	top	35		1900	—
		bottom	45		3200	5100
	3	top	40		1900	—
		middle	45		3500	5400
		bottom	60		3500	8900
D_1	1	1 only	45		2100	—
	2	top	45		2100	—
		bottom	45		3700	5800
	3	top	45		2100	—
		middle	45		3700	5800
		bottom	60		3700	9500
D_2	1	1 only	55		2300	—
	2	top	55		2300	—
		bottom	55		3900	6200

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.479 kPa, 1 pound-force = 4.448 N.

a. Cripple walls are not permitted in Seismic Design Categories D_0, D_1 and D_2.
b. Applies to exterior and interior braced wall lines.
c. Hold down force is minimum allowable stress design load for connector providing uplift tie from wall framing at end of braced wall panel at the noted story to wall framing at end of braced wall panel at the story below, or to foundation or foundation wall. Use single story hold down force where edges of braced wall panels do not align; a continuous load path to the foundation shall be maintained. [See Figure R602.12].
d. Where hold down connectors from stories above align with stories below, use cumulative hold down force to size middle and bottom story hold down connectors. [See Figure R602.12].
~~e. The veneer shall not exceed 20 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable end walls, or 30 feet in height with an additional 8 feet for gable end walls where the lower 10 feet has a backing of concrete or masonry wall. See also story height imitations of Section R301.3.~~
~~f. The veneer shall not exceed 30 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable endwalls. See also story height limitations of Section R301.3.~~

Add new section (in steel section) as follows:

R603.7.3 Wall bracing for stone and masonry veneer. In Seismic Design Category C, where stone and masonry veneer is installed in accordance with Section R703.7, the length of wall bracing for walls supporting one story, roof and ceiling shall be the greater of the amount required by Table R603.7 using all footnotes, or 36 percent, modified by footnotes c and e, as applicable.

R703.7 Stone and masonry veneer, general. Stone and masonry veneer shall be installed in accordance with this chapter, Table R703.4 and Figure R703.7. These veneers installed over a backing of wood or cold-formed steel shall be limited to the first story above-grade and shall not exceed 5 inches (127 mm) in thickness. See section R602.12 for wall bracing requirements for masonry veneer for wood framed construction and Section R603.7.3 for wall bracing requirements for masonry veneer for cold formed steel construction.

Exceptions:

1. For all buildings in Seismic Design Categories A, B and C, exterior stone or masonry veneer, as specified in Table R703.7(1), with a backing of wood or steel framing shall be permitted to the height specified in Table R703.7(1) above a noncombustible foundation.
2. For detached one- or two-family dwellings in Seismic Design Categories D_0, D_1 and D_2, exterior stone or masonry veneer, as specified in Table R703.7(2), with a backing of wood framing shall be permitted to the height specified in Table R703.7(2) above a noncombustible foundation.

TABLE R703.7(1)
STONE OR MASONRY VENEER LIMITATIONS AND REQUIREMENTS, WOOD OR STEEL FRAMING, SEISMIC DESIGN CATEGORIES A, B AND C

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD OR STEEL FRAMED STORIES	MAXIMUM HEIGHT OF VENEER ABOVE NONCOMBUSTIBLE FOUNDATION~~a~~ [a] (feet)	MAXIMUM NOMINAL THICKNESS OF VENEER (inches)	MAXIMUM WEIGHT OF VENEER (psf)~~b~~ [b]	WOOD OR STEEL FRAMED STORY
A or B	Steel: 1 or 2 Wood: 1, 2 or 3	30	5	50	all
C	1	30	5	50	1 only
	2	30	5	50	top
					bottom
	Wood only: 3	30	5	50	top
					middle
					bottom

a. An Additional 8 feet is permitted for gable end walls. See also story height limitations of Section R301.3.
b. Maximum weight is installed weight and includes weight of mortar, grout, lath and other materials used for installation. Where veneer is placed on both faces of a wall, the combined weight shall not exceed that specified in this table.

TABLE R703.7(2)
STONE OR MASONRY VENEER LIMITATIONS AND REQUIREMENTS, ONE- AND TWO-FAMILY DETACHED DWELLINGS, WOOD FRAMING, SEISMIC DESIGN CATEGORIES D_0, D_1 AND D_2

SEISMIC DESIGN CATEGORY	NUMBER OF WOOD FRAMED STORIES[a]	MAXIMUM HEIGHT OF VENEER ABOVE NONCOMBUSTIBLE FOUNDATION OR FOUNDATION WALL (FEET)	MAXIMUM NOMINAL THICKNESS OF VENEER (inches)	MAXIMUM WEIGHT OF VENEER (psf)[b]
D_0	1	20[c]	4	40
	2	20[c]	4	40
	3	30[c,d]	4	40
D_1	1	20[c]	4	40
	2	20[c]	4	40
	3	20[c]	4	40
D_2	1	20[c]	3	30
	2	20[c]	3	30

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.479 kPa, 1 pound-force = 4.448 N.
a. Cripple walls are not permitted in Seismic Design Categories D_0, D_1 and D_2.
b. Maximum weight is installed weight and includes weight of mortar, grout and lath, and other materials used for installation.
c. The veneer shall not exceed 20 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable end walls, or 30 feet in height with an additional 8 feet for gable end walls where the lower 10 feet has a backing of concrete or masonry wall. See also story height imitations of Section R301.3.
d. The veneer shall not exceed 30 feet in height above a noncombustible foundation, with an additional 8 feet permitted for gable endwalls. See also story height limitations of Section R301.3.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The purpose of this change is to clarify the code by moving the wall bracing requirements for brick veneer structures to the wall bracing chapter, where they belong. As originally submitted, all requirements were moved to the wood framing wall bracing section. But some of these requirements apply to steel framing. So a new section related to steel framing is created by this public comment, and any references to steel framing are removed from the wood framing section.

This Public Comment was submitted to the IRC B-E Committee in Palm Springs as a floor amendment, but the chair ruled the changes out of order. So I asked for disapproval so this Public Comment could be submitted. Note that the committee reason states "Based on the proponent's request for disapproval. The committee believes this is headed the right direction. The proponent will rework this based on the modification that was ruled out of order and bring back to the Final Action."

Specific revisions to the original proposal by this Public Comment are:

1. Revise R602.12.1.2 to improve language. Remove exception for locating braces 8 feet from corner since that wording applies to the continuous sheathing method, while this section uses a different bracing system.
2. Correct description of braced wall panel in R602.12.1.3.
3. Remove references to wood and steel in Tables R602.12(1) and R602.12(2), since this table is located in the Wood Wall Framing section. Remove reference to Table R603.7 from Table R602.12(1) for the same reason.
4. Correct table reference in Table R602.12(1) to proper table in 2007 Supplement.
5. Correct footnote references (superscripts) in tables. Delete footnotes in Table R602.12(2) that are already in Table R703.7(2).
6. Add new section R603.7.3 for wall bracing of steel framing. Existing Table R703.7(1) requires bracing for bottom of two stories to be 1.5 times the amount required by Table R603.7. However, Table R603.7 is based on wind loading. So for seismic, the proposed 36% is based on 1.5 times the minimum entry for first of 2 stories, 24%. Requirement was written so that the maximum of either 36% or the amount required for wind (which is not affected by brick veneer) will be required.
7. Correct footnote reference b in Table R703.7(1).

Final Action: AS AM AMPC____ D

RB168-07/08
R603, Chapter 43 (New)

Proposed Change as Submitted:

Proponent: Bonnie Manley, American Iron and Steel Institute

1. Revise as follows:

SECTION R603
STEEL WALL FRAMING

R603.1 General. Elements shall be straight and free of any defects that would significantly affect structural performance. Cold-formed steel wall framing members shall comply with the requirements of this section.

R603.1.1 Applicability limits. The provisions of this section shall control the construction of exterior cold-formed steel wall framing and interior load-bearing steel wall framing for buildings not more than 60 feet (18 288 mm) long perpendicular to the joist or truss span, not more than 40 feet (12 192mm) wide parallel to the joist or truss span, and less than or equal to three ~~not more than two~~ stories in height. All exterior walls installed in accordance with the provisions of this section shall be considered as load-bearing walls. Cold-formed ~~S~~steel walls constructed in accordance with the provisions of this section shall be limited to sites subjected to a maximum design wind speed of 110 miles per hour (49 m/s) Exposure A, B or C and a maximum ground snow load of 70 psf (3.35 kPa).

R603.1.2 In-line framing. Load-bearing cold-formed steel studs constructed in accordance with Section R603 shall be located ~~directly~~ in-line with joists, trusses and rafters in accordance with Figure R603.1.2 and the tolerances specified as follows:

1. ~~With a~~ The maximum tolerance shall be ~~of~~ 3/4 inch (19.1 mm) between the centerline of the horizontal framing member and the centerline of the vertical framing member ~~between their center lines.~~
2. Where the centerline of the horizontal framing member and bearing stiffener are located to one side of the centerline of the vertical framing member, the maximum tolerance shall be 1/8 inch (3 mm) between the web of the horizontal framing member and the edge of the vertical framing member.
   ~~Interior load-bearing steel studwalls shall be supported on foundations or shall be located directly above load-bearing walls with a maximum tolerance of 3/4 inch (19 mm) between the centerline of the studs.~~

R603.2 Structural framing. Load-bearing steel wall framing members shall comply with Figure R603.2(1) and with the dimensional and minimum thickness requirements specified in Tables R603.2(1) and R603.2(2). Tracks shall comply with Figure R603.2(2) and shall have a minimum flange width of 11/4 inches (32 mm). The maximum inside bend radius for members shall be the greater of 3/32 inch (2.4 mm) or twice the ~~uncoated~~ base steel thickness. ~~Holes in wall studs and other structural members shall comply with all of the following conditions:~~

~~1. Holes shall conform to Figure R603.2(3);~~
~~2. Holes shall be permitted only along the centerline of the web of the framing member;~~
~~3. Holes shall have a center-to-center spacing of not less than 24 inches (610 mm);~~
~~4. Holes shall have a width not greater than 0.5 times the member depth, or 11/2 inches (38.1 mm);~~
~~5. Holes shall have a length not exceeding 41/2 inches (114 mm); and~~
~~6. Holes shall have a minimum distance between the edge of the bearing surface and the edge of the hole of not less than 10 inches (254 mm).~~

~~Framing members with web holes violating the above requirements shall be patched in accordance with Section R603.3.5 or designed in accordance with accepted engineering practices.~~

R603.2.1 Material. Load-bearing cold-formed steel framing members shall be cold-formed to shape from structural quality sheet steel complying with the requirements of one of the following:

1. ASTM A 653: Grades 33, ~~37, 40~~ and 50 (Class 1 and 3).
2. ASTM A 792: Grades 33, ~~37, 40~~ and 50A.
3. ~~ASTMA875: Grades 33, 37, 40 and 50 (Class 1 and 3).~~
4. ASTM A 1003: Structural Grades 33 Type H, ~~37, 40~~ and 50 Type H.

R603.2.2 Identification. Load-bearing cold-formed steel framing members shall have a legible label, stencil, stamp or embossment with the following information as a minimum:

1. Manufacturer's identification.
2. Minimum ~~uncoated~~ base steel thickness in inches (mm).
3. Minimum coating designation.
4. Minimum yield strength, in kips per square inch (ksi) (kPa~~N~~).

R603.2.3 Corrosion protection. Load-bearing cold-formed steel framing shall have a metallic coating complying with ASTM A 1003 and one of the following:

1. A minimum of G 60 in accordance with ASTM A 653.
2. A minimum of AZ 50 in accordance with ASTM A 792.
3. ~~A minimum of GF 60 in accordance with ASTM A 875.~~

R603.2.4 Fastening requirements. Screws for steel-to-steel connections shall be installed with a minimum edge distance and center-to-center spacing of 1/2 inch (12.7 mm), shall be self-drilling tapping and shall conform to ~~SAE J78~~ASTM C1513. Structural sheathing shall be attached to cold-formed steel studs with minimum No. 8 self-drilling tapping screws that conform to ~~SAE J78~~ASTM C1513. Screws for attaching structural sheathing to cold-formed steel wall framing shall have a minimum head diameter of 0.292 inch (7.4 mm) with countersunk heads and shall be installed with a minimum edge distance of 3/8 inch (9.5 mm). Gypsum board shall be attached to cold-formed steel wall framing with minimum No. 6 screws conforming to ASTM C 954 or ASTM C1513 with a bugle head style and shall be installed in accordance with Section R702. For all connections, screws shall extend through the steel a minimum of three exposed threads. All ~~self-drilling tapping screws conforming to SAE J78~~fasteners shall have ~~a Type II coating in accordance with ASTM B 633~~rust inhibitive coating suitable for the installation in which they are being used, or be manufactured from material not susceptible to corrosion.

Where No. 8 screws are specified in a steel-to-steel connection, the required number of screws in the connection is permitted to be reduced in accordance with the reduction factors in Table R603.2.4, when larger screws are used or when one of the sheets of steel being connected is thicker than 33 mils (0.84 mm). When applying the reduction factor, the resulting number of screws shall be rounded up.

2. Add new text as follows:

R603.2.5 Web holes, web hole reinforcing, and web hole patching. Web holes, web hole reinforcing, and web hole patching shall be in accordance with this section.

R603.2.5.1 Web holes. Web holes in wall studs and other structural members shall comply with all of the following conditions:

1. Holes shall conform to Figure R603.2.5.1;
2. Holes shall be permitted only along the centerline of the web of the framing member;
3. Holes shall have a center-to-center spacing of not less than 24 inches (610 mm);
4. Holes shall have a web hole width not greater than 0.5 times the member depth, or 1-1/2 inches (38 mm);
5. Holes shall have a web hole length not exceeding 4-1/2 inches (114 mm); and
6. Holes shall have a minimum distance between the edge of the bearing surface and the edge of the web hole of not less than 10 inches (254 mm).

Framing members with web holes not conforming to the above requirements shall be reinforced in accordance with Section R603.2.5.2, patched in accordance with Section R603.2.5.3, or designed in accordance with accepted engineering practices.

R603.2.5.2 Web hole reinforcing. Web holes in gable endwall studs not conforming to the requirements of Section R603.2.5.1 shall be permitted to be reinforced if the hole is located fully within the center 40 percent of the span and the depth and length of the hole does not exceed 65% of the flat width of the web. The reinforcing shall be a steel plate or C-shape section with a hole that does not exceed the web hole size limitations of Section R603.2.5.1 for the member being reinforced. The steel reinforcing shall be the same thickness as the receiving member and shall extend at least 1 inch (25.4 mm) beyond all edges of the hole. The steel reinforcing shall be fastened to the web of the receiving member with No.8 screws spaced no greater than 1 inch (25.4 mm) center-to-center along the edges of the patch with minimum edge distance of 1/2 inch (12.7 mm).

R603.2.5.3 Hole patching. Web holes in wall studs and other structural members not conforming to the requirements in Section R603.2.5.1 shall be permitted to be patched in accordance with either of the following methods:

1. Framing members shall be replaced or designed in accordance with accepted engineering practices when web holes exceed the following size limits:
   1.1. The depth of the hole, measured across the web, exceeds 70 percent of the flat width of the web; or
   1.2. The length of the hole measured along the web exceeds 10 inches (254 mm) or the depth of the web, whichever is greater.
2. Web holes not exceeding the dimensional requirements in Section R603.2.5.3, Item 1 shall be patched with a solid steel plate, stud section, or track section in accordance with Figure R603.2.5.3. The steel patch shall, as a minimum, be the same thickness as the receiving member and shall extend at least 1 inch (25 mm) beyond all edges of the hole. The steel patch shall be fastened to the web of the receiving member with No. 8 screws spaced no more than 1 inch (25 mm) center-to-center along the edges of the patch with a minimum edge distance of 1/2 inch (13 mm).

3. Revise as follows:

R603.3 Wall construction. All exterior cold-formed steel framed walls and interior load-bearing cold-formed steel framed walls shall be constructed in accordance with the provisions of this section ~~and Figure R603.3~~.

R603.3.1 Wall to foundation or floor connection. Cold-formed s~~S~~teel framed walls shall be anchored to foundations or floors in accordance with Table R603.3.1 and Figure R603.3.1(1), ~~or~~ R603.3.1(2) or R603.3.1(3). Anchor bolts shall be located not more than 12 inches (305 mm) from corners or the termination of bottom tracks. Anchor bolts shall extend a minimum of 15 inches (381 mm) into masonry or 7 inches (178 mm) into concrete. Foundation anchor straps shall be permitted, in lieu of anchor bolts, if spaced as required to provide equivalent anchorage to the required anchor bolts and installed in accordance with manufacturer's requirements.

4. Add new text as follows:

R603.3.1.1 Gable endwalls. Gable endwalls with heights greater than 10 feet (3050 mm) shall be anchored to foundations or floors in accordance with Tables R603.3.1.1(1) or R603.3.1.1(2).

5. Revise as follows:

R603.3.2 Minimum stud sizes~~Load-bearing walls~~. Cold-formed steel walls shall be constructed in accordance with Figures R603.3.1(1), R603.3.1(2), or R603.3.1(3), as applicable. Exterior wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31). Interior load-bearing wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31) based upon an 85 mph (137 km/hr) Exposure A/B wind value and the building width, stud spacing and snow load as appropriate. Fastening requirements shall be in accordance with Section R603.2.4 and Table R603.3.2(1). Top and bottom tracks shall have the same minimum thickness as the wall studs.

Exterior wall studs shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm) ,where both of the following conditions exist:

1. Minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on the interior surface.
2. Wood structural sheathing panels of minimum 7/16 inch (11 mm) thick oriented strand board or 15/32 inch (12 mm) thick plywood is installed and fastened in accordance with Section R603.9.1 and Table R603.3.2(1) on the outside surface.

Interior load-bearing walls shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm), where a minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on both sides of the wall.
The tabulated stud thickness for load-bearing walls shall be used when the attic load is 10 psf (0.48 kN/m^2) or less. A limited attic storage load of 20 psf (0.96 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(31).

For two-story buildings, the tabulated stud thickness for walls supporting one floor, roof and ceiling shall be used when second floor live load is 30 psf (1.44 kN/m^2). Second floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(21).

For three-story buildings, the tabulated stud thickness for walls supporting one or two floors, roof and ceiling shall be used when the third floor live load is 30 psf (1.44 kN/m^2). Third floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(22) through R603.3.2(31).

~~Steel studs shall comply with Tables R603.3.2(2) through R603.3.2(21) For attic storage the tabulated thickness for walls shall be used when the attic load is 10 psf (0.48 kPa) or less. When an attic storage load is greater than 10 psf (0.48 kPa) but less than or equal to 20 psf (0.96 kPa), the next higher snow load column value from Tables R603.3.2(2) through R603.3.2(21) shall be used to select the stud size. The tabulated stud thickness for structural walls supporting one floor, roof and ceiling shall be used when the second floor live load is 30 psf (1.44 kPa) but less than or equal to 40 psf (1.92 kPa) the design value in the next higher snow load column from Table R603.2(2) through R603.3.2(21) shall be used to select the stud size.~~

~~Fastening requirements shall be in accordance with Section R603.2.4 and Table R603.3.2(1). Tracks shall have the same minimum thickness as the wall studs. Exterior walls with a minimum of ½-inch (13 mm) gypsum board installed in accordance with Section R702 on the interior surface and wood structural panels of minimum 7/16-inch thick (11 mm) oriented-strand board or 15/32-inch thick (12 mm) plywood installed in accordance with Table R603.3.2(1) on the outside surface shall be permitted to use the next thinner stud from Tables R603.3.2(2) through R603.3.2(13) but not less than 33 mils (0.84 mm). Interior load-bearing walls with a minimum ½ inch (13 mm) gypsum board installed in accordance with Section R702 on both sides of the wall shall be permitted to use the next thinner stud from Tables R603.3.2(2) through R603.3.2(13) but not less than 33 mils (0.84 mm).~~

6. Add new text as follows:

R603.3.2.1 Gable endwalls. The size and thickness of gable endwall studs with heights less than or equal to 10 feet (3.05 m) shall be permitted to be determined in accordance with the limits set forth in Tables R603.3.2.1(1) or R603.3.2.1(2). The size and thickness of gable endwall studs with heights greater than 10 feet (2.94 m) shall be determined in accordance with the limits set forth in Tables R603.3.2.1(3) or R603.3.2.1(4).

7. Revise as follows:

R603.3.3 Stud bracing. The flanges of cold-formed steel studs shall be laterally braced in accordance with one of the following:

1. Gypsum board on both sides, structural sheathing on both sides, or gypsum board on one side and structural sheathing on the other side of load-bearing walls with ~~G~~gypsum board installed with minimum No. 6 screws in accordance with Section R702 ~~or~~ and structural sheathing installed in accordance with Section R603.9.1 and Table R603.3.2(1).
2. Horizontal steel strapsping installed fastened in accordance with Figure R603.3.3(1) on both sides at mid-height for 8-foot (2438 mm) walls, and at one-third points for 9-foot and 10-foot (2743mm and 3048 mm) walls. Horizontal steel straps shall be at least 1.5 inches in width and 33 mils in thickness (38 mm by 0.84 mm). Straps shall be attached to the flanges of studs with at least one No. 8 screw. In-line blocking shall be installed between studs at the termination of all straps and at 12 foot (3.33m) intervals along the strap. Straps shall be fastened to the blocking with at least two No. 8 screws.
3. Sheathing on one side and strapping on the other side fastened in accordance with Figure R603.3.3(2). Sheathing shall be installed in accordance with Method #1 above. Steel straps shall be installed in accordance with Method #2 above.

R603.3.4 Cutting and notching. Flanges and lips of cold-formed steel studs and headers shall not be cut or notched.

8. Delete without substitution:

~~**R603.3.5 Hole patching.** Web holes violating the requirements in Section R603.2 shall be designed in accordance with one of the following:~~

~~1. Framing members shall be replaced or designed in accordance with accepted engineering practices when web holes exceed the following size limits:~~
~~1.1. The depth of the hole, measured across the web, exceeds 70 percent of the flat width of the web; or~~
~~1.2. The length of the hole measured along the web exceeds 10 inches (254 mm) or the depth of the web, whichever is greater.~~
~~2. Web holes not exceeding the dimensional requirements in R603.3.5(1) shall be patched with a solid steel plate, stud section, or track section in accordance with Figure R603.3.5. The steel patch shall be as a minimum the same thickness as the receiving member and shall extend at least 1 inch (25 mm) beyond all edges of the hole. The steel patch shall be fastened to the web of the receiving member with No. 8 screws spaced no more than 1 inch (25 mm) center-to-center along the edges of the patch with a minimum edge distance of 1/2 inch (13 mm).~~

9. Revise and renumber as follows::

~~**R603.3.6**~~ **R603.3.5 Splicing.** Steel studs and other structural members shall not be spliced. Tracks shall be spliced in accordance with Figure ~~R603.3.6~~ R603.3.5.

10. Revise as follows:

R603.4 Corner framing. In exterior walls, ~~C~~corner studs and the top tracks shall be installed in accordance with Figure R603.4.

R603.5 Exterior wall covering. The method of attachment of exterior wall covering materials to cold-formed steel stud wall framing shall conform to the manufacturer's installation instructions.

R603.6 Headers. Headers shall be installed above all wall openings in ~~all~~ exterior walls and interior load-bearing walls. Box beam headers and back-to-back headers each shall be formed from two equal sized C-shaped members in accordance with Figures R603.6(1) and R603.6(2), respectively, and Tables R603.6(1) through R603.6(24)~~(8), or~~. L-shaped headers shall be permitted to be constructed in accordance with AISI S230. Alternately, headers shall be permitted to be designed and constructed in accordance with AISI S100, Section D4~~the AISI Standard for Cold-formed Steel Framing–Header Design (COFS/Header Design)~~.

11. Add new text as follows:

R603.6.1 Headers in gable endwalls: Box beam and back-to-back headers in gable endwalls shall be permitted to be constructed in accordance with Section R603.6 or with the header directly above the opening in accordance with Figures R603.6.1(1) and R603.6.1(2) and the following provisions:

1. Two 362S162-33 for openings less than or equal to 4 feet (122 mm).
2. Two 600S162-43 for openings greater than 4 feet (1220 mm) but less than or equal to 6 feet (1830 mm).
3. Two 800S162-54 for openings greater than 6 feet (1830 mm) but less than or equal to 9 feet (2740 mm).

12. Revise and renumber as follows:

~~**R603.6.1**~~ **R603.7 Jack and king studs~~, and head track~~.** The number of jack and king studs, installed on each side of a header, shall comply with Table ~~R603.6(9)~~ R603.7(1). King, ~~and~~ jack, and cripple studs shall be of the same dimension and thickness as the adjacent wall studs. Headers ~~constructed of C-shape framing members~~ shall be connected to king studs in accordance with Table ~~R603.6(10)~~ R603.7(2) and the following provisions:

1. For box beam headers, one-half of the total number of required screws shall be applied to the header and one half to the king stud by use of C-shaped or track member in accordance with Figure R603.6(1). The track or C-shape sections shall extend the depth of the header minus 1/2 inch (13 mm) and shall have a minimum thickness not less than the wall studs.
2. For back-to-back headers, ~~O~~one-half the total number of screws shall be applied to the header and one-half to the king stud by use of a minimum 2-inch-by-2-inch (51 mm x 51 mm) clip angle in accordance with Figure R603.6(2)~~ or 4 inch wide (102 mm) steel plate~~. The clip angle shall extend the depth of the header minus ½ inch (13 mm) and shall have a minimum thickness ~~of the header members or~~not less than the wall studs~~, whichever is thicker~~. Jack and king studs shall be interconnected with structural sheathing in accordance with Figures R603.6(1) and R603.6(2).

13. Add new section as follows:

R603.8 Head and sill track. Head track spans, above door and window openings, and sill track spans, beneath window openings, shall comply with Table ~~R603.1(11)~~ R603.8~~ and shall be in accordance with Figures R603.3 and R603.6~~. ~~Increasing the head track tabular value shall not be prohibited when in accordance with one of the following:~~
~~1.~~ For openings less than 4 feet (1219 mm) in height that have both a head track and a sill ~~a top and bottom head~~ track, the spans in Table R603.8 shall be permitted to be multiplied ~~y the tabular value~~ by 1.75.~~; or~~
~~2.~~ For openings less than or equal to 6 feet (1829 mm) in height that have both a head track and a sill ~~a top and bottom head~~ track, the spans in Table R603.8 shall be permitted to be multiplied ~~y the tabular value~~ by 1.50.

14. Delete without substitution:

~~**R603.7 Structural sheathing.** In areas where the basic wind speed is less than 110 miles per hour (49 m/s), wood structural panel sheathing shall be installed on all exterior walls of buildings in accordance with this section. Wood structural panel sheathing shall consist of minimum 7/16-inch (11 mm) oriented-strand board or 15/32-inch thick (12~~

~~mm) plywood and shall be installed on all exterior wall surfaces in accordance with Section R603.7.1 and Figure R603.3. The minimum length of full height sheathing on exterior walls shall be determined in accordance with Table R603.7, but shall not be less than 20 percent of the braced wall length in any case. The minimum percentage of full height sheathing in Table R603.7 shall include only those sheathed wall sections, uninterrupted by openings, which are a minimum of 48 inches (1120 mm) wide. The minimum percentage of full-height structural sheathing shall be multiplied by 1.10 for 9-foot-high (2743 mm) walls and multiplied by 1.20 for 10-foot-high (3048 m) walls. In addition, structural sheathing shall:~~

~~1. Be installed with the long dimension parallel to the stud framing and shall cover the full vertical height of studs, from the bottom of the bottom track to the top of the top track of each story.~~
~~2. Be applied to each end (corners) of each of the exterior walls with a minimum 48-inch-wide (1291 mm) panel.~~

15. Add new text as follows:

R603.9 Structural sheathing. Structural sheathing shall be installed on all exterior wall surfaces in accordance with Figure R603.9 and Section R603.9.1. Structural sheathing panels shall consist of minimum 7/16-inch (11 mm) thick oriented strand board or 15/32-inch (12 mm) thick plywood. The minimum length of full height sheathing on each exterior wall shall be determined by multiplying the values obtained from Table R603.9(1) by the plan aspect ratio adjustment factors in Table R603.9(2). The minimum length of full height sheathing shall not be less than 20 percent of the wall length.

For hip roofed homes the minimum percentage of full height sheathing in Table R603.9(1), based upon wind, shall be permitted to be multiplied by a factor of 0.95 for roof slopes not exceeding 7:12 and a factor of 0.9 for roof slopes greater than 7:12.

Structural sheathing shall extend, full height, from the bottom to the top of the wall without interruption by openings. The minimum percentages of full height sheathing in Table R603.9(1) shall include only those sheathed wall sections, uninterrupted by openings, which are a minimum of 48 inches (1220 mm) wide. The minimum percentage of full-height structural sheathing shall be multiplied by 1.10 for 9 foot (2.74 m) high walls and multiplied by 1.20 for 10 foot (3.05 m) high walls. In addition, structural sheathing shall comply with all of the following requirements:

1. Be installed with the long dimension parallel to the stud framing (i.e. vertical orientation) and shall cover the full vertical height of wall from the bottom of the bottom track to the top of the top track of each story. It shall be permitted to install the long dimension perpendicular to the stud framing or to use shorter segments provided that the horizontal joint is blocked as described in Item 2 below.
2. Be blocked when the long dimension installed perpendicular to the stud framing (i.e. horizontal orientation). Blocking shall be a minimum of 33 mil (0.84 mm) thickness. Each horizontal structural sheathing panel shall be fastened with No.8 screws spaced at 6 inches (152 mm) on center to the blocking at the joint.
3. Be applied to each end (corners) of each of the exterior walls with a minimum 48 inch (1220 mm) wide panel.

16. Revise and renumber as follows:

~~**R603.7.1**~~ **R603.9.1 Structural sheathing fastening.** All edges and interior areas of ~~wood~~ structural sheathing panels ~~sheathing~~ shall be fastened to ~~a~~ framing members and tracks in accordance with Figure R603.9 and Table R603.3.2(1). Screws for attachment of structural sheathing panels shall be bugle-head, flat-head, or similar head style with a minimum head diameter of 0.29 inches (8 mm). The percentages of full height sheathing, in Table R603.9(1), shall be permitted to be multiplied by 0.72 for 4-inch (102 mm) edge screw spacing.

~~**R603.7.2**~~ **R603.9.2 Hold-down requirements.** In conditions where wind speeds are in excess of 100-mph (161 km/hr) exposure C, hold-down brackets shall be provided in accordance with Table 603.3.1. ~~Multiplying the~~ percentage of structural sheathing required in Table ~~R603.7~~ R603.9(1) shall be permitted to be multiplied by 0.6 ~~is permitted~~ where a hold-down anchor with a capacity of 4,300 pounds (19 kN) is provided at each end of exterior walls. A single hold down anchor, installed in accordance with Figure R603.9.2, shall be permitted at the corners of buildings. ~~Installations of a single hold-down anchor at wall corners is permitted.~~

17. Revise table as follows:

TABLE R603.2(2)
MINIMUM THICKNESS OF COLD-FORMED STEEL MEMBERS ~~STUDS~~

DESIGNATION THICKNESS (mils)	MINIMUM BASE STEEL ~~UNCOATED~~ THICKNESS (inches)	~~REFERENCE GAGE NUMBER~~
33	0.0329~~3~~	~~20~~
43	0.0428~~3~~	~~18~~
54	0.0538~~4~~	~~16~~
68	0.0677~~8~~	~~14~~
97	0.0966	

For SI: 1 inch = 25.4 mm, 1 mil = 0.0254 mm.

18. Delete existing table and substitute as follows:

TABLE R603.3.1
WALL TO FOUNDATION OR FLOOR CONNECTION REQUIREMENTS[a,b]

FRAMING CONDITION	WIND SPEED (MPH) & EXPOSURE					
	85 A/B	90 A/B	100 A/B 85 C	110 A/B 90 C	100 C	< 110 C
Wall bottom track to floor per Figure R603.3.1(1)	1-No.8 screw at 12" o.c.	1-No.8 screw at 12" o.c.	1-No.8 screw at 12" o.c.	1 – No.8 screw at 12" o.c.	2 – No.8 screw at 12" o.c.	2 – No.8 screw at 12" o.c.
Wall bottom track to foundation per Figure R603.3.1(2)[d]	1/2" minimum diameter anchor bolt at 6' o.c.	1/2" minimum diameter anchor bolt at 6' o.c.	1/2" minimum diameter anchor bolt at 4' o.c.	1/2" minimum diameter anchor bolt at 4' o.c.	1/2" minimum diameter anchor bolt at 4' o.c.	1/2" minimum diameter anchor bolt at 4' o.c.
Wall bottom track to wood sill per Figure R603.3.1(3)	Steel plate spaced at 4' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 4' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 3' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 3' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 2' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 2' o.c., with 4-No.8 screws and 4-10d or 6-8d common nails
Wind uplift connector strength for 16" stud spacing[c]	N/R	N/R	N/R	N/R	N/R	65 lbs per foot of wall length
Wind uplift connector strength for 24" stud spacing[c]	N/R	N/R	N/R	N/R	N/R	100 lbs per foot of wall length

For SI: 1 inch = 25.4 mm, 1 mph = 1.61 km/hr, 1 foot = 0.305 m, 1 lb = 4.45 N.

a. Anchor bolts are to be located not more than 12 inches (305 mm) from corners or the termination of bottom tracks (e.g. at door openings or corners). Bolts are to extend a minimum of 15 inches (381 mm) into masonry or 7 inches (178 mm) into concrete.
b. All screw sizes shown are minimum.
c. N/R = uplift connector not required
d. Foundation anchor straps are permitted, in lieu of anchor bolts, if spaced as required to provide equivalent anchorage to the required anchor bolts and installed in accordance with manufacturer's requirements.

19. Add new table as follows:

TABLE R603.3.1.1(1)
GABLE ENDWALL TO FLOOR CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		WALL BOTTOM TRACK TO FLOOR JOIST OR TRACK CONNECTION		
Exposure		STUD HEIGHT, h (ft)		
A/B	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22
85	-	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.
90		1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.
100	85	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.
110	90	1-No.8 screw @ 12" o.c.	1-No.8 screw @ 12" o.c.	2-No.8 screws @ 12" o.c.
-	100	1-No.8 screw @ 12" o.c.	2-No.8 screws @ 12" o.c.	1-No.8 screw @ 8" o.c.
-	110	2-No.8 screws @ 12" o.c.	1-No.8 screw @ 8" o.c.	2-No.8 screws @ 8" o.c.

For SI: 1 inch = 25.4 mm, 1 mph = 1.61 km/hr, 1 foot = 0.305 m, 1 lb = 4.45 N.
[a] Refer to Table R603.3.1.1(2) for gable endwall bottom track to foundation connections.
[b] Where attachment is not given, special design is required.
[c] Stud height, h, is measured from wall bottom track to wall top track or brace connection height.

TABLE R603.3.1.1(2)
GABLE ENDWALL BOTTOM TRACK TO FOUNDATION CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		MINIMUM SPACING FOR $^1/_2$" DIAMETER ANCHOR BOLTS[D]		
Exposure		STUD HEIGHT, h (ft)		
A/B	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22
85	-	6'-0" o.c.	6'-0" o.c.	6'-0" o.c.
90		6'-0" o.c.	5'-7" o.c.	6'-0" o.c.
100	85	5'-10" o.c.	6'-0" o.c.	6'-0" o.c.
110	90	4'-10" o.c.	5'-6" o.c.	6'-0" o.c.
-	100	4'-1" o.c.	6'-0" o.c.	6"-0" o.c.
-	110	5'-1" o.c.	6'-0" o.c.	5'-2" o.c.

For SI: 1 inch = 25.4 mm, 1 mph = 1.61 km/hr, 1 foot = 0.305 m, 1 lb = 4.45 N.
[a] Refer to Table R603.3.1.1(1) for gable endwall bottom track to floor joist or track connection connections.
[b] Where attachment is not given, special design is required.
[c] Stud height, h, is measured from wall bottom track to wall top track or brace connection height.
[d] Foundation anchor straps are permitted, in lieu of anchor bolts, if spaced as required to provide equivalent anchorage to the required anchor bolts and installed in accordance with manufacturer's requirements.

TABLE R603.3.2(1)
WALL FASTENING SCHEDULE[a]

Description Of Building Element	Number And Size Of Fasteners[a]	Spacing Of Fasteners
Structural sheathing to wall studs	No. 8 screws[b]	6" o.c. on edges and 12" o.c. at intermediate supports

For SI: 1 inch = 25.4 mm.
a. All screw sizes shown are minimum.
b. Screws for attachment of structural sheathing panels are to be bugle-head, flat-head, or similar head styles with a minimum head diameter of 0.29 inches (8 mm).

(Portions of table not shown remain unchanged)

21. Delete Tables R603.3.2(2) through Table R603.3.2(21) and replace with new tables as follows:

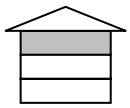


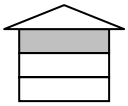
TABLE R603.3.2(2)
24-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	43	43	43	43
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	43	43	43	43
			24	43	43	43	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	43	43	43	43
-	110 mph	350S162	16	33	33	33	33	43	43	43	43	43	43	43	43
			24	43	43	43	43	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.
b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf.
c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(3)
24-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
-	110 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33

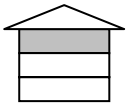
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(4)
28-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	110 mph	350S162	16	33	33	33	33	43	43	43	43	43	43	43	43
			24	43	43	43	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43

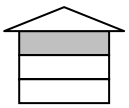
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(5)
28-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
-	110 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	43

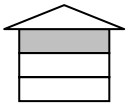
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(6)
32-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	43	43	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43
-	110 mph	350S162	16	33	33	33	43	43	43	43	43	43	43	43	43
			24	43	43	43	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	43

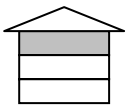
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(7)
32-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	110 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43

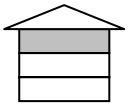
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(8)
36-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	33	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	33	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	43	43	43	43	43	43	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
-	110 mph	350S162	16	33	33	33	43	43	43	43	43	43	43	43	43
			24	43	43	54	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	54	33	33	43	43	43	43	43	54

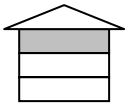
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(9)
36-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	33	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	110 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43

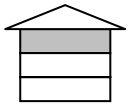
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(10)
40-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	54	33	33	43	43	33	33	43	54
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	54	33	33	43	43	33	33	43	54
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	33	43	43	54	33	43	43	54	43	43	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	33	33	43	54	33	33	43	43	33	33	43	54
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	33	43	43	54	43	43	43	54	43	43	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	33	33	43	54
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	54	68	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	54	33	33	43	54
-	110 mph	350S162	16	33	33	43	43	43	43	43	43	43	43	43	54
			24	43	43	54	68	54	54	54	68	68	68	68	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	43	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(11)
40-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	54	33	33	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43
-	110 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	33	33	43	54	43	43	43	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43

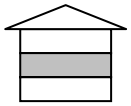
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(12)
24-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	33	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	33	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	43	43	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	43	43
			24	43	43	43	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	43	43	43	43	43	43	43	43
-	110 mph	350S162	16	33	33	33	43	43	43	43	43	43	43	43	43
			24	43	43	43	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43

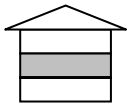
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(13)
24-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	43
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	33	33	33	33	33	33	33	33	33
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43
-	110 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	43	43
			24	43	43	43	43	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	33	33	33	33	43

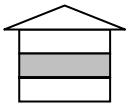
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(14)
28-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	43	43	43	43	43	43
			24	43	43	43	54	54	54	54	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	43	43	43	43	43	43	43	43
-	110 mph	350S162	16	33	33	43	43	43	43	43	43	43	43	43	54
			24	43	43	54	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(15)
28-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	33	33	43	43	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	100 mph	350S162	16	33	33	33	33	33	33	33	33	33	33	33	43
			24	43	43	43	54	43	43	43	43	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43
-	110 mph	350S162	16	33	33	33	43	33	33	33	33	43	43	43	43
			24	43	43	43	54	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	33	43	33	33	33	43	33	33	33	43

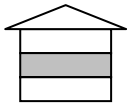
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(16)
32-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	33	33	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	33	33	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	33	33	43	43
110 mph	90 mph	350S162	16	33	33	43	43	33	33	33	43	43	43	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	43	43	43	54
-	100 mph	350S162	16	33	33	43	43	43	43	43	43	43	43	43	43
			24	43	43	54	54	54	54	54	54	54	54	68	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	43	43	43	43	43	43	43	54
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	54	54
			24	54	54	54	68	54	54	54	68	68	68	68	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	43	43	43	43	54

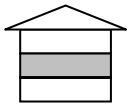
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(17)
32-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	33	43
90 mph		350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	33	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	33	43	54	33	33	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	33	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	33	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43
-	110 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	33	43	33	33	43	43

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(18)
36-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	43	43	33	33	43	43	33	33	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
90 mph		350S162	16	33	33	43	43	33	33	43	43	33	33	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
100 mph	85 mph	350S162	16	33	33	43	43	33	33	43	43	43	43	43	43
			24	43	43	54	68	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
110 mph	90 mph	350S162	16	33	33	43	43	33	33	43	43	43	43	43	54
			24	43	43	54	68	54	54	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
-	100 mph	350S162	16	33	33	43	43	43	43	43	43	43	43	43	54
			24	54	54	54	68	54	54	54	68	54	68	68	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	43	54	54	54
			24	54	54	54	68	54	54	54	68	68	68	68	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	43	54

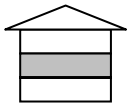
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(19)
36-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a.b.c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	33	33	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	33	33	43	54	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	43	43	43	54	43	43	43	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	33	33	43	43
-	110 mph	350S162	16	33	33	43	43	33	33	33	43	43	43	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	33	33	43	43	33	33	43	43	43	43	43	43

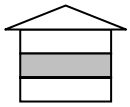
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(20)
40-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	43	43	33	33	43	43	43	43	43	54
			24	43	43	54	68	43	43	54	68	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	54	54	43	43	43	54	43	43	43	54
90 mph		350S162	16	33	33	43	43	33	33	43	43	43	43	43	54
			24	43	43	54	68	43	43	54	68	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	54	54	43	43	43	54	43	43	43	54
100 mph	85 mph	350S162	16	33	33	43	43	33	33	43	43	43	43	43	54
			24	43	43	54	68	43	43	54	68	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	43	33	33	33	43
			24	43	43	54	54	43	43	43	54	43	43	43	54
110 mph	90 mph	350S162	16	33	33	43	43	43	43	43	43	43	43	43	54
			24	43	43	54	68	54	54	54	68	54	54	68	68
		550S162	16	33	33	43	43	33	33	33	43	33	33	33	43
			24	43	43	54	54	43	43	43	54	43	43	43	54
-	100 mph	350S162	16	43	43	43	54	43	43	43	54	43	43	54	54
			24	54	54	54	68	54	54	54	68	68	68	68	97
		550S162	16	33	33	43	43	33	33	33	43	33	33	43	43
			24	43	43	54	54	43	43	43	54	43	43	54	54
-	110 mph	350S162	16	43	43	43	54	43	43	43	54	54	54	54	54
			24	54	54	54	68	54	54	68	68	68	68	68	97
		550S162	16	33	33	43	43	33	33	33	43	33	33	43	43
			24	43	43	54	54	43	43	43	54	43	43	54	54

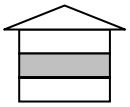
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(21)
40-FOOT-WIDE BUILDING SUPPORTING ONE FLOOR, ROOF & CEILING [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	33	43	43	54	33	33	43	43	33	33	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	43	54	43	43	43	54	43	43	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	33	43	43	54	33	33	43	43	33	33	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	43	33	33	43	43
			24	43	43	54	54	43	43	43	54	43	43	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	33	43	43	54	33	33	43	43	33	33	43	43
110 mph	90 mph	350S162	16	33	33	43	43	33	33	33	43	33	33	43	43
			24	43	43	54	54	43	43	43	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	33	33	43	43
-	100 mph	350S162	16	33	33	43	43	33	33	33	43	43	43	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	33	43	43	43
-	110 mph	350S162	16	33	33	43	43	33	33	43	43	43	43	43	54
			24	43	43	54	68	54	54	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	43
			24	33	43	43	54	33	33	43	43	43	43	43	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Second floor dead load is 10 psf.
Second floor live load is 30 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

22. Add new table as follows:

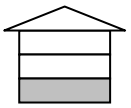


TABLE R603.3.2(22)
24-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54
90 mph		350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54
100 mph	85 mph	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	68
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54
110 mph	90 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	68	68
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54
-	100 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	54
			24	54	54	54	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	54	54	54	54
			24	54	54	54	68	54	54	68	68	68	68	68	97
		550S162	16	33	33	43	43	33	33	33	33	33	33	33	43
			24	43	43	54	54	43	43	43	43	43	43	43	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

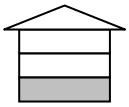


TABLE R603.3.2(23)
24-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	54	54	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43
90 mph		350S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	54	54	43	43	43	43	43	43	43	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43
100 mph	85 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	54	54	43	43	43	43	43	43	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43
110 mph	90 mph	350S162	16	33	33	33	43	33	33	33	33	33	33	43	43
			24	43	43	54	54	43	43	43	43	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43
-	100 mph	350S162	16	33	33	33	43	33	33	33	33	43	43	43	43
			24	43	43	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43
-	110 mph	350S162	16	33	33	33	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	68
		550S162	16	33	33	33	33	33	33	33	33	33	33	33	33
			24	43	43	43	43	43	43	43	43	43	43	43	43

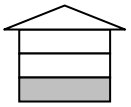
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(24)
28-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
90 mph		350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
100 mph	85 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
110 mph	90 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
-	100 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	54	54
			24	54	54	54	68	54	54	68	68	68	68	68	97
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	54	54	54	54
			24	54	68	68	68	68	68	68	68	68	68	97	97
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

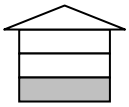


TABLE R603.3.2(25)
28-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43
90 mph		350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43
100 mph	85 mph	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43
110 mph	90 mph	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	43	43	54	54	54	54	54	54
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43
-	100 mph	350S162	16	43	43	43	43	33	33	33	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	68	68	68	68
		550S162	16	33	33	33	43	33	33	33	33	33	33	33	33
			24	43	43	43	54	43	43	43	43	43	43	43	43

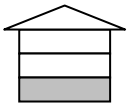
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(26)
32-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	54	43	43	43	43	43	43	43	54
			24	68	68	68	68	54	54	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
90 mph		350S162	16	43	43	43	54	43	43	43	43	43	43	43	54
			24	68	68	68	68	54	54	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
100 mph	85 mph	350S162	16	43	43	43	54	43	43	43	43	43	43	43	54
			24	68	68	68	68	54	54	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
110 mph	90 mph	350S162	16	43	43	43	54	43	43	43	43	43	43	54	54
			24	68	68	68	68	54	54	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
-	100 mph	350S162	16	43	43	43	54	43	43	43	43	54	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	97	97
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
-	110 mph	350S162	16	43	43	43	54	43	43	54	54	54	54	54	54
			24	68	68	68	68	68	68	68	68	97	97	97	97
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

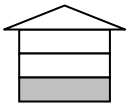


TABLE R603.3.2(27)
32-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54
90 mph		350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54
100 mph	85 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54
110 mph	90 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54
-	100 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	68	68	68	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54
-	110 mph	350S162	16	43	43	43	43	43	43	43	43	43	43	43	54
			24	54	54	54	68	54	54	54	54	68	68	68	68
		550S162	16	43	43	43	43	33	33	33	43	33	33	43	43
			24	54	54	54	54	43	43	43	54	43	43	54	54

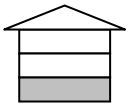
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(28)
36-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph		350S162	16	54	54	54	54	43	43	43	54	54	54	54	54
			24	68	68	68	97	68	68	68	68	68	68	68	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68
90 mph		350S162	16	54	54	54	54	43	43	43	54	54	54	54	54
			24	68	68	68	97	68	68	68	68	68	68	68	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68
100 mph	85 mph	350S162	16	54	54	54	54	43	43	43	54	54	54	54	54
			24	68	68	68	97	68	68	68	68	68	68	68	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68
110 mph	90 mph	350S162	16	54	54	54	54	43	43	43	54	54	54	54	54
			24	68	68	68	97	68	68	68	68	68	68	97	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68
-	100 mph	350S162	16	54	54	54	54	43	43	54	54	54	54	54	54
			24	68	68	68	97	68	68	68	68	97	97	97	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68
-	110 mph	350S162	16	54	54	54	54	54	54	54	54	54	54	54	68
			24	68	68	68	97	68	68	68	97	97	97	97	97
		550S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	54	54	68	68

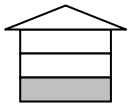
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(29)
36-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
90 mph		350S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
100 mph	85 mph	350S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
110 mph	90 mph	350S162	16	43	43	43	54	43	43	43	43	43	43	43	43
			24	68	68	68	68	54	54	54	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
-	100 mph	350S162	16	43	43	43	54	43	43	43	43	43	43	43	54
			24	68	68	68	68	54	54	54	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54
-	110 mph	350S162	16	43	43	43	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	54	54	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	54	54	54	54	54	54	54	54	54

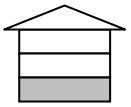
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(30)
40-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
33 ksi STEEL



WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	54	54	54	54	54	54	54	54	54	54	54	54
			24	97	97	97	97	68	68	68	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
90 mph		350S162	16	54	54	54	54	54	54	54	54	54	54	54	54
			24	97	97	97	97	68	68	68	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
100 mph	85 mph	350S162	16	54	54	54	54	54	54	54	54	54	54	54	54
			24	97	97	97	97	68	68	68	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
110 mph	90 mph	350S162	16	54	54	54	54	54	54	54	54	54	54	54	54
			24	97	97	97	97	68	68	68	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
-	100 mph	350S162	16	54	54	54	54	54	54	54	54	54	54	54	54
			24	97	97	97	97	68	68	68	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
-	110 mph	350S162	16	54	54	54	54	54	54	54	54	54	54	68	68
			24	97	97	97	97	68	68	97	97	97	97	97	97
		550S162	16	54	54	54	54	43	43	54	54	43	43	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

TABLE R603.3.2(31)
40-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)											
				8-Foot Studs				9-Foot Studs				10-Foot Studs			
Exp. A/B	Exp. C			Ground Snow Load (psf)											
				20	30	50	70	20	30	50	70	20	30	50	70
85 mph	-	350S162	16	54	54	54	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
90 mph		350S162	16	54	54	54	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
100 mph	85 mph	350S162	16	54	54	54	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
110 mph	90 mph	350S162	16	54	54	54	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
-	100 mph	350S162	16	54	54	54	54	43	43	43	43	43	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	68
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54
-	110 mph	350S162	16	54	54	54	54	43	43	43	43	54	54	54	54
			24	68	68	68	68	68	68	68	68	68	68	68	97
		550S162	16	43	43	43	43	43	43	43	43	43	43	43	43
			24	54	54	54	68	54	54	54	54	54	54	54	54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa, 1 ksi = 1000 psi = 6.895 MPa.

a. Deflection criteria: L/240.

b. Design load assumptions:
Top and middle floor dead load is 10 psf.
Top floor live load is 30 psf.
Middle floor live load is 40 psf.
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the wall *studs*.

22. Add new Tables R603.3.2.1(1) through R603.3.2.1(4) as follows:

TABLE R603.3.2.1(1)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. A/B	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs
85 mph		350S162	16	33	33	33
			24	33	33	33
		550S162	16	33	33	33
			24	33	33	33
90 mph		350S162	16	33	33	33
			24	33	33	33
		550S162	16	33	33	33
			24	33	33	33
100 mph	85 mph	350S162	16	33	33	33
			24	33	33	43
		550S162	16	33	33	33
			24	33	33	33
110 mph	90 mph	350S162	16	33	33	33
			24	33	33	43
		550S162	16	33	33	33
			24	33	33	33
-	100 mph	350S162	16	33	33	43
			24	43	43	54
		550S162	16	33	33	33
			24	33	33	33
-	110 mph	350S162	16	33	43	43
			24	43	54	54
		550S162	16	33	33	33
			24	33	33	43

For SI: 1 inch = 25.4, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa.

a. Deflection criteria L/240.

b. Design load assumptions:
Ground snow load is 70 psf.
Roof and ceiling dead load is 12 psf.
Floor dead load is 10 psf.
Floor live load is 40 psf.
Attic dead load is 10 psf.

c. Building width is in the direction of horizontal framing members supported by the wall studs.

TABLE R603.3.2.1(2)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. A/B	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs
85 mph		350S162	16	33	33	33
			24	33	33	33
		550S162	16	33	33	33
			24	33	33	33
90 mph		350S162	16	33	33	33
			24	33	33	33
		550S162	16	33	33	33
			24	33	33	33
100 mph	85 mph	350S162	16	33	33	33
			24	33	33	33
		550S162	16	33	33	33
			24	33	33	33
110 mph	90 mph	350S162	16	33	33	33
			24	33	33	43
		550S162	16	33	33	33
			24	33	33	33
-	100 mph	350S162	16	33	33	33
			24	33	33	43
		550S162	16	33	33	33
			24	33	33	33
-	110 mph	350S162	16	33	33	33
			24	33	43	54
		550S162	16	33	33	33
			24	33	33	33

For SI: 1 inch = 25.4, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa.

a. Deflection criteria L/240.

b. Design load assumptions:
Ground snow load is 70 psf.
Roof and ceiling dead load is 12 psf.
Floor dead load is 10 psf.
Floor live load is 40 psf.
Attic dead load is 10 psf.

c. Building width is in the direction of horizontal framing members supported by the wall studs.

TABLE 603.3.2.1(3)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [a,b,c]
33 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. A/B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22
85 mph	-	350S162	16	33	43	54	97	-	-
			24	43	54	97	-	-	-
		550S162	16	33	33	33	43	43	54
			24	33	33	43	54	68	97
90 mph		350S162	16	33	43	68	97	-	-
			24	43	68	97	-	-	-
		550S162	16	33	33	33	43	54	54
			24	33	33	43	54	68	97
100 mph	85 mph	350S162	16	43	54	97	-	-	-
			24	54	97	-	-	-	-
		550S162	16	33	33	43	54	54	68
			24	33	43	54	68	97	97
110 mph	90 mph	350S162	16	43	68	-	-	-	-
			24	68	-	-	-	-	-
		550S162	16	33	43	43	54	68	97
			24	43	54	68	97	97	-
-	100 mph	350S162	16	54	97	-	-	-	-
			24	97	-	-	-	-	-
		550S162	16	33	43	54	68	97	-
			24	43	68	97	97	-	-
-	110 mph	350S162	16	68	97	-	-	-	-
			24	97	-	-	-	-	-
		550S162	16	43	54	68	97	97	-
			24	54	68	97	-	-	-

For SI: 1 inch = 25.4, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa.

a. Deflection criteria L/240.

b. Design load assumptions:
Ground snow load is 70 psf.
Roof and ceiling dead load is 12 psf.
Floor dead load is 10 psf.
Floor live load is 40 psf.
Attic dead load is 10 psf.

c. Building width is in the direction of horizontal framing members supported by the wall studs.

TABLE R603.3.2.1(4)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [A,B,C]
50 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. A/B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22
85 mph	-	350S162	16	33	43	54	97	-	-
			24	33	54	97	-	-	-
		550S162	16	33	33	33	33	43	54
			24	33	33	33	43	54	97
90 mph		350S162	16	33	43	68	97	-	-
			24	43	68	97	-	-	-
		550S162	16	33	33	33	33	43	54
			24	33	33	43	43	68	97
100 mph	85 mph	350S162	16	33	54	97	-	-	-
			24	54	97	-	-	-	-
		550S162	16	33	33	33	43	54	68
			24	33	33	43	54	97	97
110 mph	90 mph	350S162	16	43	68	-	-	-	-
			24	68	-	-	-	-	-
		550S162	16	33	33	43	43	68	97
			24	33	43	54	68	97	-
-	100 mph	350S162	16	54	97	-	-	-	-
			24	97	-	-	-	-	-
		550S162	16	33	33	43	54	97	-
			24	43	54	54	97	-	-
-	110 mph	350S162	16	54	97	-	-	-	-
			24	97	-	-	-	-	-
		550S162	16	33	43	54	68	97	-
			24	43	54	68	97	-	-

For SI: 1 inch = 25.4, 1 foot = 304.8 mm, 1 mil = 0.0254 mm, 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa.

a. Deflection criteria L/240.

b. Design load assumptions:
Ground snow load is 70 psf.
Roof and ceiling dead load is 12 psf.
Floor dead load is 10 psf.
Floor live load is 40 psf.
Attic dead load is 10 psf.

c. Building width is in the direction of horizontal framing members supported by the wall studs.

23. Delete Table R603.6(1) through Table R603.6(8) and replace with Table R603.6(1) through Table R603.6(24) as follows:

TABLE R603.6(1)
BOX-BEAM HEADER SPANS
Headers Supporting Roof and Ceiling Only (33 ksi steel) [a, b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	3'-3"	2'-8"	2'-2"	-	-	2'-8"	2'-2"	-	-	-
2-350S162-43	4'-2"	3'-9"	3'-4"	2'-11"	2'-7"	3'-9"	3'-4"	2'-11"	2'-7"	2'-2"
2-350S162-54	5'-0"	4'-6"	4'-1"	3'-8"	3'-4"	4'-6"	4'-1"	3'-8"	3'-3"	3'-0"
2-350S162-68	5'-7"	5'-1"	4'-7"	4'-3"	3'-10"	5'-1"	4'-7"	4'-2"	3'-10"	3'-5"
2-350S162-97	7'-1"	6'-6"	6'-1"	5'-8"	5'-3"	6'-7"	6'-1"	5'-7"	5'-3"	4'-11"
2-550S162-33	4'-8"	4'-0"	3'-6"	3'-0"	2'-6"	4'-1"	3'-6"	3'-0"	2'-6"	-
2-550S162-43	6'-0"	5'-4"	4'-10"	4'-4"	3'-11"	5'-5"	4'-10"	4'-4"	3'-10"	3'-5"
2-550S162-54	7'-0"	6'-4"	5'-9"	5'-4"	4'-10"	6'-5"	5'-9"	5'-3"	4'-10"	4'-5"
2-550S162-68	8'-0"	7'-4"	6'-9"	6'-3"	5'-10"	7'-5"	6'-9"	6'-3"	5'-9"	5'-4"
2-550S162-97	9'-11"	9'-2"	8'-6"	8'-0"	7'-6"	9'-3"	8'-6"	8'-0"	7'-5"	7'-0"
2-800S162-33	4'-5"	3'-11"	3'-5"	3'-1"	2'-10"	3'-11"	3'-6"	3'-1"	2'-9"	2'-3"
2-800S162-43	7'-3"	6'-7"	5'-11"	5'-4"	4'-10"	6'-7"	5'-11"	5'-4"	4'-9"	4'-3"
2-800S162-54	8'-10"	8'-0"	7'-4"	6'-9"	6'-2"	8'-1"	7'-4"	6'-8"	6'-1"	5'-7"
2-800S162-68	10'-5"	9'-7"	8'-10"	8'-2"	7'-7"	9'-8"	8'-10"	8'-1"	7'-6"	7'-0"
2-800S162-97	13'-1"	12'-1"	11'-3"	10'-7"	10'-0"	12'-2"	11'-4"	10'-6"	10'-0"	9'-4"
2-1000S162-43	7'-10"	6'-10"	6'-1"	5'-6"	5'-0"	6'-11"	6'-1"	5'-5"	4'-11"	4'-6"
2-1000S162-54	10'-0"	9'-1"	8'-3"	7'-7"	7'-0"	9'-2"	8'-4"	7'-7"	6'-11"	6'-4"
2-1000S162-68	11'-11"	10'-11"	10'-1"	9'-4"	8'-8"	11'-0"	10'-1"	9'-3"	8'-7"	8'-0"
2-1000S162-97	15'-3"	14'-3"	13'-5"	12'-6"	11'-10"	14'-4"	13'-5"	12'-6"	11'-9"	11'-0"
2-1200S162-54	11'-1"	10'-0"	9'-2"	8'-5"	7'-9"	10'-1"	9'-2"	8'-4"	7'-7"	7'-0"
2-1200S162-68	13'-3"	12'-1"	11'-2"	10'-4"	9'-7"	12'-3"	11'-2"	10'-3"	9'-6"	8'-10"
2-1200S162-97	16'-8"	15'-7"	14'-8"	13'-11"	13'-3"	15'-8"	14'-8"	13'-11"	13'-2"	12'-6"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(2)
BOX-BEAM HEADER SPANS
Headers Supporting Roof and Ceiling Only (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	4'-4"	3'-11"	3'-6"	3'-2"	2'-10"	3'-11"	3'-6"	3'-1"	2'-9"	2'-5"
2-350S162-43	5'-6"	5'-0"	4'-7"	4'-2"	3'-10"	5'-0"	4'-7"	4'-2"	3'-10"	3'-6"
2-350S162-54	6'-2"	5'-10"	5'-8"	5'-3"	4'-10"	5'-11"	5'-8"	5'-2"	4'-10"	4'-6"
2-350S162-68	6'-7"	6'-3"	6'-0"	5'-10"	5'-8"	6'-4"	6'-1"	5'-10"	5'-8"	5'-6"
2-350S162-97	7'-3"	6'-11"	6'-8"	6'-5"	6'-3"	7'-0"	6'-8"	6'-5"	6'-3"	6'-0"
2-550S162-33	6'-2"	5'-6"	5'-0"	4'-7"	4'-2"	5'-7"	5'-0"	4'-6"	4'-1"	3'-8"
2-550S162-43	7'-9"	7'-2"	6'-7"	6'-1"	5'-8"	7'-3"	6'-7"	6'-1"	5'-7"	5'-2"
2-550S162-54	8'-9"	8'-5"	8'-1"	7'-9"	7'-3"	8'-6"	8'-1"	7'-8"	7'-2"	6'-8"
2-550S162-68	9'-5"	9'-0"	8'-8"	8'-4"	8'-1"	9'-1"	8'-8"	8'-4"	8'-1"	7'-10"
2-550S162-97	10'-5"	10'-0"	9'-7"	9'-3"	9'-0"	10'-0"	9'-7"	9'-3"	8'-11"	8'-8"
2-800S162-33	4'-5"	3'-11"	3'-5"	3'-1"	2'-10"	3'-11"	3'-6"	3'-1"	2'-9"	2'-6"
2-800S162-43	9'-1"	8'-5"	7'-8"	6'-11"	6'-3"	8'-6"	7'-8"	6'-10"	6'-2"	5'-8"
2-800S162-54	10'-10"	10'-2"	9'-7"	9'-0"	8'-5"	10'-2"	9'-7"	8'-11"	8'-4"	7'-9"
2-800S162-68	12'-8"	11'-10"	11'-2"	10'-7"	10'-1"	11'-11"	11'-2"	10'-7"	10'-0"	9'-6"
2-800S162-97	14'-2"	13'-6"	13'-0"	12'-7"	12'-2"	13'-8"	13'-1"	12'-7"	12'-2"	11'-9"
2-1000S162-43	7'-10"	6'-10"	6'-1"	5'-6"	5'-0"	6'-11"	6'-1"	5'-5"	4'-11"	4'-6"
2-1000S162-54	12'-3"	11'-5"	10'-9"	10'-2"	9'-6"	11'-6"	10'-9"	10'-1"	9'-5"	8'-9"
2-1000S162-68	14'-5"	13'-5"	12'-8"	12'-0"	11'-6"	13'-6"	12'-8"	12'-0"	11'-5"	10'-10"
2-1000S162-97	17'-1"	16'-4"	15'-8"	14'-11"	14'-3"	16'-5"	15'-9"	14'-10"	14'-1"	13'-6"
2-1200S162-54	12'-11"	11'-3"	10'-0"	9'-0"	8'-2"	11'-5"	10'-0"	9'-0"	8'-1"	7'-4"
2-1200S162-68	15'-11"	14'-10"	14'-0"	13'-4"	12'-8"	15'-0"	14'-0"	13'-3"	12'-7"	11'-11"
2-1200S162-97	19'-11"	18'-7"	17'-6"	16'-8"	15'-10"	18'-9"	17'-7"	16'-7"	15'-9"	15'-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(3)
BOX-BEAM HEADER SPANS
Headers Supporting Roof and Ceiling Only (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-4"	-	-	-	-	-	-	-	-	-
2-350S162-54	3'-1"	2'-8"	2'-3"	-	-	2'-1"	-	-	-	-
2-350S162-68	3'-7"	3'-2"	2'-8"	2'-3"	-	2'-6"	-	-	-	-
2-350S162-97	5'-1"	4'-7"	4'-3"	3'-11"	3'-7"	4'-1"	3'-8"	3'-4"	3'-0"	2'-8"
2-550S162-33	2'-2"	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-8"	3'-1"	2'-6"	-	-	2'-3"	-	-	-	-
2-550S162-54	4'-7"	4'-0"	3'-6"	3'-0"	2'-6"	3'-3"	2'-8"	2'-1"	-	-
2-550S162-68	5'-6"	4'-11"	4'-5"	3'-11"	3'-6"	4'-3"	3'-8"	3'-1"	2'-7"	2'-1"
2-550S162-97	7'-3"	6'-7"	6'-1"	5'-8"	5'-3"	5'-11"	5'-4"	4'-11"	4'-6"	4'-1"
2-800S162-33	2'-7"	-	-	-	-	-	-	-	-	-
2-800S162-43	4'-6"	3'-9"	3'-1"	2'-5"	-	2'-10"	-	-	-	-
2-800S162-54	5'-10"	5'-1"	4'-6"	3'-11"	3'-4"	4'-3"	3'-6"	2'-9"	-	-
2-800S162-68	7'-2"	6'-6"	5'-10"	5'-3"	4'-8"	5'-7"	4'-10"	4'-2"	3'-7"	2'-11"
2-800S162-97	9'-7"	8'-9"	8'-2"	7'-7"	7'-0"	7'-11"	7'-2"	6'-7"	6'-0"	5'-7"
2-1000S162-43	4'-8"	4'-1"	3'-6"	2'-9"	-	3'-3"	2'-2"	-	-	-
2-1000S162-54	6'-7"	5'-10"	5'-1"	4'-5"	3'-9"	4'-10"	4'-0"	3'-2"	2'-3"	-
2-1000S162-68	8'-3"	7'-5"	6'-8"	6'-0"	5'-5"	6'-5"	5'-7"	4'-9"	4'-1"	3'-5"
2-1000S162-97	11'-4"	10'-5"	9'-8"	9'-0"	8'-5"	9'-5"	8'-6"	7'-10"	7'-2"	6'-7"
2-1200S162-54	7'-3"	6'-5"	5'-7"	4'-10"	4'-2"	5'-4"	4'-4"	3'-5"	2'-5"	-
2-1200S162-68	9'-2"	8'-2"	7'-5"	6'-8"	6'-0"	7'-1"	6'-2"	5'-4"	4'-6"	3'-9"
2-1200S162-97	12'-10"	11'-9"	10'-11"	10'-2"	9'-6"	10'-7"	9'-8"	8'-10"	8'-2"	7'-6"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(4)
BOX-BEAM HEADER SPANS
Headers Supporting Roof and Ceiling Only (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	2'-7"	2'-2"	-	-	-	-	-	-	-	-
2-350S162-43	3'-8"	3'-3"	2'-10"	2'-6"	2'-1"	2'-8"	2'-3"	-	-	-
2-350S162-54	4'-8"	4'-2"	3'-9"	3'-5"	3'-1"	3'-7"	3'-2"	2'-9"	2'-5"	2'-0"
2-350S162-68	5'-7"	5'-2"	4'-9"	4'-4"	3'-11"	4'-7"	4'-1"	3'-7"	3'-2"	2'-10"
2-350S162-97	6'-2"	5'-11"	5'-8"	5'-6"	5'-4"	5'-8"	5'-5"	5'-3"	4'-11"	4'-7"
2-550S162-33	3'-11"	3'-4"	2'-10"	2'-4"	-	2'-7"	-	-	-	-
2-550S162-43	5'-4"	4'-10"	4'-4"	3'-10"	3'-5"	4'-2"	3'-7"	3'-1"	2'-7"	2'-1"
2-550S162-54	6'-11"	6'-3"	5'-9"	5'-3"	4'-9"	5'-6"	4'-11"	4'-5"	3'-11"	3'-5"
2-550S162-68	8'-0"	7'-6"	6'-11"	6'-5"	5'-11"	6'-9"	6'-1"	5'-6"	5'-0"	4'-7"
2-550S162-97	8'-11"	8'-6"	8'-2"	7'-11"	7'-8"	8'-1"	7'-9"	7'-6"	7'-1"	6'-7"
2-800S162-33	2'-8"	2'-4"	2'-1"	1'-11"	1'-9"	2'-0"	1'-9"	-	-	-
2-800S162-43	5'-10"	5'-2"	4'-7"	4'-2"	3'-10"	4'-5"	3'-11"	3'-6"	3'-0"	2'-6"
2-800S162-54	8'-0"	7'-3"	6'-8"	6'-1"	5'-7"	6'-5"	5'-9"	5'-1"	4'-7"	4'-0"
2-800S162-68	9'-9"	9'-0"	8'-3"	7'-8"	7'-1"	8'-0"	7'-3"	6'-7"	6'-0"	5'-6"
2-800S162-97	12'-1"	11'-7"	11'-2"	10'-8"	10'-2"	11'-0"	10'-4"	9'-9"	9'-2"	8'-7"
2-1000S162-43	4'-8"	4'-1"	3'-8"	3'-4"	3'-0"	3'-6"	3'-1"	2'-9"	2'-6"	2'-3"
2-1000S162-54	9'-1"	8'-2"	7'-3"	6'-7"	6'-0"	7'-0"	6'-2"	5'-6"	5'-0"	4'-6"
2-1000S162-68	11'-1"	10'-2"	9'-5"	8'-8"	8'-1"	9'-1"	8'-3"	7'-6"	6'-10"	6'-3"
2-1000S162-97	13'-9"	12'-11"	12'-2"	11'-7"	11'-1"	11'-11"	11'-3"	10'-7"	9'-11"	9'-4"
2-1200S162-54	7'-8"	6'-9"	6'-1"	5'-6"	5'-0"	5'-10"	5'-1"	4'-7"	4'-1"	3'-9"
2-1200S162-68	12'-3"	11'-3"	10'-4"	9'-7"	8'-11"	10'-1"	9'-1"	8'-3"	7'-6"	6'-10"
2-1200S162-97	15'-4"	14'-5"	13'-7"	12'-11"	12'-4"	13'-4"	12'-6"	11'-10"	11'-1"	10'-5"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(5)
BOX-BEAM HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-2"	-	-	-	-	2'-1"	-	-	-	-
2-350S162-54	2'-11"	2'-5"	-	-	-	2'-10"	2'-4"	-	-	-
2-350S162-68	3'-8"	3'-2"	2'-9"	2'-4"	-	3'-7"	3'-1"	2'-8"	2'-3"	-
2-350S162-97	4'-11"	4'-5"	4'-2"	3'-8"	3'-5"	4'-10"	4'-5"	4'-0"	3'-8"	3'-4"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-5"	2'-9"	2'-1"	-	-	3'-3"	2'-7"	-	-	-
2-550S162-54	4'-4"	3'-9"	3'-2"	2'-7"	2'-1"	4'-3"	3'-7"	3'-1"	2'-6"	-
2-550S162-68	5'-3"	4'-8"	4'-1"	3'-7"	3'-2"	5'-2"	4'-7"	4'-0"	3'-6"	3'-1"
2-550S162-97	7'-0"	6'-5"	5'-10"	5'-5"	5'-0"	6'-11"	6'-4"	5'-9"	5'-4"	4'-11"
2-800S162-33	2'-1"	-	-	-	-	-	-	-	-	-
2-800S162-43	4'-2"	3'-4"	2'-7"	-	-	4'-0"	3'-3"	2'-5"	-	-
2-800S162-54	5'-6"	4'-9"	4'-1"	3'-5"	2'-9"	5'-5"	4'-8"	3'-11"	3'-3"	2'-8"
2-800S162-68	6'-11"	6'-2"	5'-5"	4'-10"	4'-3"	6'-9"	6'-0"	5'-4"	4'-8"	4'-1"
2-800S162-97	9'-4"	8'-6"	7'-10"	7'-3"	6'-8"	9'-2"	8'-4"	7'-8"	7'-1"	6'-7"
2-1000S162-43	4'-4"	3'-9"	2'-11"	-	-	4'-3"	3'-8"	2'-9"	-	-
2-1000S162-54	6'-3"	5'-5"	4'-7"	3'-11"	3'-2"	6'-1"	5'-3"	4'-6"	3'-9"	3'-0"
2-1000S162-68	7'-11"	7'-0"	6'-3"	5'-6"	4'-10"	7'-9"	6'-10"	6'-1"	5'-4"	4'-9"
2-1000S162-97	11'-0"	10'-1"	9'-3"	8'-7"	8'-0"	10'-11"	9'-11"	9'-2"	8'-5"	7'-10"
2-1200S162-54	6'-11"	5'-11"	5'-1"	4'-3"	3'-5"	6'-9"	5'-9"	4'-11"	4'-1"	3'-3"
2-1200S162-68	8'-9"	7'-9"	6'-11"	6'-1"	5'-4"	8'-7"	7'-7"	6'-9"	5'-11"	5'-3"
2-1200S162-97	12'-4"	11'-5"	10'-6"	9'-8"	9'-0"	12'-3"	11'-3"	10'-4"	9'-6"	8'-10"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(6)
BOX-BEAM HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	2'-4"	-	-	-	-	2'-3"	-	-	-	-
2-350S162-43	3'-4"	2'-11"	2'-6"	2'-1"	-	3'-3"	2'-10"	2'-5"	2'-0"	-
2-350S162-54	4'-4"	3'-10"	3'-5"	3'-1"	2'-9"	4'-3"	2'-9"	3'-4"	3'-0"	2'-8"
2-350S162-68	5'-0"	4'-9"	4'-7"	4'-2"	3'-9"	4'-11"	4'-8"	4'-6"	4'-1"	3'-9"
2-350S162-97	5'-6"	5'-3"	5'-1"	4'-11"	2'-9"	5'-5"	5'-2"	5'-0"	4'-10"	4'-8"
2-550S162-33	3'-6"	2'-11"	2'-4"	-	-	3'-5"	2'-10"	2'-3"	-	-
2-550S162-43	5'-0"	4'-5"	3'-11"	3'-5"	3'-0"	4'-11"	4'-4"	3'-10"	3'-4"	2'-11"
2-550S162-54	6'-6"	5'-10"	5'-3"	4'-9"	4'-4"	6'-4"	5'-9"	5'-2"	4'-8"	4'-3"
2-550S162-68	7'-2"	6'-10"	6'-5"	5'-11"	5'-6"	7'-0"	6'-9"	6'-4"	5'-10"	5'-4"
2-550S162-97	7'-11"	7'-7"	7'-3"	7'-0"	6'-10"	7'-9"	7'-5"	7'-2"	6'-11"	6'-9"
2-800S162-33	2'-5"	2'-2"	1'-11"	1'-9"	-	2'-5"	2'-1"	1'-10"	1'-8"	-
2-800S162-43	5'-5"	4'-9"	4'-3"	3'-9"	3'-5"	5'-3"	4'-8"	4'-1"	3'-9"	3'-5"
2-800S162-54	7'-6"	6'-9"	6'-2"	5'-7"	5'-0"	7'-5"	6'-8"	6'-0"	5'-5"	4'-11"
2-800S162-68	9'-3"	8'-5"	7'-8"	7'-1"	6'-6"	9'-1"	8'-3"	7'-7"	7'-0"	6'-5"
2-800S162-97	10'-9"	10'-3"	9'-11"	9'-7"	9'-3"	10'-7"	10'-1"	9'-9"	9'-5"	9'-1"
2-1000S162-43	4'-4"	3'-9"	3'-4"	3'-0"	2'-9"	4'-3"	3'-8"	3'-3"	2'-11"	2'-8"
2-1000S162-54	8'-6"	7'-6"	6'-8"	6'-0"	5'-5"	8'-4"	7'-4"	6'-6"	5'-10"	5'-4"
2-1000S162-68	10'-6"	9'-7"	8'-9"	8'-0"	7'-5"	10'-4"	9'-5"	8'-7"	7'-11"	7'-3"
2-1000S162-97	12'-11"	12'-4"	11'-8"	11'-1"	10'-6"	12'-9"	12'-2"	11'-6"	10'-11"	10'-5"
2-1200S162-54	7'-1"	6'-2"	5'-6"	5'-0"	4'-6"	6'-11"	6'-1"	5'-5"	4'-10"	4'-5"
2-1200S162-68	11'-7"	10'-7"	9'-8"	8'-11"	8'-2"	11'-5"	10'-5"	9'-6"	8'-9"	8'-0"
2-1200S162-97	14'-9"	13'-9"	13'-0"	12'-4"	11'-9"	14'-7"	13'-8"	12'-10"	12'-3"	11'-8"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(7)
BOX-BEAM HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	-	-	-	-	-	-	-	-	-	-
2-350S162-68	2'-8"	2'-3"	-	-	-	-	-	-	-	-
2-350S162-97	4'-0"	3'-7"	3'-3"	2'-11"	2'-7"	3'-4"	2'-11"	2'-6"	2'-2"	-
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-0"	-	-	-	-	-	-	-	-	-
2-550S162-54	3'-1"	2'-6"	-	-	-	-	-	-	-	-
2-550S162-68	4'-1"	3'-6"	2'-11"	2'-5"	-	3'-1"	2'-5"	-	-	-
2-550S162-97	5'-10"	5'-3"	4'-10"	4'-5"	4'-0"	4'-11"	4'-5"	3'-11"	3'-6"	3'-2"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	2'-6"	-	-	-	-	-	-	-	-	-
2-800S162-54	4'-0"	3'-3"	2'-6"	-	-	2'-8"	-	-	-	-
2-800S162-68	5'-5"	4'-8"	4'-0"	3'-4"	2'-8"	4'-2"	3'-4"	2'-6"	-	-
2-800S162-97	7'-9"	7'-1"	6'-6"	5'-11"	5'-5"	6'-7"	5'-11"	5'-4"	4'-10"	4'-4"
2-1000S162-43	2'-10"	-	-	-	-	-	-	-	-	-
2-1000S162-54	4'-7"	3'-8"	2'-9"	-	-	3'-0"	-	-	-	-
2-1000S162-68	6'-2"	5'-4"	4'-7"	3'-10"	3'-1"	4'-9"	3'-10"	2'-11"	-	-
2-1000S162-97	9'-3"	8'-5"	7'-8"	7'-1"	6'-6"	7'-10"	7'-1"	6'-5"	5'-9"	5'-2"
2-1200S162-54	5'-0"	4'-0"	3'-1"	-	-	3'-4"	-	-	-	-
2-1200S162-68	6'-10"	5'-11"	5'-0"	4'-3"	3'-5"	5'-3"	4'-3"	3'-2"	-	-
2-1200S162-97	10'-5"	9'-6"	8'-8"	8'-0"	7'-4"	8'-10"	8'-0"	7'-3"	6'-6"	5'-10"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(8)
BOX-BEAM HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-6"	-	-	-	-	-	-	-	-	-
2-350S162-54	3'-5"	3'-0"	2'-7"	2'-2"	-	2'-8"	2'-2"	-	-	-
2-350S162-68	4'-6"	4'-1"	3'-8"	3'-3"	2'-11"	3'-9"	3'-3"	2'-10"	2'-5"	2'-1"
2-350S162-97	5'-1"	4'-10"	4'-8"	4'-6"	4'-5"	4'-10"	4'-7"	4'-4"	4'-0"	3'-8"
2-550S162-33	2'-4"	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-10"	3'-4"	2'-9"	2'-3"	-	2'-11"	2'-3"	-	-	-
2-550S162-54	5'-3"	3'-8"	4'-1"	3'-8"	3'-2"	4'-3"	3'-8"	3'-1"	2'-7"	2'-0"
2-550S162-68	6'-5"	5'-10"	5'-3"	4'-9"	4'-4"	5'-5"	4'-9"	4'-3"	3'-9"	3'-4"
2-550S162-97	7'-4"	7'-0"	6'-9"	6'-6"	6'-4"	6'-11"	6'-8"	6'-3"	5'-10"	5'-5"
2-800S162-33	1'-11"	1'-8"	-	-	-	-	-	-	-	-
2-800S162-43	4'-2"	3'-8"	3'-4"	2'-9"	2'-2"	3'-5"	2'-9"	-	-	-
2-800S162-54	6'-1"	5'-5"	4'-10"	4'-3"	3'-9"	4'-11"	4'-3"	3'-8"	3'-0"	2'-5"
2-800S162-68	7'-8"	6'-11"	6'-3"	5'-9"	5'-2"	6'-5"	5'-9"	5'-1"	4'-6"	4'-0"
2-800S162-97	9'-11"	9'-6"	9'-2"	8'-10"	8'-3"	9'-5"	8'-10"	8'-2"	7'-7"	7'-0"
2-1000S162-43	3'-4"	2'-11"	2'-7"	2'-5"	2'-2"	2'-8"	2'-5"	2'-2"	-	-
2-1000S162-54	6'-7"	5'-10"	5'-3"	4'-9"	4'-3"	5'-4"	4'-9"	4'-1"	3'-5"	2'-9"
2-1000S162-68	8'-8"	7'-10"	7'-2"	6'-6"	5'-11"	7'-4"	6'-6"	5'-9"	5'-1"	4'-6"
2-1000S162-97	11'-7"	10'-11"	10'-3"	9'-7"	9'-0"	10'-5"	9'-7"	8'-10"	8'-2"	7'-8"
2-1200S162-54	5'-6"	4'-10"	4'-4"	3'-11"	3'-7"	4'-5"	3'-11"	3'-6"	3'-2"	2'-11"
2-1200S162-68	9'-7"	8'-8"	7'-11"	7'-2"	6'-6"	8'-1"	7'-2"	6'-4"	5'-8"	5'-0"
2-1200S162-97	12'-11"	12'-2"	11'-6"	10'-8"	10'-0"	11'-8"	10'-9"	9'-11"	9'-2"	8'-6"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(9)
BOX-BEAM HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (33 ksi steel) [a,]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	-	-	-	-	-	-	-	-	-	-
2-350S162-68	-	-	-	-	-	-	-	-	-	-
2-350S162-97	3'-1"	2'-8"	2'-3"	-	-	3'-1"	2'-7"	2'-2"	-	-
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	-	-	-	-	-	-	-	-	-	-
2-550S162-54	-	-	-	-	-	-	-	-	-	-
2-550S162-68	2'-9"	-	-	-	-	2'-8"	-	-	-	-
2-550S162-97	4'-8"	4'-1"	3'-7"	3'-2"	2'-9"	4'-7"	4'-0"	3'-6"	3'-1"	2'-8"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	-	-	-	-	-	-	-	-	-	-
2-800S162-54	2'-1"	-	-	-	-	-	-	-	-	-
2-800S162-68	3'-8"	2'-9"	-	-	-	3'-7"	2'-8"	-	-	-
2-800S162-97	6'-3"	5'-6"	4'-11"	4'-4"	3'-9"	6'-2"	5'-5"	4'-10"	4'-3"	3'-9"
2-1000S162-43	-	-	-	-	-	-	-	-	-	-
2-1000S162-54	2'-5"	-	-	-	-	2'-3"	-	-	-	-
2-1000S162-68	4'-3"	3'-2"	2'-0"	-	-	4'-2"	3'-1"	-	-	-
2-1000S162-97	7'-5"	6'-7"	5'-10"	5'-2"	4'-7"	7'-4"	6'-6"	5'-9"	5'-1"	4'-6"
2-1200S162-54	2'-7"	-	-	-	-	2'-6"	-	-	-	-
2-1200S162-68	4'-8"	3'-6"	2'-2"	-	-	4'-7"	3'-5"	2'-0"	-	-
2-1200S162-97	8'-5"	7'-5"	6'-7"	5'-10"	5'-2"	8'-3"	7'-4"	6'-6"	5'-9"	5'-1"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(10)
BOX-BEAM HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	2'-5"	-	-	-	-	2'-4"	-	-	-	-
2-350S162-68	3'-6"	3'-0"	2'-6"	2'-1"	-	3'-5"	2'-11"	2'-6"	2'-0"	-
2-350S162-97	4'-9"	4'-6"	4'-1"	3'-8"	3'-4"	4'-8"	4'-5"	4'-0"	3'-8"	3'-4"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-7"	-	-	-	-	2'-6"	-	-	-	-
2-550S162-54	3'-11"	3'-3"	2'-8"	2'-0"	-	3'-10"	3'-3"	2'-7"	-	-
2-550S162-68	5'-1"	4'-5"	3'-10"	3'-3"	2'-9"	5'-0"	4'-4"	3'-9"	3'-3"	2'-9"
2-550S162-97	6'-10"	6'-5"	5'-10"	5'-5"	4'-11"	6'-9"	6'-4"	5'-10"	5'-4"	4'-11"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	3'-1"	2'-3"	-	-	-	3'-0"	2'-2"	-	-	-
2-800S162-54	4'-7"	3'-10"	3'-1"	2'-5"	-	4'-6"	3'-9"	3'-0"	2'-4"	-
2-800S162-68	6'-0"	5'-3"	4'-7"	3'-11"	3'-4"	6'-0"	5'-2"	4'-6"	3'-11"	3'-3"
2-800S162-97	9'-2"	8'-4"	7'-8"	7'-0"	6'-6"	9'-1"	8'-3"	7'-7"	7'-0"	6'-5"
2-1000S162-43	2'-6"	2'-2"	-	-	-	2'-6"	2'-2"	-	-	-
2-1000S162-54	5'-0"	4'-4"	3'-6"	2'-9"	-	4'-11"	4'-3"	3'-5"	2'-7"	-
2-1000S162-68	6'-10"	6'-0"	5'-3"	4'-6"	3'-10"	6'-9"	5'-11"	5'-2"	4'-5"	3'-9"
2-1000S162-97	10'-0"	9'-1"	8'-3"	7'-8"	7'-0"	9'-10"	9'-0"	8'-3"	7'-7"	7'-0"
2-1200S162-54	4'-2"	3'-7"	3'-3"	2'-11"	-	4'-1"	3'-7"	3'-2"	2'-10"	-
2-1200S162-68	7'-7"	6'-7"	5'-9"	5'-0"	4'-2"	7'-6"	6'-6"	5'-8"	4'-10"	4'-1"
2-1200S162-97	11'-2"	10'-1"	9'-3"	8'-6"	7'-10"	11'-0"	10'-0"	9'-2"	8'-5"	7'-9"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(11)
BOX-BEAM HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	-	-	-	-	-	-	-	-	-	-
2-350S162-68	-	-	-	-	-	-	-	-	-	-
2-350S162-97	2'-11"	2'-5"	2'-0"	-	-	2'-7"	2'-2"	-	-	-
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	-	-	-	-	-	-	-	-	-	-
2-550S162-54	-	-	-	-	-	-	-	-	-	-
2-550S162-68	2'-5"	-	-	-	-	-	-	-	-	-
2-550S162-97	4'-4"	3'-10"	3'-4"	2'-10"	2'-5"	4'-0"	3'-6"	3'-1"	2'-7"	2'-2"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	-	-	-	-	-	-	-	-	-	-
2-800S162-54	-	-	-	-	-	-	-	-	-	-
2-800S162-68	3'-3"	2'-3"	-	-	-	2'-8"	-	-	-	-
2-800S162-97	5'-11"	5'-2"	4'-6"	4'-0"	3'-5"	5'-6"	4'-10"	4'-3"	3'-8"	3'-2"
2-1000S162-43	-	-	-	-	-	-	-	-	-	-
2-1000S162-54	-	-	-	-	-	-	-	-	-	-
2-1000S162-68	3'-9"	2'-7"	-	-	-	3'-1"	-	-	-	-
2-1000S162-97	7'-0"	6'-2"	5'-5"	4'-9"	4'-2"	6'-6"	5'-9"	5'-1"	4'-5"	3'-10"
2-1200S162-54	-	-	-	-	-	-	-	-	-	-
2-1200S162-68	4'-2"	2'-10"	-	-	-	3'-5"	2'-0"	-	-	-
2-1200S162-97	7'-11"	7'-0"	6'-2"	5'-5"	4'-8"	7'-4"	6'-6"	5'-9"	5'-0"	4'-4"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(12)
BOX-BEAM HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	2'-2"	-	-	-	-	-	-	-	-	-
2-350S162-68	3'-3"	2'-9"	2'-3"	-	-	2'-11"	2'-5"	-	-	-
2-350S162-97	4'-6"	4'-3"	3'-10"	3'-6"	3'-2"	4'-3"	4'-0"	3'-7"	3'-3"	3'-0"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-3"	-	-	-	-	-	-	-	-	-
2-550S162-54	3'-7"	2'-11"	2'-3"	-	-	3'-3"	2'-7"	-	-	-
2-550S162-68	4'-9"	2'-1"	3'-6"	3'-0"	2'-5"	4'-4"	3'-9"	3'-2"	2'-8"	2'-1"
2-550S162-97	6'-5"	6'-1"	5'-7"	5'-1"	4'-8"	6'-3"	5'-10"	5'-4"	4'-10"	4'-5"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	2'-8"	-	-	-	-	2'-2"	-	-	-	-
2-800S162-54	4'-3"	3'-5"	2'-8"	-	-	3'-9"	3'-0"	2'-3"	-	-
2-800S162-68	5'-8"	4'-11"	4'-2"	3'-7"	2'-11"	5'-3"	4'-6"	3'-10"	3'-3"	2'-7"
2-800S162-97	8'-9"	8'-0"	7'-3"	6'-8"	6'-2"	8'-4"	7'-7"	6'-11"	6'-4"	5'-10"
2-1000S162-43	2'-4"	2'-0"	-	-	-	2'-2"	-	-	-	-
2-1000S162-54	4'-8"	3'-11"	3'-1"	2'-2"	-	4'-3"	3'-5"	2'-7"	-	-
2-1000S162-68	6'-5"	5'-7"	4'-9"	4'-1"	3'-4"	5'-11"	5'-1"	4'-5"	3'-8"	2'-11"
2-1000S162-97	9'-6"	8'-8"	7'-11"	7'-3"	6'-8"	9'-0"	8'-3"	7'-6"	6'-11"	6'-4"
2-1200S162-54	3'-11"	3'-5"	3'-0"	2'-4"	-	3'-7"	3'-2"	2'-10"	-	-
2-1200S162-68	7'-1"	6'-2"	5'-3"	4'-6"	3'-8"	6'-6"	5'-8"	4'-10"	4'-0"	3'-3"
2-1200S162-97	10'-8"	9'-8"	8'-10"	8'-1"	7'-5"	10'-1"	9'-2"	8'-5"	7'-9"	7'-1"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(13)
BACK-TO-BACK HEADER SPANS
Headers Supporting Roof and Ceiling Only (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	2'-11"	2'-4"	-	-	-	2'-5"	-	-	-	-
2-350S162-43	4'-8"	3'-10"	3'-5"	3'-1"	2'-9"	3'-11"	3'-5"	3'-0"	2'-8"	2'-4"
2-350S162-54	5'-3"	4'-9"	4'-4"	4'-1"	3'-8"	4'-10"	4'-4"	4'-0"	3'-8"	3'-4"
2-350S162-68	6'-1"	5'-7"	5'-2"	4'-10"	4'-6"	5'-8"	5'-3"	4'-10"	4'-6"	4'-2"
2-350S162-97	7'-3"	6'-10"	6'-5"	6'-0"	5'-8"	6'-11"	6'-5"	6'-0"	5'-8"	5'-4"
2-550S162-33	4'-5"	3'-9"	3'-1"	2'-6"	-	3'-9"	3'-2"	2'-6"	-	-
2-550S162-43	6'-2"	5'-7"	5'-0"	4'-7"	4'-2"	5'-7"	5'-0"	4'-6"	4'-1"	3'-8"
2-550S162-54	7'-5"	6'-9"	6'-3"	5'-9"	5'-4"	6'-10"	6'-3"	5'-9"	5'-4"	4'-11"
2-550S162-68	6'-7"	7'-11"	7'-4"	6'-10"	6'-5"	8'-0"	7'-4"	6'-10"	6'-5"	6'-0"
2-550S162-97	10'-5"	9'-8"	9'-0"	8'-6"	8'-0"	9'-9"	9'-0"	8'-6"	8'-0"	7'-7"
2-800S162-33	4'-5"	3'-11"	3'-5"	3'-1"	2'-4"	3'-11"	3'-6"	3'-0"	2'-3"	-
2-800S162-43	7'-7"	6'-10"	6'-2"	5'-8"	5'-2"	6'-11"	6'-2"	5'-7"	5'-1"	4'-7"
2-800S162-54	9'-3"	8'-7"	7'-11"	7'-4"	6'-10"	8'-8"	7'-11"	7'-4"	6'-9"	6'-3"
2-800S162-68	10'-7"	9'-10"	9'-4"	8'-10"	8'-5"	9'-11"	9'-4"	8'-10"	8'-4"	7'-11"
2-800S162-97	13'-9"	12'-9"	12'-0"	11'-3"	10'-8"	12'-10"	12'-0"	11'-3"	10'-7"	10'-0"
2-1000S162-43	7'-10"	6'-10"	6'-1"	5'-6"	5'-0"	6'-11"	6'-1"	5'-5"	4'-11"	4'-6"
2-1000S162-54	10'-5"	9'-9"	9'-0"	8'-4"	7'-9"	9'-10"	9'-0"	8'-4"	7'-9"	7'-2"
2-1000S162-68	12'-1"	11'-3"	10'-8"	10'-1"	9'-7"	11'-4"	10'-8"	10'-1"	9'-7"	9'-1"
2-1000S162-97	15'-3"	14'-3"	13'-5"	12'-9"	12'-2"	14'-4"	13'-5"	12'-8"	12'-1"	11'-6"
2-1200S162-54	11'-6"	10'-9"	10'-0"	9'-0"	8'-2"	10'-10"	10'-0"	9'-0"	8'-1"	7'-4"
2-1200S162-68	13'-4"	12'-6"	11'-9"	11'-2"	10'-8"	12'-7"	11'-10"	11'-2"	10'-7"	10'-1"
2-1200S162-97	16'-8"	15'-7"	14'-8"	13'-11"	13'-3"	15'-8"	14'-8"	13'-11"	13'-2"	12'-7"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(14)
BACK-TO-BACK HEADER SPANS
Headers Supporting Roof and Ceiling Only (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	4'-2"	3'-8"	3'-3"	2'-10"	2'-6"	3'-8"	3'-3"	2'-10"	2'-5"	2'-1"
2-350S162-43	5'-5"	5'-0"	4'-6"	4'-2"	3'-10"	5'-0"	4'-7"	4'-2"	3'-10"	3'-6"
2-350S162-54	6'-2"	5'-10"	5'-8"	5'-4"	5'-0"	5'-11"	5'-8"	5'-4"	5'-0"	4'-8"
2-350S162-68	6'-7"	6'-3"	6'-0"	5'-10"	5'-8"	6'-4"	6'-1"	5'-10"	5'-8"	5'-6"
2-350S162-97	7'-3"	6'-11"	6'-8"	6'-5"	6'-3"	7'-0"	6'-8"	6'-5"	6'-3"	6'-0"
2-550S162-33	5'-10"	5'-3"	4'-8"	4'-3"	3'-9"	5'-3"	4'-9"	4'-2"	3'-9"	3'-3"
2-550S162-43	7'-9"	7'-2"	6'-7"	6'-1"	5'-8"	7'-3"	6'-7"	6'-1"	5'-8"	5'-3"
2-550S162-54	8'-9"	8'-5"	8'-1"	7'-9"	7'-5"	8'-6"	8'-1"	7'-9"	7'-5"	6'-11"
2-550S162-68	9'-5"	9'-0"	8'-8"	8'-4"	8'-1"	9'-1"	8'-8"	8'-4"	8'-1"	7'-10"
2-550S162-97	10'-5"	10'-0"	9'-7"	9'-3"	9'-0"	10'-0"	9'-7"	9'-3"	8'-11"	8'-8"
2-800S162-33	4'-5"	3'-11"	3'-5"	3'-1"	2'-10"	3'-11"	3'-6"	3'-1"	2'-9"	2'-6"
2-800S162-43	9'-1"	8'-5"	7'-8"	6'-11"	6'-3"	8'-6"	7'-8"	6'-10"	6'-2"	5'-8"
2-800S162-54	10'-10"	10'-2"	9'-7"	9'-1"	8'-8"	10'-2"	9'-7"	9'-0"	8'-7"	8'-1"
2-800S162-68	12'-8"	11'-10"	11'-2"	10'-7"	10'-1"	11'-11"	11'-2"	10'-7"	10'-0"	9'-7"
2-800S162-97	14'-2"	13'-6"	13'-0"	12'-7"	12'-2"	13'-8"	13'-1"	12'-7"	12'-2"	11'-9"
2-1000S162-43	7'-10"	6'-10"	6'-1"	5'-6"	5'-0"	6'-11"	6'-1"	5'-5"	4'-11"	4'-6"
2-1000S162-54	12'-3"	11'-5"	10'-9"	10'-3"	9'-9"	11'-6"	10'-9"	10'-2"	9'-8"	8'-11"
2-1000S162-68	14'-5"	13'-5"	12'-8"	12'-0"	11'-6"	13'-6"	12'-8"	12'-0"	11'-5"	10'-11"
2-1000S162-97	17'-1"	16'-4"	15'-8"	14'-11"	14'-3"	16'-5"	15'-9"	14'-10"	14'-1"	13'-6"
2-1200S162-54	12'-11"	11'-3"	10'-0"	9'-0"	8'-2"	11'-5"	10'-0"	9'-0"	8'-1"	7'-4"
2-1200S162-68	15'-11"	14'-10"	14'-0"	13'-4"	12'-8"	15'-0"	14'-0"	13'-3"	12'-7"	12'-0"
2-1200S162-97	19'-11"	18'-7"	17'-6"	16'-8"	15'-10"	18'-9"	17'-7"	16'-7"	15'-9"	15'-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(15)
BACK-TO-BACK HEADER SPANS
Headers Supporting Roof and Ceiling Only (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-6"	-	-	-	-	-	-	-	-	-
2-350S162-54	3'-6"	3'-1"	2'-8"	2'-4"	2'-0"	2'-7"	2'-1"	-	-	-
2-350S162-68	4'-4"	3'-11"	3'-7"	3'-3"	2'-11"	3'-5"	3'-0"	2'-8"	2'-4"	2'-1"
2-350S162-97	5'-5"	5'-0"	4'-8"	4'-6"	4'-1"	4'-6"	4'-2"	3'-10"	3'-6"	3'-3"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-10"	3'-3"	2'-9"	2'-2"	-	2'-6"	-	-	-	-
2-550S162-54	5'-1"	4'-7"	4'-1"	3'-8"	3'-4"	3'-11"	3'-5"	2'-11"	2'-6"	2'-0"
2-550S162-68	6'-2"	5'-8"	5'-2"	4'-9"	4'-5"	5'-0"	4'-6"	4'-1"	3'-9"	3'-4"
2-550S162-97	7'-9"	7'-2"	6'-8"	6'-3"	5'-11"	6'-6"	6'-0"	5'-7"	5'-2"	4'-10"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	4'-10"	4'-1"	3'-6"	2'-11"	2'-3"	3'-3"	2'-5"	-	-	-
2-800S162-54	6'-6"	5'-10"	5'-3"	4'-9"	4'-4"	5'-1"	4'-6"	3'-11"	3'-4"	2'-10"
2-800S162-68	8'-1"	7'-5"	6'-10"	6'-4"	5'-11"	6'-8"	6'-1"	5'-6"	5'-0"	4'-7"
2-800S162-97	10'-3"	9'-7"	8'-11"	8'-5"	7'-11"	8'-8"	8'-0"	7'-6"	7'-0"	6'-7"
2-1000S162-43	4'-8"	4'-1"	3'-8"	3'-4"	2'-8"	3'-6"	2'-10"	-	-	-
2-1000S162-54	7'-5"	6'-8"	6'-1"	5'-6"	5'-0"	5'-10"	5'-1"	4'-6"	3'-11"	3'-4"
2-1000S162-68	9'-4"	8'-7"	7'-11"	7'-4"	6'-10"	7'-8"	7'-0"	6'-4"	5'-10"	5'-4"
2-1000S162-97	11'-9"	11'-0"	10'-5"	9'-11"	9'-5"	10'-3"	9'-7"	8'-11"	8'-4"	7'-10"
2-1200S162-54	7'-8"	6'-9"	6'-1"	5'-6"	5'-0"	5'-10"	5'-1"	4'-7"	4'-1"	3'-9"
2-1200S162-68	10'-4"	9'-6"	8'-10"	8'-2"	7'-7"	8'-7"	7'-9"	7'-1"	6'-6"	6'-0"
2-1200S162-97	12'-10"	12'-1"	11'-5"	10'-10"	10'-4"	11'-2"	10'-6"	9'-11"	9'-5"	9'-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(16)
BACK-TO-BACK HEADER SPANS
Headers Supporting Roof and Ceiling Only (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	2'-3"	-	-	-	-	-	-	-	-	-
2-350S162-43	3'-8"	3'-3"	2'-10"	2'-6"	2'-2"	2'-8"	2'-3"	-	-	-
2-350S162-54	4'-9"	4'-4"	4'-0"	3'-8"	3'-8"	3'-10"	3'-5"	3'-1"	2'-9"	2'-5"
2-350S162-68	5'-7"	5'-4"	5'-2"	4'-11"	4'-7"	5'-1"	4'-8"	4'-3"	3'-11"	3'-8"
2-350S162-97	6'-2"	5'-11"	5'-8"	5'-6"	5'-4"	5'-8"	5'-5"	5'-3"	5'-0"	4'-11"
2-550S162-33	3'-6"	2'-10"	2'-3"	-	-	2'-0"	-	-	-	-
2-550S162-43	5'-5"	4'-10"	4'-4"	3'-11"	3'-6"	4'-2"	3'-8"	3'-2"	2'-8"	2'-3"
2-550S162-54	7'-2"	6'-6"	6'-0"	5'-7"	5'-2"	5'-10"	5'-3"	4'-10"	4'-5"	4'-0"
2-550S162-68	8'-0"	7'-8"	7'-3"	6'-11"	6'-6"	7'-2"	6'-7"	6'-1"	5'-8"	5'-4"
2-550S162-97	8'-11"	8'-6"	8'-2"	7'-11"	7'-8"	8'-1"	7'-9"	7'-6"	7'-2"	6'-11"
2-800S162-33	2'-8"	2'-4"	2'-1"	1'-11"	-	2'-0"	-	-	-	-
2-800S162-43	5'-10"	5'-2"	4'-7"	4'-2"	3'-10"	4'-5"	3'-11"	3'-6"	3'-2"	2'-9"
2-800S162-54	8'-4"	7'-8"	7'-1"	6'-7"	6'-1"	6'-10"	6'-3"	5'-8"	5'-2"	4'-9"
2-800S162-68	9'-9"	9'-2"	8'-8"	8'-3"	7'-10"	8'-6"	7'-11"	7'-4"	6'-10"	6'-5"
2-800S162-97	12'-1"	11'-7"	11'-2"	10'-8"	10'-2"	11'-0"	10'-4"	9'-9"	9'-3"	8'-10"
2-1000S162-43	4'-8"	4'-1"	2'-8"	3'-4"	3'-0"	3'-6"	10'-1"	2'-9"	2'-6"	2'-3"
2-1000S162-54	9'-3"	8'-2"	7'-3"	6'-7"	6'-0"	7'-0"	6'-2"	5'-6"	5'-0"	4'-6"
2-1000S162-68	11'-1"	10'-5"	9'-10"	9'-4"	8'-11"	9'-8"	9'-1"	8'-5"	7'-10"	7'-4"
2-1000S162-97	13'-9"	12'-11"	12'-2"	11'-7"	11'-1"	11'-11"	11'-3"	10'-7"	10'-1"	9'-7"
2-1200S162-54	7'-8"	6'-9"	6'-1"	5'-6"	5'-0"	5'-10"	5'-1"	4'-7"	4'-1"	3'-9"
2-1200S162-68	12'-3"	11'-6"	10'-11"	10'-4"	9'-11"	10'-8"	10'-0"	9'-2"	8'-4"	7'-7"
2-1200S162-97	15'-4"	14'-5"	13'-7"	12'-11"	12'-4"	13'-4"	12'-6"	11'-10"	11'-3"	10'-9"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Roof/ceiling dead load is 12 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(17)
BACK-TO-BACK HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-2"	-	-	-	-	2'-1"	-	-	-	-
2-350S162-54	3'-3"	2'-9"	2'-5"	2'-0"	-	3'-2"	2'-9"	2'-4"	-	-
2-350S162-68	4'-4"	3'-8"	3'-3"	2'-11"	2'-8"	4'-0"	3'-7"	3'-2"	2'-11"	2'-7"
2-350S162-97	5'-2"	4'-9"	4'-4"	4'-1"	3'-9"	5'-1"	4'-8"	4'-4"	4'-0"	3'-9"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-6"	2'-10"	2'-3"	-	-	3'-5"	2'-9"	2'-2"	-	-
2-550S162-54	4'-9"	4'-2"	3'-9"	3'-3"	2'-10"	4'-8"	4'-1"	3'-8"	3'-2"	2'-9"
2-550S162-68	5'-10"	5'-3"	4'-10"	4'-5"	4'-1"	5'-9"	5'-3"	4'-9"	4'-4"	4'-0"
2-550S162-97	7'-4"	6'-9"	6'-4"	5'-11"	5'-6"	7'-3"	6'-9"	6'-3"	5'-10"	5'-5"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	4'-4"	3'-8"	2'-11"	2'-3"	-	4'-3"	3'-6"	2'-10"	2'-1"	-
2-800S162-54	6'-1"	5'-5"	4'-10"	4'-4"	3'-10"	6'-0"	5'-4"	4'-9"	4'-3"	3'-9"
2-800S162-68	7'-8"	7'-0"	6'-5"	5'-11"	5'-5"	7'-7"	6'-11"	6'-4"	5'-10"	5'-4"
2-800S162-97	9'-10"	9'-1"	8'-5"	7'-11"	7'-5"	9'-8"	8'-11"	8'-4"	7'-10"	7'-4"
2-1000S162-43	4'-4"	3'-9"	3'-4"	2'-8"	-	4'-3"	3'-8"	3'-3"	2'-6"	-
2-1000S162-54	6'-11"	6'-2"	5'-6"	5'-0"	4'-5"	6'-10"	6'-1"	5'-5"	4'-10"	4'-4"
2-1000S162-68	8'-10"	8'-1"	7'-5"	6'-10"	6'-4"	8'-8"	7'-11"	7'-3"	6'-8"	6'-2"
2-1000S162-97	11'-3"	10'-7"	9'-11"	9'-5"	8'-10"	11'-2"	10'-5"	9'-10"	9'-3"	8'-9"
2-1200S162-54	7'-1"	6'-2"	5'-6"	5'-0"	4'-6"	6'-11"	6'-1"	5'-5"	4'-10"	4'-5"
2-1200S162-68	9'-10"	9'-0"	8'-3"	7'-7"	7'-0"	9'-8"	8'-10"	8'-1"	7'-6"	6'-11"
2-1200S162-97	12'-4"	11'-7"	10'-11"	10'-4"	9'-10"	12'-3"	11'-5"	10'-9"	10'-3"	9'-9"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(18)
BACK-TO-BACK HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	3'-4"	2'-11"	2'-6"	2'-2"	-	3'-3"	2'-10"	2'-5"	2'-1"	-
2-350S162-54	4'-6"	4'-1"	3'-8"	3'-4"	3'-0"	4'-5"	4'-0"	3'-7"	3'-3"	2'-11"
2-350S162-68	5'-0"	4'-9"	4'-7"	4'-5"	4'-3"	4'-11"	4'-8"	4'-6"	4'-4"	4'-2"
2-350S162-97	5'-6"	5'-3"	5'-1"	4'-11"	4'-9"	5'-5"	5'-2"	5'-0"	4'-10"	4'-8"
2-550S162-33	3'-1"	2'-5"	-	-	-	3'-0"	2'-3"	-	-	-
2-550S162-43	5'-1"	4'-6"	4'-0"	3'-6"	3'-1"	4'-11"	4'-5"	3'-11"	3'-5"	3'-0"
2-550S162-54	6'-8"	6'-2"	5'-7"	5'-2"	4'-9"	6'-6"	6'-0"	5'-6"	5'-1"	4'-8"
2-550S162-68	7'-2"	6'-10"	6'-7"	6'-4"	6'-1"	7'-0"	6'-9"	6'-6"	6'-3"	6'-0"
2-550S162-97	7'-11"	7'-7"	7'-3"	7'-0"	6'-10"	7'-9"	7'-5"	7'-2"	6'-11"	6'-9"
2-800S162-33	2'-5"	2'-2"	1'-11"	-	-	2'-5"	2'-1"	1'-10"	-	-
2-800S162-43	5'-5"	4'-9"	4'-3"	3'-9"	3'-5"	5'-3"	4'-8"	4'-1"	3'-9"	3'-5"
2-800S162-54	7'-11"	7'-2"	6'-7"	6'-1"	5'-7"	7'-9"	7'-1"	6'-6"	6'-0"	5'-6"
2-800S162-68	9'-5"	8'-9"	8'-3"	7'-9"	7'-4"	9'-3"	8'-8"	8'-2"	7'-8"	7'-3"
2-800S162-97	10'-9"	10'-3"	9'-11"	9'-7"	9'-3"	10'-7"	10'-1"	9'-9"	9'-5"	9'-1"
2-1000S162-43	4'-4"	3'-9"	3'-4"	3'-0"	2'-9"	4'-3"	3'-8"	3'-3"	2'-11"	2'-8"
2-1000S162-54	8'-6"	7'-5"	6'-8"	6'-0"	5'-5"	8'-4"	7'-4"	6'-6"	5'-10"	5'-4"
2-1000S162-68	10'-8"	10'-0"	9'-5"	8'-11"	8'-4"	10'-7"	9'-10"	9'-4"	8'-9"	8'-3"
2-1000S162-97	12'-11"	12'-4"	11'-8"	11'-1"	10'-6"	12'-9"	12'-2"	11'-6"	10'-11"	10'-5"
2-1200S162-54	7'-1"	6'-2"	5'-6"	5'-0"	4'-6"	6'-11"	6'-1"	5'-5"	4'-10"	4'-5"
2-1200S162-68	11'-9"	11'-0"	10'-5"	9'-10"	9'-1"	11'-8"	10'-11"	10'-3"	9'-9"	8'-11"
2-1200S162-97	14'-9"	13'-9"	13'-0"	12'-4"	11'-9"	14'-7"	13'-8"	12'-10"	12'-3"	11'-8"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(19)
BACK-TO-BACK HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	2'-4"	-	-	-	-	-	-	-	-	-
2-350S162-68	3'-3"	2'-10"	2'-6"	2'-2"	-	2'-7"	2'-2"	-	-	-
2-350S162-97	4'-4"	4'-0"	3'-8"	3'-4"	3'-1"	3'-9"	3'-4"	3'-1"	2'-9"	2'-6"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-2"	-	-	-	-	-	-	-	-	-
2-550S162-54	3'-8"	3'-2"	2'-8"	2'-3"	-	2'-10"	2'-3"	-	-	-
2-550S162-68	4'-9"	4'-4"	3'-11"	3'-6"	3'-2"	4'-0"	3'-6"	3'-1"	2'-9"	2'-4"
2-550S162-97	6'-3"	5'-9"	5'-4"	5'-0"	4'-8"	5'-6"	5'-0"	4'-7"	4'-3"	3'-11"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	2'-11"	2'-0"	-	-	-	-	-	-	-	-
2-800S162-54	4'-9"	4'-2"	3'-7"	3'-1"	2'-7"	3'-9"	3'-1"	2'-5"	-	-
2-800S162-68	6'-4"	5'-9"	5'-3"	4'-9"	4'-4"	5'-4"	4'-9"	4'-3"	3'-10"	3'-4"
2-800S162-97	8'-5"	7'-9"	7'-3"	6'-9"	6'-4"	7'-4"	6'-9"	6'-3"	5'-10"	5'-5"
2-1000S162-43	3'-4"	2'-5"	-	-	-	-	-	-	-	-
2-1000S162-54	5'-6"	4'-10"	4'-2"	3'-7"	3'-0"	4'-4"	3'-7"	2'-11"	2'-2"	-
2-1000S162-68	7'-4"	6'-8"	6'-1"	5'-7"	5'-1"	6'-3"	5'-7"	5'-0"	4'-5"	4'-0"
2-1000S162-97	9'-11"	8'-3"	8'-7"	8'-1"	7'-7"	8'-9"	8'-1"	7'-6"	7'-0"	6'-6"
2-1200S162-54	5'-6"	4'-10"	4'-4"	3'-11"	3'-5"	4'-5"	3'-11"	3'-3"	2'-6"	-
2-1200S162-68	8'-2"	7'-5"	6'-9"	6'-3"	5'-8"	6'-11"	6'-3"	5'-7"	5'-0"	4'-6"
2-1200S162-97	10'-10"	10'-2"	9'-8"	9'-2"	8'-7"	9'-9"	9'-2"	8'-6"	7'-11"	7'-5"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(20)
BACK-TO-BACK HEADER SPANS
Headers Supporting One Floor, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	2'-6"	2'-0"	-	-	-	-	-	-	-	-
2-350S162-54	3'-8"	3'-3"	2'-11"	2'-7"	2'-3"	3'-0"	2'-7"	2'-2"	-	-
2-350S162-68	4'-7"	4'-5"	4'-1"	3'-9"	3'-6"	4'-2"	3'-9"	3'-5"	3'-1"	2'-10"
2-350S162-97	5'-1"	4'-10"	4'-8"	4'-6"	4'-5"	4'-10"	4'-7"	4'-5"	4'-3"	4'-1"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	3'-11"	3'-5"	2'-11"	2'-5"	-	3'-0"	2'-5"	-	-	-
2-550S162-54	5'-7"	5'-0"	4'-7"	4'-2"	3'-9"	4'-8"	4'-2"	3'-8"	3'-3"	2'-11"
2-550S162-68	6'-7"	6'-4"	5'-11"	5'-6"	5'-1"	6'-0"	5'-6"	5'-0"	4'-7"	4'-3"
2-550S162-97	7'-4"	7'-0"	6'-9"	6'-6"	6'-4"	6'-11"	6'-8"	6'-5"	6'-2"	6'-0"
2-800S162-33	1'-11"	-	-	-	-	-	-	-	-	-
2-800S162-43	4'-2"	3'-8"	3'-4"	3'-0"	2'-6"	3'-5"	3'-0"	2'-4"	-	-
2-800S162-54	6'-7"	5'-11"	5'-5"	4'-11"	4'-6"	5'-6"	4'-11"	4'-5"	3'-11"	3'-6"
2-800S162-68	8'-3"	7'-8"	7'-1"	6'-8"	6'-2"	7'-3"	6'-7"	6'-1"	5'-7"	5'-2"
2-800S162-97	9'-11"	9'-6"	9'-2"	8'-10"	8'-7"	9'-5"	9'-0"	8'-7"	8'-2"	7'-9"
2-1000S162-43	3'-4"	2'-11"	2'-7"	2'-5"	2'-2"	2'-8"	2'-5"	2'-2"	1'-11"	-
2-1000S162-54	6'-7"	5'-10"	5'-3"	4'-9"	4'-4"	5'-4"	4'-9"	4'-3"	3'-10"	3'-6"
2-1000S162-68	9'-4"	8'-9"	8'-1"	7'-7"	7'-1"	8'-3"	7'-7"	6'-11"	6'-5"	5'-11"
2-1000S162-97	11'-7"	10'-11"	10'-4"	9'-10"	9'-5"	10'-5"	9'-10"	9'-3"	8'-10"	8'-5"
2-1200S162-54	5'-6"	4'-10"	4'-4"	3'-11"	3'-7"	4'-5"	3'-11"	3'-6"	3'-2"	2'-11"
2-1200S162-68	10'-4"	9'-8"	8'-8"	7'-11"	7'-2"	8'-11"	7'-11"	7'-1"	6'-5"	5'-10"
2-1200S162-97	12'-11"	12'-2"	11'-6"	11'-0"	10'-6"	11'-8"	11'-0"	10'-5"	9'-10"	9'-5"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(21)
BACK-TO-BACK HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	-	-	-	-	-	-	-	-	-	-
2-350S162-68	2'-5"	-	-	-	-	2'-4"	-	-	-	-
2-350S162-97	3'-6"	3'-2"	2'-10"	2'-6"	2'-3"	3'-6"	3'-1"	2'-9"	2'-6"	2'-3"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	-	-	-	-	-	-	-	-	-	-
2-550S162-54	2'-6"	-	-	-	-	2'-5"	-	-	-	-
2-550S162-68	3'-9"	3'-3"	2'-9"	2'-4"	-	3'-8"	3'-2"	2'-9"	2'-4"	-
2-550S162-97	5'-3"	4'-9"	4'-4"	3'-11"	3'-8"	5'-2"	4'-8"	4'-3"	3'-11"	3'-7"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	-	-	-	-	-	-	-	-	-	-
2-800S162-54	3'-5"	2'-8"	-	-	-	3'-4"	2'-7"	-	-	-
2-800S162-68	5'-1"	4'-5"	3'-11"	3'-4"	2'-11"	5'-0"	4'-4"	3'-10"	3'-4"	2'-10"
2-800S162-97	7'-0"	6'-5"	5'-11"	5'-5"	5'-0"	7'-0"	6'-4"	5'-10"	5'-5"	5'-0"
2-1000S162-43	-	-	-	-	-	-	-	-	-	-
2-1000S162-54	3'-11"	3'-1"	2'-3"	-	-	3'-10"	3'-0"	2'-2"	-	-
2-1000S162-68	5'-10"	5'-2"	4'-6"	4'-0"	3'-5"	5'-9"	5'-1"	4'-6"	3'-11"	3'-4"
2-1000S162-97	8'-5"	7'-8"	7'-1"	6'-6"	6'-1"	8'-4"	7'-7"	7'-0"	6'-6"	6'-0"
2-1200S162-54	4'-2"	3'-6"	2'-7"	-	-	4'-1"	3'-5"	2'-6"	-	-
2-1200S162-68	6'-6"	5'-9"	5'-1"	4'-6"	3'-11"	6'-6"	5'-8"	5'-0"	4'-5"	3'-10"
2-1200S162-97	9'-5"	8'-8"	8'-0"	7'-5"	6'-11"	9'-5"	8'-7"	7'-11"	7'-4"	6'-10"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(22)
BACK-TO-BACK HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (20 psf)					GROUND SNOW LOAD (30 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	2'-9"	2'-3"	-	-	-	2'-8"	2'-3"	-	-	-
2-350S162-68	3'-11"	3'-6"	3'-2"	2'-10"	2'-6"	3'-11"	3'-6"	3'-1"	2'-9"	2'-6"
2-350S162-97	4'-9"	4'-6"	4'-4"	4'-1"	3'-10"	4'-8"	4'-6"	4'-4"	4'-1"	3'-9"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-9"	2'-0"	-	-	-	2'-8"	-	-	-	-
2-550S162-54	4'-5"	3'-10"	3'-4"	2'-11"	2'-5"	4'-4"	3'-9"	3'-3"	2'-10"	2'-5"
2-550S162-68	5'-8"	5'-2"	4'-8"	4'-3"	3'-11"	5'-8"	5'-1"	4'-8"	4'-3"	3'-10"
2-550S162-97	6'-10"	6'-6"	6'-3"	6'-0"	5'-7"	6'-9"	6'-5"	6'-3"	5'-11"	5'-6"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	3'-2"	2'-7"	-	-	-	3'-1"	2'-6"	-	-	-
2-800S162-54	5'-2"	4'-7"	4'-0"	3'-6"	3'-0"	5'-2"	4'-6"	3'-11"	3'-5"	2'-11"
2-800S162-68	6'-11"	6'-3"	5'-8"	5'-2"	4'-9"	6'-10"	6'-2"	5'-7"	5'-2"	4'-8"
2-800S162-97	9'-3"	8'-8"	8'-3"	7'-9"	7'-4"	9'-2"	8'-8"	8'-2"	7'-9"	7'-4"
2-1000S162-43	2'-6"	2'-2"	2'-0"	-	-	2'-6"	2'-2"	1'-11"	-	-
2-1000S162-54	5'-0"	4'-4"	3'-11"	3'-6"	3'-2"	4'-11"	4'-4"	3'-10"	3'-6"	3'-2"
2-1000S162-68	7'-10"	7'-2"	6'-6"	5'-11"	5'-6"	7'-9"	7'-1"	6'-5"	5'-11"	5'-5"
2-1000S162-97	10'-1"	9'-5"	8'-11"	8'-6"	8'-0"	10'-0"	9'-5"	8'-10"	8'-5"	7'-11"
2-1200S162-54	-	-	-	-	-	-	-	-	-	-
2-1200S162-68	7'-4"	6'-8"	6'-1"	5'-6"	5'-1"	7'-3"	6'-7"	6'-0"	5'-6"	5'-0"
2-1200S162-97	9'-5"	8'-8"	8'-1"	7'-6"	7'-1"	9'-4"	8'-8"	8'-0"	7'-6"	7'-0"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(23)
BACK-TO-BACK HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (33 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	-	-	-	-	-	-	-	-	-	-
2-350S162-68	2'-2"	-	-	-	-	-	-	-	-	-
2-350S162-97	3'-3"	3'-0"	2'-8"	2'-4"	2'-1"	3'-1"	2'-9"	2'-6"	2'-2"	-
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	-	-	-	-	-	-	-	-	-	-
2-550S162-54	2'-2"	-	-	-	-	-	-	-	-	-
2-550S162-68	3'-6"	3'-0"	2'-6"	2'-1"	-	3'-2"	2'-9"	2'-3"	-	-
2-550S162-97	5'-0"	4'-6"	4'-1"	3'-9"	3'-5"	4'-8"	4'-3"	3'-11"	3'-7"	3'-3"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	-	-	-	-	-	-	-	-	-	-
2-800S162-54	3'-0"	2'-3"	-	-	-	2'-7"	-	-	-	-
2-800S162-68	4'-9"	4'-2"	3'-7"	3'-1"	2'-7"	4'-5"	3'-10"	3'-3"	2'-9"	2'-3"
2-800S162-97	6'-9"	6'-1"	5'-7"	5'-2"	4'-9"	6'-4"	5'-10"	5'-4"	4'-11"	4'-7"
2-1000S162-43	-	-	-	-	-	-	-	-	-	-
2-1000S162-54	3'-6"	2'-8"	-	-	-	3'-1"	2'-2"	-	-	-
2-1000S162-68	5'-6"	4'-10"	4'-2"	3'-7"	3'-1"	5'-1"	4'-6"	3'-10"	3'-4"	2'-9"
2-1000S162-97	8'-0"	7'-4"	6'-9"	6'-3"	5'-9"	7'-7"	7'-0"	6'-5"	5'-11"	5'-6"
2-1200S162-54	3'-11"	3'-0"	2'-0"	-	-	3'-5"	2'-6"	-	-	-
2-1200S162-68	6'-2"	5'-5"	4'-9"	4'-1"	3'-6"	5'-9"	5'-0"	4'-4"	3'-9"	3'-2"
2-1200S162-97	9'-1"	8'-4"	7'-8"	7'-1"	6'-7"	8'-8"	7'-11"	7'-4"	6'-9"	6'-3"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.

b. Design load assumptions:
Second floor dead load is 10 psf.
Roof/ceiling dead load is 12 psf.
Second floor live load is 40 psf.
Third floor live load is 30 psf.
Attic live load is 10 psf

c. Building width is in the direction of horizontal framing members supported by the header.

TABLE R603.6(24)
BACK-TO-BACK HEADER SPANS
Headers Supporting Two Floors, Roof and Ceiling (50 ksi steel) [a,b]

MEMBER DESIGNATION	GROUND SNOW LOAD (50 psf)					GROUND SNOW LOAD (70 psf)				
	Building Width[c]					Building Width[c]				
	24'	28'	32'	36'	40'	24'	28'	32'	36'	40'
2-350S162-33	-	-	-	-	-	-	-	-	-	-
2-350S162-43	-	-	-	-	-	-	-	-	-	-
2-350S162-54	2'-6"	2'-1"	-	-	-	2'-3"	-	-	-	-
2-350S162-68	3'-9"	3'-4"	2'-11"	2'-7"	2'-4"	3'-6"	3'-1"	2'-9"	2'-5"	2'-2"
2-350S162-97	4'-6"	4'-4"	4'-2"	3'-11"	3'-8"	4'-4"	4'-2"	4'-0"	3'-9"	3'-6"
2-550S162-33	-	-	-	-	-	-	-	-	-	-
2-550S162-43	2'-5"	-	-	-	-	-	-	-	-	-
2-550S162-54	4'-1"	3'-7"	3'-1"	2'-7"	2'-2"	3'-10"	3'-3"	2'-10"	2'-4"	-
2-550S162-68	5'-5"	4'-11"	4'-5"	4'-0"	3'-8"	5'-1"	4'-7"	4'-2"	3'-10"	3'-5"
2-550S162-97	6'-5"	6'-2"	5'-11"	5'-9"	5'-4"	6'-3"	6'-0"	5'-9"	5'-6"	5'-2"
2-800S162-33	-	-	-	-	-	-	-	-	-	-
2-800S162-43	2'-11"	2'-2"	-	-	-	2'-6"	-	-	-	-
2-800S162-54	4'-11"	4'-3"	3'-8"	3'-2"	2'-8"	4'-6"	3'-11"	3'-5"	2'-11"	2'-4"
2-800S162-68	6'-7"	5'-11"	5'-4"	4'-11"	4'-6"	6'-2"	5'-7"	5'-1"	4'-8"	4'-3"
2-800S162-97	8'-9"	8'-5"	7'-11"	7'-6"	7'-0"	8'-5"	8'-1"	7'-9"	7'-3"	6'-10"
2-1000S162-43	2'-4"	2'-1"	-	-	-	2'-2"	1'-11"	-	-	-
2-1000S162-54	4'-8"	4'-1"	3'-8"	3'-3"	3'-0"	4'-4"	3'-10"	3'-5"	3'-1"	2'-9"
2-1000S162-68	7'-6"	6'-9"	6'-2"	5'-8"	5'-2"	7'-1"	6'-5"	5'-10"	5'-4"	4'-11"
2-1000S162-97	9'-9"	9'-2"	8'-7"	8'-2"	7'-8"	9'-5"	8'-10"	8'-5"	7'-11"	7'-5"
2-1200S162-54	-	-	-	-	-	-	-	-	-	-
2-1200S162-68	7'-0"	6'-4"	5'-9"	5'-3"	4'-9"	6'-7"	6'-0"	5'-5"	5'-0"	4'-6"
2-1200S162-97	9'-1"	8'-4"	7'-9"	7'-3"	6'-9"	8'-8"	8'-0"	7'-6"	7'-0"	6'-7"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound per square inch = 6.895 kPa.

a. Deflection criteria: L/360 for live loads, L/240 for total loads.
b. Design load assumptions:
   Second floor dead load is 10 psf.
   Roof/ceiling dead load is 12 psf.
   Second floor live load is 40 psf.
   Third floor live load is 30 psf.
   Attic live load is 10 psf
c. Building width is in the direction of horizontal framing members supported by the header.

24. Revise as follows:

TABLE ~~603.6(9)~~ R603.7(1)
TOTAL NUMBER OF JACK AND KING STUDS REQUIRED AT EACH END OF AN OPENING

(Portions of table not shown remain unchanged)

TABLE ~~R603.6(10)~~ R603.7(2)
HEADER TO KING STUD CONNECTION REQUIREMENTS [a,b,c,d]

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 pound = 4.448 N.

a. (No change)

b ~~For headers located on the first floor of a two-story building, the total number of screws may be reduced by two screws, but the total number of screws shall be no less than four.~~ For *headers* located on the first floor of a two-story building or the first or second floor of a three story building, the total number of screws is permitted to be reduced by 2 screws, but the total number of screws shall be no less than 4.

c. and d. (No change)

(Portions of table and footnotes not shown remain unchanged)

25. Delete and substitute as follows:

TABLE ~~R603.6(11)~~
~~HEAD AND TRACK SPAN (33 ksi Steel)~~

TABLE R603.8
HEAD AND SILL TRACK SPAN
F_y = 33 ksi

BASIC WIND SPEED (mph)		ALLOWABLE HEAD AND SILL TRACK SPAN[a,b,c] (ft-in.)					
EXPOSURE		TRACK DESIGNATION					
A/B	C	350T125-33	350T125-43	350T125-54	550T125-33	550T125-43	550T125-54
85		5'-0"	5'-7"	6'-2"	5'-10"	6'-8"	7'-0"
90		4'-10"	5'-5"	6'-0"	5'-8"	6'-3"	6'-10"
100	85	4'-6"	5'-1"	5'-8"	5'-4"	5'-11"	6'-5"
110	90	4'-2"	4'-9"	5'-4"	5'-1"	5'-7"	6'-1"
120	100	3'-11"	4'-6"	5'-0"	4'-10"	5'-4"	5'-10"
130	110	3'-8"	4'-2"	4'-9"	4'-1"	5'-1"	5'-7"
140	120	3'-7"	4'-1"	4'-7"	3'-6"	4'-11"	5'-5"
150	130	3'-5"	3'-10"	4'-4"	2'-11"	4'-7"	5'-2"
	140	3’-1”	3’-6”	4’-1”	2’-3”	4’-0”	4’-10”
	150	2’-9”	3’-4”	3’-10”	2’-0”	3’-7”	4’-7”

For SI: 1 inch = 25.4 mm, 1 foot = 0.305 m

a. Deflection Limit: L/240

b. Head and sill track spans are based on components and cladding wind speeds and 48 inch (1.22 m) tributary span.

c. For openings less than 4 feet (1.22 m) in height that have both a head track and a sill track, the above spans are permitted to be multiplied by 1.75. For openings less than or equal to 6 feet (1.83 m) in height that have both a head track and a sill track, the above spans are permitted to be multiplied by a factor of 1.5.

~~TABLE R603.7~~
~~MINIMUM PERCENTAGE OF FULL HEIGHT STRUCTURAL SHEATHING ON EXTERIOR WALLSa, b, c, d, e~~

TABLE R603.9(1)
MINIMUM PERCENTAGE OF FULL HEIGHT
STRUCTURAL SHEATHING ON EXTERIOR WALLS [a,b]

WALL SUPPORTING	ROOF SLOPE	BASIC WIND SPEED (MPH) AND EXPOSURE					
		85 A/B	90 A/B	100 A/B	<110 A/B	100 C	<110 C
				85 C	90 C		
Roof & Ceiling Only (One Story or Top Floor of Two or Three Story Building)	3:12	8	9	9	12	16	20
	6:12	12	13	15	20	26	35
	9:12	21	23	25	30	50	58
	12:12	30	33	35	40	66	75
One Story, Roof & Ceiling (First Floor of a Two-Story Building or Second Floor of a Three Story Building)	3:12	24	27	30	35	50	66
	6:12	25	28	30	40	58	74
	9:12	35	38	40	55	74	91
	12:12	40	45	50	65	100	115
Two Story, Roof & Ceiling (First Floor of a Three Story Building)	3:12	40	45	51	58	84	112
	6:12	38	43	45	60	90	113
	9:12	49	53	55	80	98	124
	12:12	50	57	65	90	134	155

For SI: 1 mile per hour = 0.447 m/s.

a. Linear interpolation shall be permitted.

b. or hip roofed homes the minimum percentage of full height sheathing, based upon wind, is permitted to be multiplied by a factor of 0.95 for roof slopes not exceeding 7:12 and a factor of 0.9 for roof slopes greater than 7:12.

26. Add new table as follows:

TABLE R603.9(2)
EXTERIOR WALL LENGTH ADJUSTMENT FACTORS

PLAN ASPECT RATIO	LENGTH ADJUSTMENT FACTORS	
	SHORT WALL	Long Wall
1:1	1.0	1.0
1.5:1	1.5	0.67
2:1	2.0	0.50
3:1	3.0	0.33
4:1	4.0	0.25

27. Add new figure as follows:

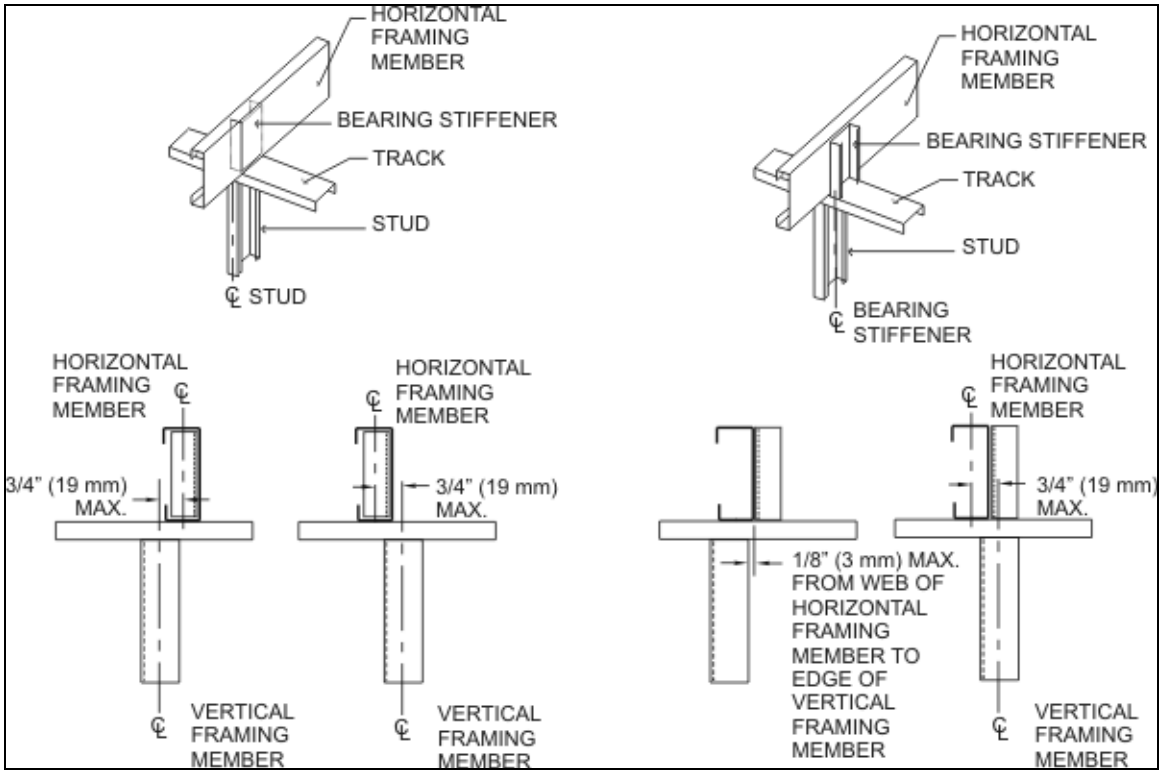


FIGURE R603.1.2
IN-LINE FRAMING

28. Revise figures as follows:

FIGURE R603.2(1)
C-SHAPED SECTION
(Portion of figure not shown remains unchanged)

FIGURE ~~R603.2(3)~~ R603.2.5.1
WEB HOLES
(Portion of figure not shown remains unchanged)

29. Add new figure as follows:

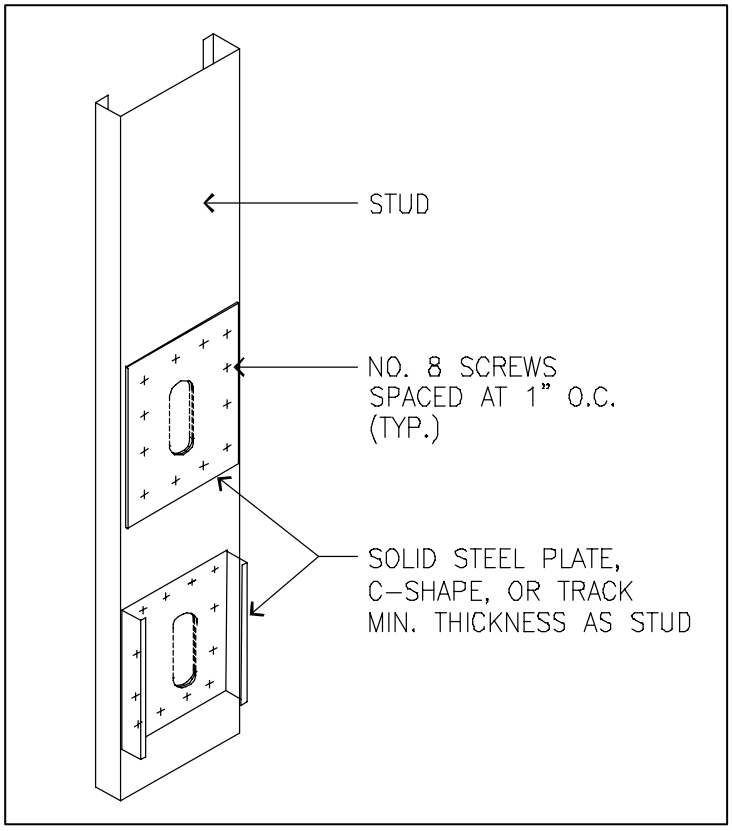


FIGURE R603.2.5.3
STUD WEB HOLE PATCH

30. Delete figure without substitution:

~~**FIGURE R603.3**~~
~~**STEEL WALL CONSTRUCTION**~~

31. Delete existing Figure R603.3.1(1) and replace as follows:

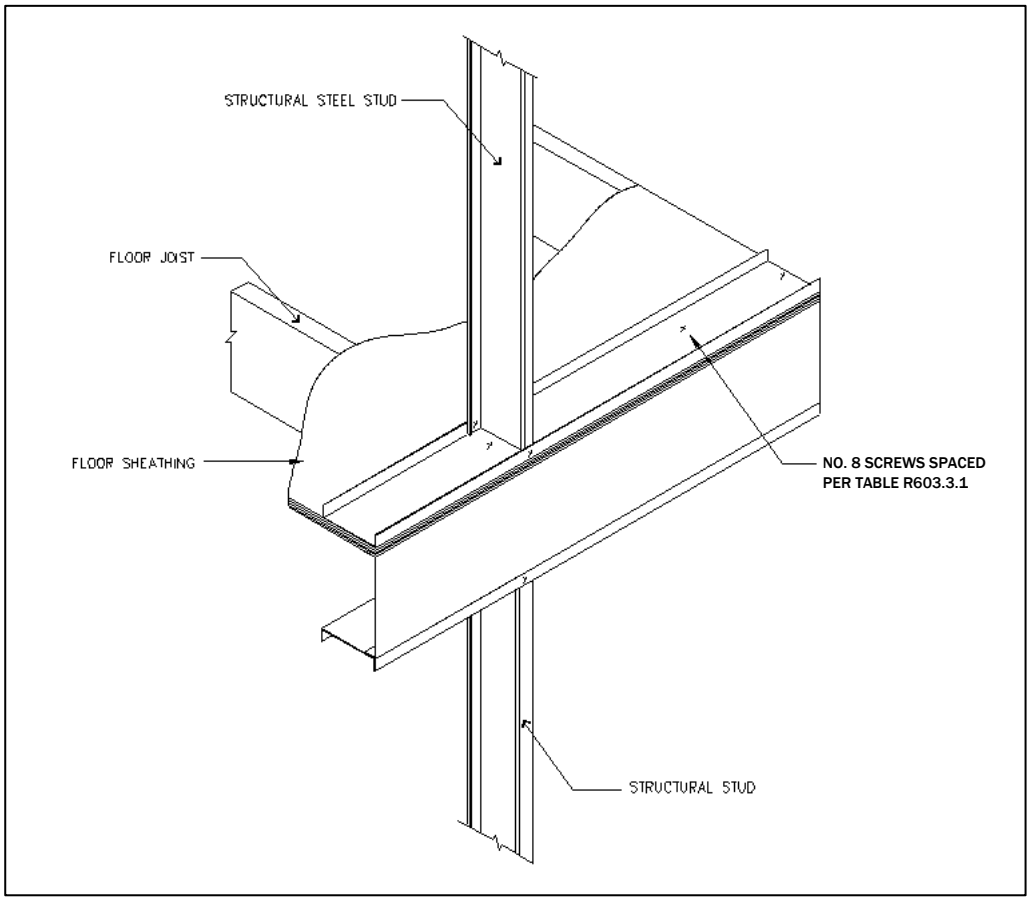


FIGURE R603.3.1(1)
WALL TO <u>FLOOR CONNECTION</u> ~~FOUNDATION CONNECTION~~

32. Delete existing Figure R603.3.1(2) and substitute as follows:

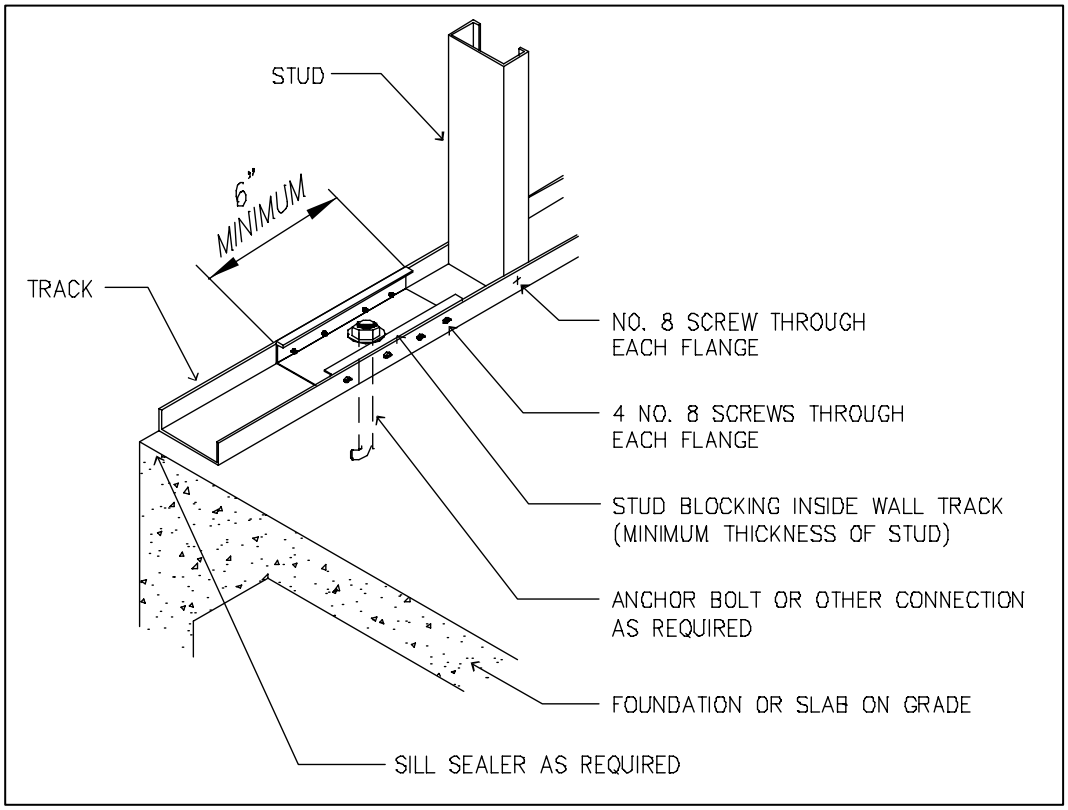


FIGURE R603.3.1(2)
WALL TO <u>FOUNDATION CONNECTION</u> ~~WOOD SILL CONNECTION~~

32. Add new figures follows:

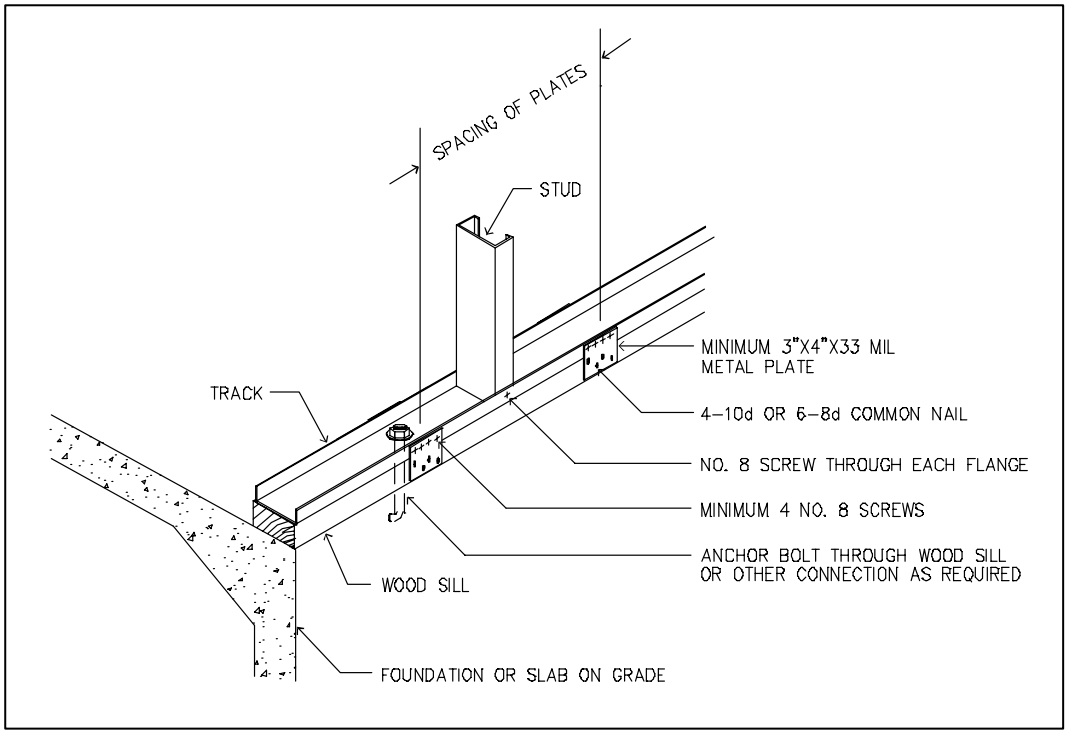


FIGURE R603.3.1(3)
WALL TO WOOD SILL CONNECTION

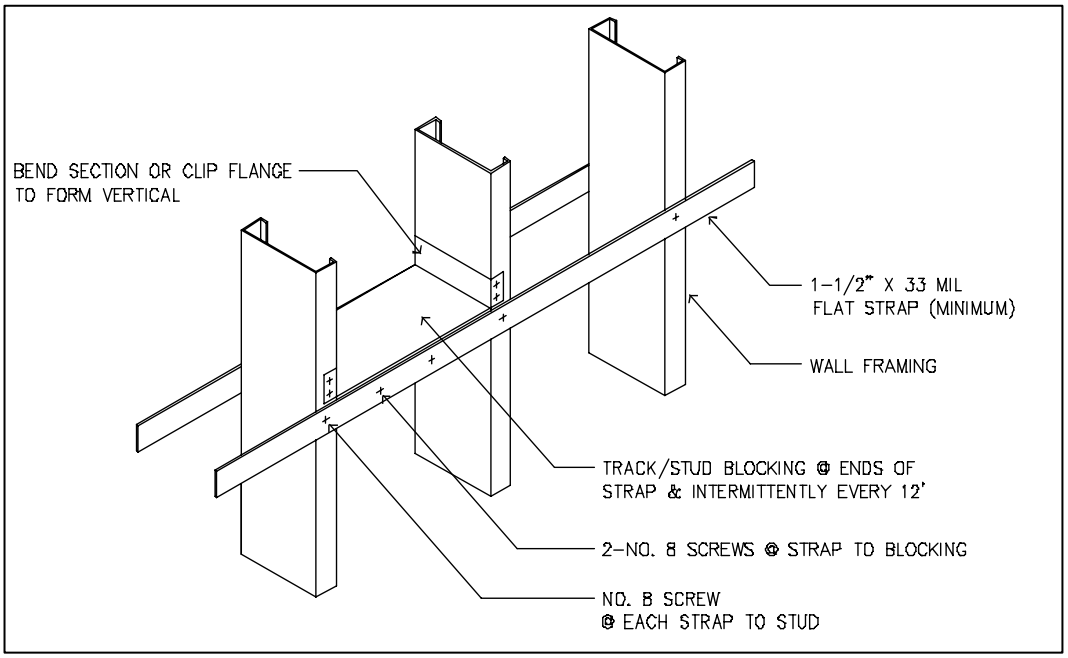


FIGURE R603.3.3(1)
STUD BRACING WITH STRAPPING ONLY

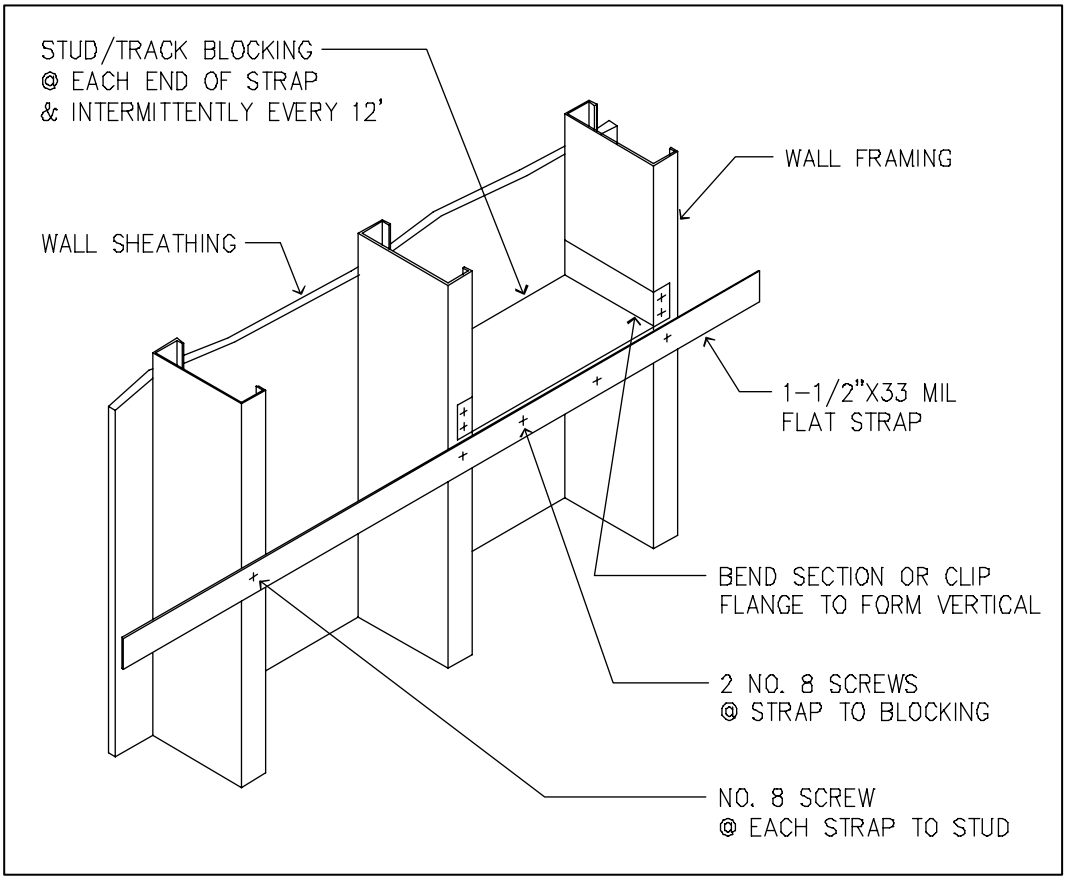


FIGURE R603.3.3(2)
STUD BRACING WITH STRAPPING AND SHEATHING MATERIAL

34. Delete figure without substitution:

~~**FIGURE R603.3.5**~~
~~**HOLE PATCH**~~

35. Delete existing Figure R603.3.6, add new figure and renumber as R603.3.5 as follows:

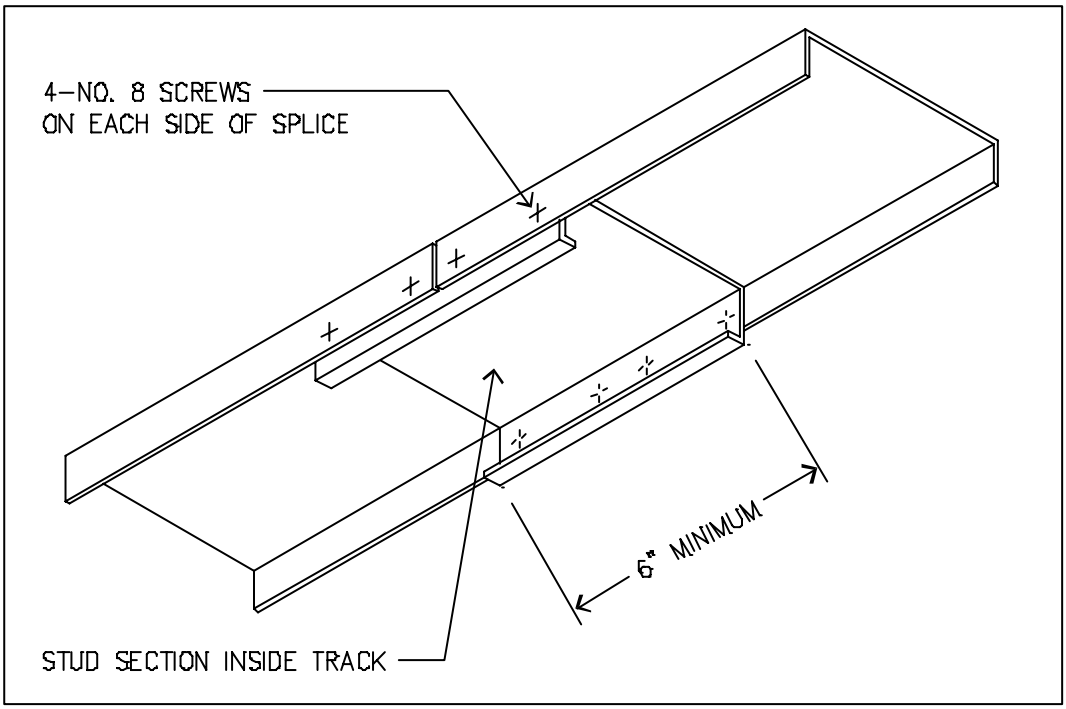


FIGURE R603.3.5
TRACK SPLICE

36. Delete figure and substitute as follows:

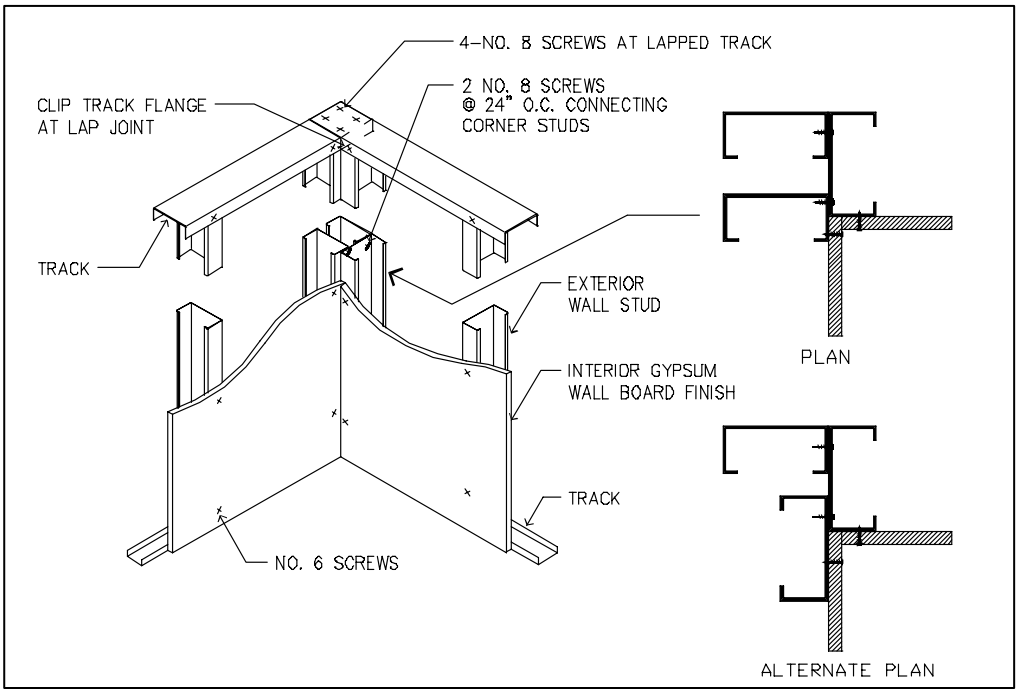


FIGURE R603.4
CORNER FRAMING

37. Delete existing Figure R603.6 HEADER DETAIL and replace as follows:

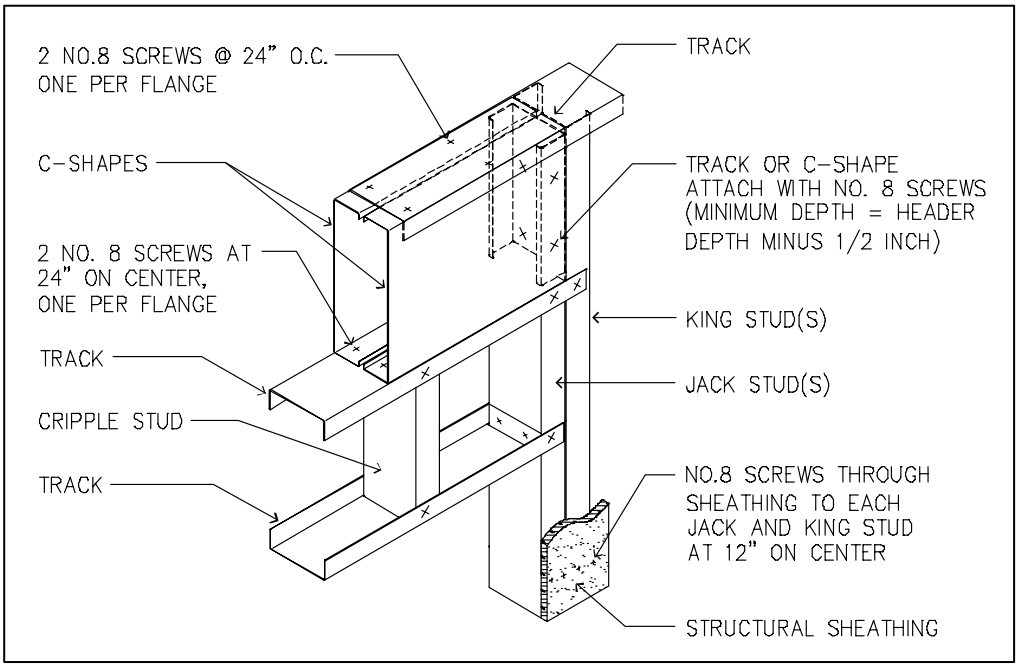


FIGURE R603.6(1)
BOX BEAM HEADER

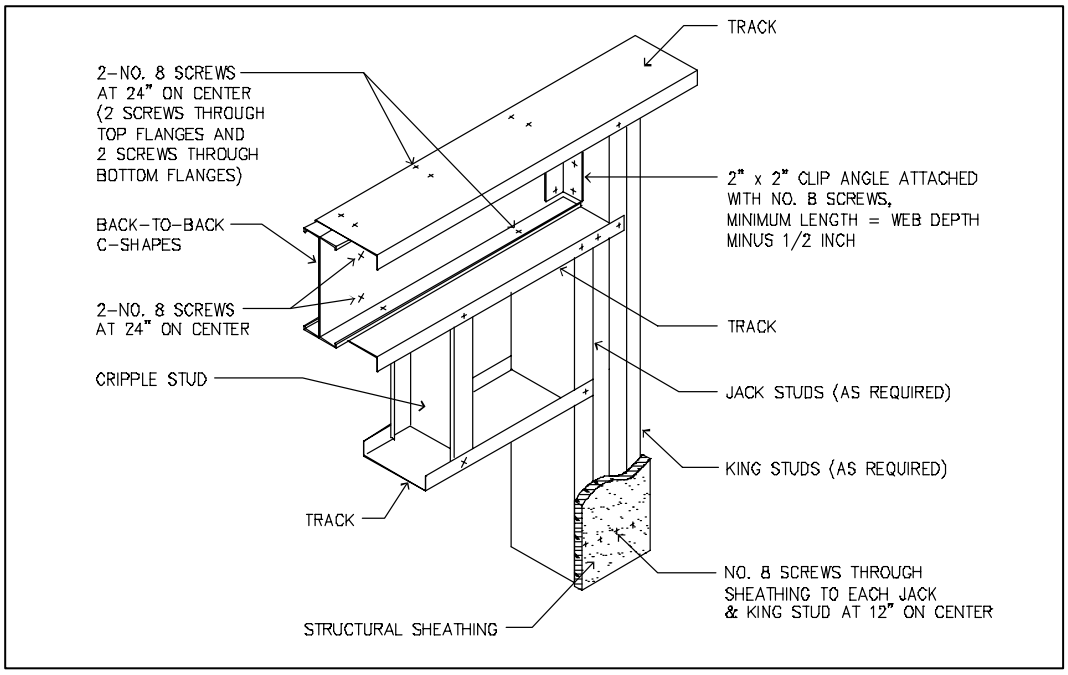


FIGURE R603.6(2)
BACK-TO-BACK HEADER

38. Add new figures as follows:

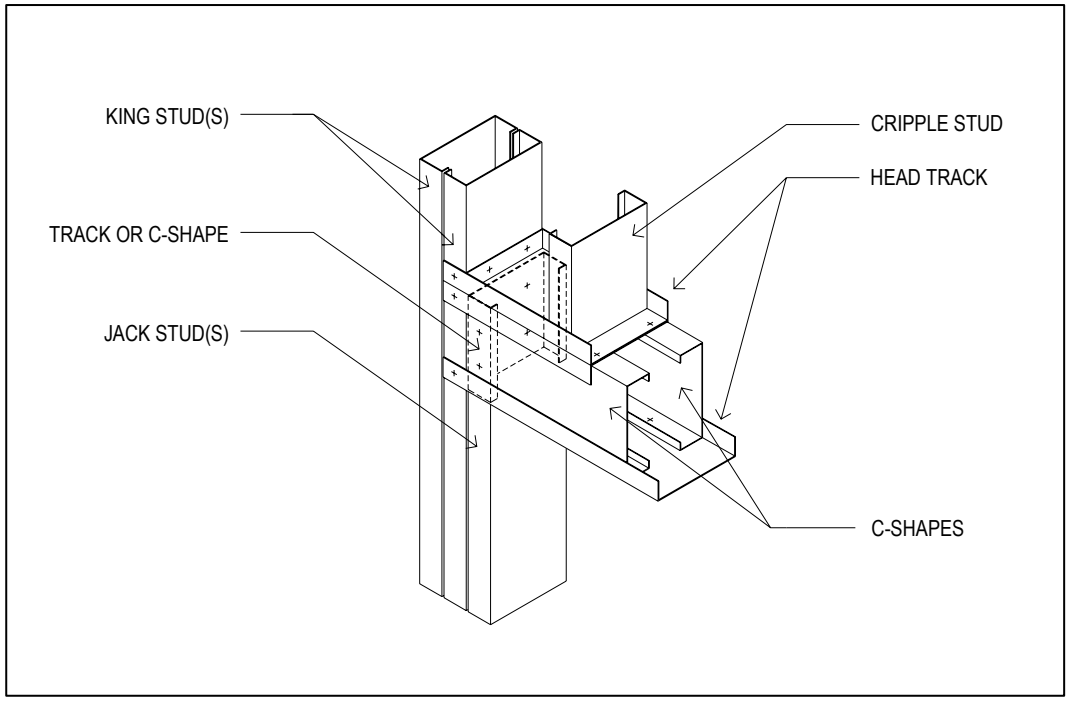


FIGURE R603.6.1(1)
BOX BEAM HEADER IN GABLE ENDWALL

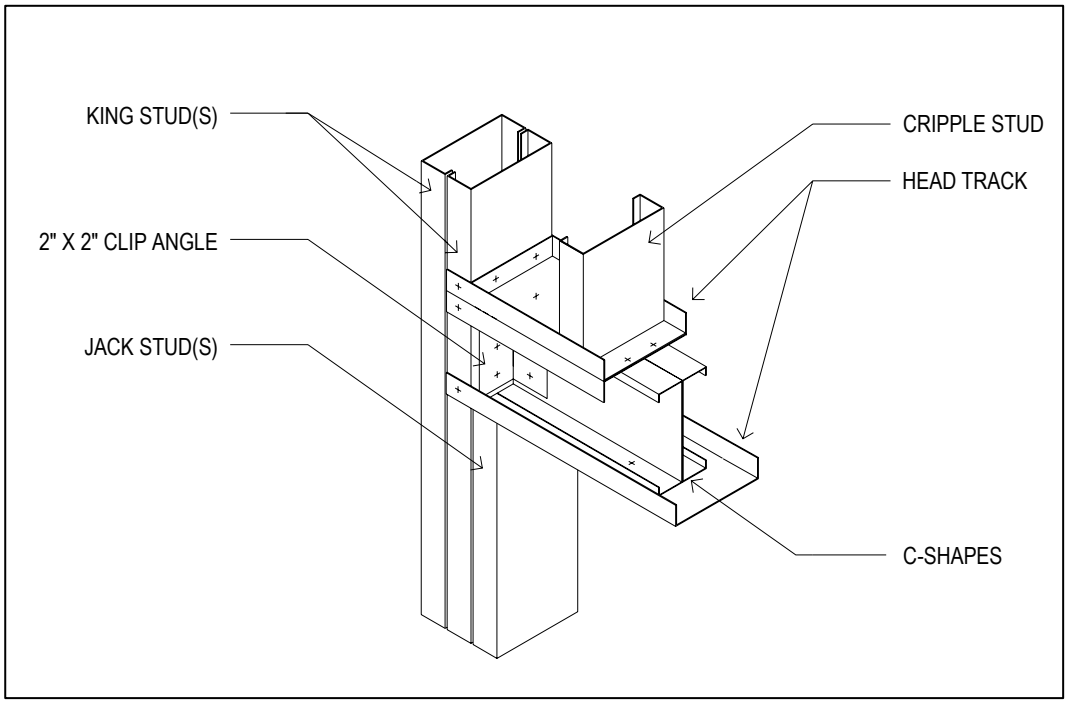


FIGURE R603.6.1(2)
BACK-TO-BACK HEADER IN GABLE ENDWALL

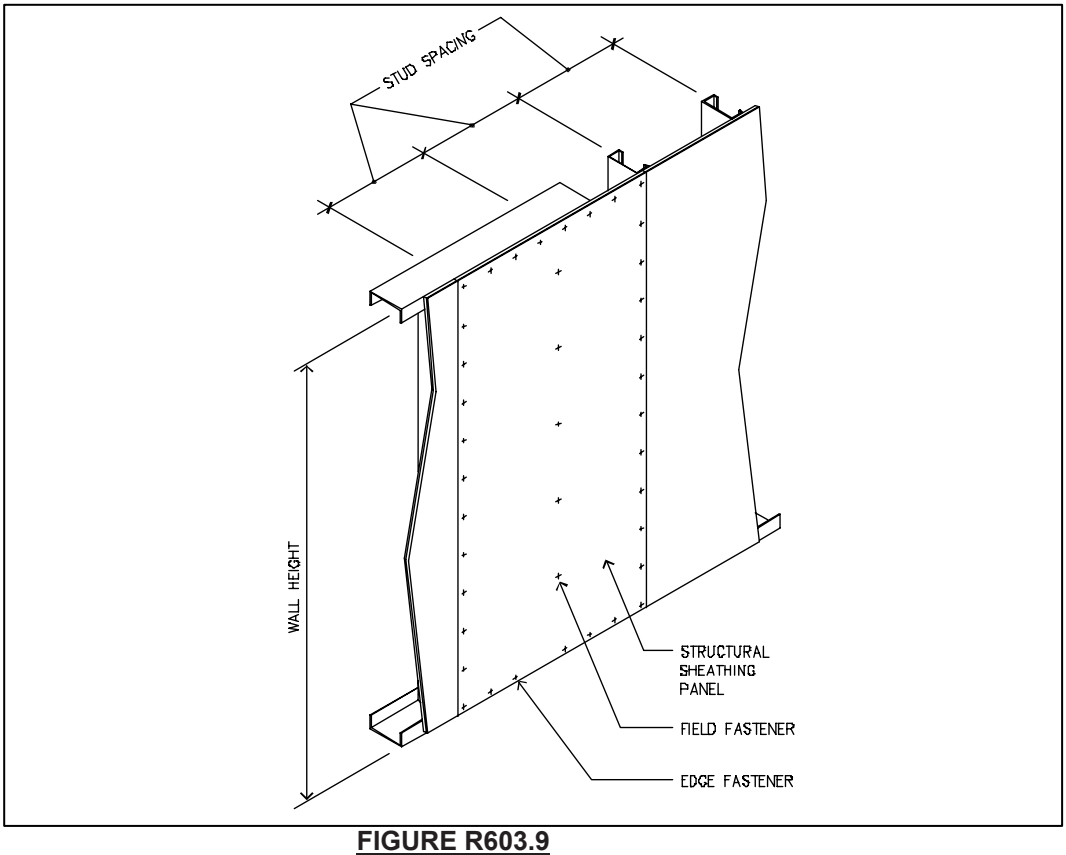


FIGURE R603.9
STRUCTURAL SHEATHING FASTENING PATTERN

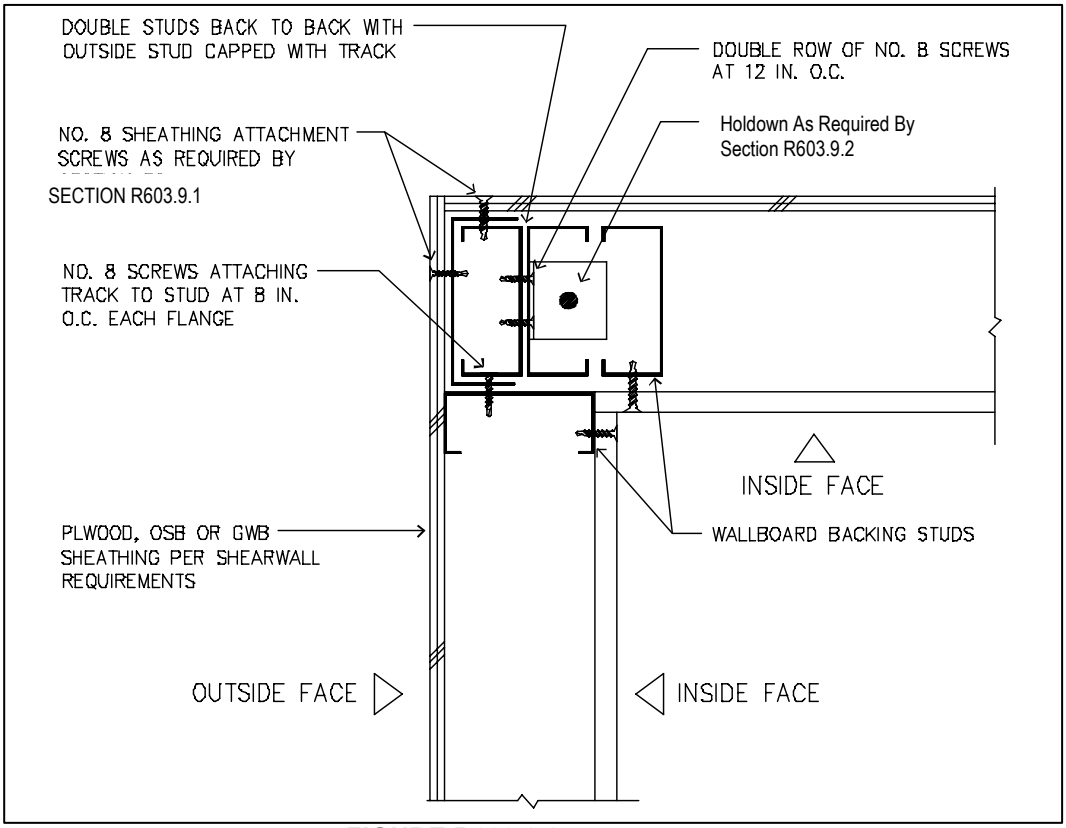


FIGURE R603.9.2
CORNER STUD HOLD-DOWN DETAIL

39. Add standards to Chapter 43 as follows:

AISI

S100 North American Specification for the Design of Cold-Formed Steel Structural Members

ASTM

C1513-04 Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections

Reason: This code change updates the prescriptive requirements of IRC Section R603 to reflect the 2007 edition of AISI S230, *Standard for Cold-Formed Steel Framing -- Prescriptive Method for One- and Two-Family Dwellings*. The following changes have been made:

PART 1, SECTION 603

Section R603.1.1: The 2007 edition of AISI S230 (*Standard for Cold-Formed Steel Framing – Prescriptive Method for One and Two Family Dwellings*) increases the allowable number of stories from two to three stories. This modification is intended to coordinate with AISI S230.

Section R603.1.2: The 2007 edition of AISI S230 references the 2007 edition of AISI S200 (*North American Standard for Cold-Formed Steel Framing—General Provisions*) which has revised the in-line framing tolerance to account for the special case of the bearing stiffener located on the back-side of the joist. This was based on research at the University of Waterloo (Reference: Fox, S.R. (2003), "The Strength of Stiffened CFS Floor Joist Assemblies with Offset Loading," American Iron and Steel Institute, Washington, D.C.)

Figure R603.1.2: This new figure contains a greater number of configurations for in-line framing and the permitted tolerances.

Section R603.2: Table R603.2(2) has been corrected to reflect industry standardized thicknesses for structural members. Additionally, a line has been added for 97 mils, since it is used extensively throughout the IRC. The column on Reference Gage Number has been deleted, since gage is no longer used by industry in referencing structural members. Finally, the topic of holes has been relocated to a new Section R603.2.5 on web holes, web hole reinforcement, and web hole patching. Accordingly, the associated Figure R603.2(3) has been renumbered to Figure R603.2.5.1.

Section R603.2.1: This section has been modified to coordinate with the 2007 edition of AISI S230, which now recognizes ASTM A 1003 as the primary standard for cold-formed steel light frame construction (via a reference to AISI S200). References to the ASTM A 1003 grades have been corrected to specify Structural Type H. Further, references to Grades 37 and 40 have been deleted, since these grades are not used in the IRC. Finally, the references to ASTM A 653 and ASTM A792 have been retained, since AISI S230 still considers them deemed-to-comply with ASTM A 1003. However, reference to ASTM A875 has been deleted, since it is no longer used in the construction marketplace.

Section R603.2.2: This section has been modified to reflect the change in terminology in Table R603.2(2) from "uncoated steel thickness" to "base steel thickness."

Section R603.2.3: This section has been modified to coordinate with the 2007 edition of AISI S230, which now recognizes ASTM A1003 as the primary standard for cold-formed steel light frame construction (via a reference to AISI S200). The reference to ASTM A875 has been deleted, since it is no longer used in the construction marketplace.

Section R603.2.4: This section has been modified to coordinate with the 2007 edition of AISI S230, which now recognizes ASTM C 1513 (via a reference to AISI S200) in lieu of SAE J78. ASTM C1513 is the more appropriate consensus standard, which continues to charge SAE J78. The reference to ASTM B 633 has been deleted in favor of the substituted language from AISI S230.

Section R603.2.5.1: Section R603.2.5.1 has been created using existing IRC Section 603.2 with minor modifications in order to improve the clarity and usability of the code by locating all requirements concerning web holes and web hole adjustments in one central location. In addition, Figure R603.2(3) has been renumbered as Figure R603.2.5.1, with no other changes to the figure, as part of the coordination effort.

Section R603.2.5.2: New to the 2007 edition of AISI S230, this language permits the reinforcing of web holes, thus allowing the utility to remain, as long as the finished web hole meets the requirements of this subsection and that of Section R603.2.5.1. The provisions are based on engineering judgment and have been confirmed by preliminary testing.

Section R603.2.5.3: This language has been relocated from Section R603.3.6 in order to improve the clarity and usability of the code. Modifications have been made to the charging language to reflect the fact that the user now has the choice to reinforce non-conforming holes, patch non-conforming holes, or design non-conforming holes with accepted engineering practice per Section R603.2.5.1. Additionally, Figure R603.2.5.3 has been added as an update to the old Figure R603.3.6 in order to coordinate with AISI S230-07.

Section R603.3: The associated figure has been deleted since it is outdated.

Section R603.3.1: This section has been modified to reflect the requirements from AISI S230, which includes new figures and additional language on the use of anchor bolts and anchor straps.

Figures R603.3.1(1), R603.3.1(2) and R603.3.1(3): These figures illustrate wall to foundation connections and are replacements to the existing figures now in the IRC-2006. New information is related primarily to the identification of screw types.

Section R603.3.1.1: This new section, taken from AISI S230-07, addresses concerns from our previous work by including provisions for gable endwalls.

Section R603.3.2: This section has been substantially changed from two perspectives. First, the section has been expanded to include not only provisions for one and two story dwellings, but also three story dwellings. Information to support this increase in building height has come from both testing and engineering analysis using the latest standards – including ASCE 7-05. Second, the section has been re-formatted for easier use. In this case each paragraph has a subject specific item, rather than having them all combined into one paragraph as is currently shown in the 2006 edition of the IRC. All material used to update this section was taken from AISI 230-07.

Tables 603.3.2(1) through R603.3.2(21) on wall spans have been revised with new tabular values. In addition Tables R603.3.2(22) through R603.3.2(31) have been added as a result of the overall provisions now encompassing dwellings up to three stories.

Section R603.3.2.1: This new section, taken from AISI S230-07, addresses concerns from our previous work by including provisions for gable endwalls.

Tables R603.3.2.1(1) through R603.3.2.1(4) represent new gable endwalls header tables which correspond to the new provisions.

Section R603.3: Relatively minor modifications have been made to this section to reflect the latest requirements from AISI S230-07.

Section R603.3.5(old): This section has been relocated to a new Section R603.2.5 on web holes, web hole reinforcement, and web hole patching. Figure R603.3.5 is outdated and has been substituted with a new Figure R603.2.5.3, which coordinates with AISI S230-07.

Figure R603.3.6(old): This figure has been updated to coordinate with AISI S230-07.

Section R603.4: This modification clarifies that the corner details apply to all exterior walls.

Figure R603.4 This new figure is intended to replace the current figure. New information is the illustration of the second configuration for a corner detail.

Section R603.6: This section has modified by changes to the tables, changes in the underlying reference material, and the addition of provisions for headers located in gable endwalls. The change in scope of the cold-formed steel provisions from a two story limit to a three story limit increased the number of tables necessary in order to adequately address headers located in the various configurations in a one, two or three story building.

Additionally, the AISI reference standards have change also. Provisions for L-headers are available to users in AISI S230-07. If the user would rather design their own header, they may do so using the provisions of AISI S100, Section D4. In 2007, the scope of AISI S100, *North American Specification for the Design of Cold-Formed Steel Structural Members*, Section D4 on Wall Studs and Wall Stud Assemblies was broadened to cover Cold-Formed Steel Light-Frame Construction. This was done in order to properly recognize the growing use of cold-formed steel framing in a broader range of residential and light commercial framing applications and to provide the appropriate charging language for the various ANSI approved standards that have been developed by the AISI Committee on Framing Standards. This proposal corrects the charging language and changes the reference from the too specific AISI Header Design document (2004) to the more general, and correct, AISI S100, Section D4, which picks up the reference to the whole library of AISI cold-formed steel light frame construction.
Finally, the new header tables for gable endwalls are intended to coordinate with the new gable endwalls provisions in Section R603.3.2.

Tables 603.6(1) through R603.6(24): Correspondingly, the header tables R603.6(1) through R603.6(24) have also been expanded and revised to reflect the changes to the span sections and table for buildings up to three stories.

Figures R603.6.1(1) and R603.6.1(2): These figures compliment the addition of the header provisions for gable endwalls in Section R603.6.1.
Section R603.7 (new): Modifications to this section include a re-numbering of the section and table numbers. Additionally, provisions on the connection of box beam headers to king studs were added to reflect the provisions of AISI S230-07.

Section R603.8 (new): Modifications to this section include a re-numbering of the section and table numbers. Additionally, provisions for sill tracks were added and the associated table was updated.

Section R603.9 (new): This section has been changed substantially to reflect the latest provisions from AISI S230-07.

Tables R603.9(1) and R603.9.1(2): These tables have been revised to cover structural sheathing requirements for one, two and three story buildings.

PART 2, CHAPTER 43
Chapter 43: The modifications to add, delete or update reference standards in Chapter 43 are coordinated with changes made to Section R603.

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

Analysis: Review of proposed new standards AISI S100-07 and ASTM C1513-04 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

Committee Action: **Approved as Submitted**

Committee Reason: This change updates the prescriptive provisions for cold-formed steel wall framing to the current standards and brings new standards into the code.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Bonnie Manley, American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R603.1.1 Applicability limits. The provisions of this section shall control the construction of exterior cold-formed steel wall framing and interior load-bearing cold-formed steel wall framing for buildings not more than 60 feet (18 288 mm) long perpendicular to the joist or truss span, not more than 40 feet (12 192mm) wide parallel to the joist or truss span, and less than or equal to three stories above grade plane ~~in height~~. All exterior walls installed in accordance with the provisions of this section shall be considered as load-bearing walls. Cold-formed steel walls constructed in accordance with the provisions of this section shall be limited to sites subjected to a maximum design wind speed of 110 miles per hour (49 m/s) Exposure ~~A,~~ B or C and a maximum ground snow load of 70 psf (3.35 kPa).

R603.2 Structural framing. Load-bearing cold-formed steel wall framing members shall comply with Figure R603.2(1) and with the dimensional and minimum thickness requirements specified in Tables R603.2(1) and R603.2(2). Tracks shall comply with Figure R603.2(2) and shall have a minimum flange width of 11/4 inches (32 mm). The maximum inside bend radius for members shall be the greater of 3/32 inch (2.4 mm) minus half the base steel thickness or ~~twice~~ 1.5 times the base steel thickness.

R603.3.2 Minimum stud sizes. Cold-formed steel walls shall be constructed in accordance with Figures R603.3.1(1), R603.3.1(2), or R603.3.1(3), as applicable. Exterior wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31). Interior load-bearing wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31) based upon an 85 mph (137 km/hr) Exposure ~~A/~~B wind value and the building width, stud spacing and snow load as appropriate. Fastening requirements shall be in accordance with Section R603.2.4 and Table R603.3.2(1). Top and bottom tracks shall have the same minimum thickness as the wall studs. Exterior wall studs shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm) ,where both of the following conditions exist:

1. Minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on the interior surface.
2. Wood structural sheathing panels of minimum 7/16 inch (11 mm) thick oriented strand board or 15/32 inch (12 mm) thick plywood is installed and fastened in accordance with Section R603.9.1 and Table R603.3.2(1) on the outside surface.

Interior load-bearing walls shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm), where a minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on both sides of the wall.

The tabulated stud thickness for load-bearing walls shall be used when the attic load is 10 psf (0.48 kN/m^2) or less. A limited attic storage load of 20 psf (0.96 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(31).

For two-story buildings, the tabulated stud thickness for walls supporting one floor, roof and ceiling shall be used when second floor live load is 30 psf (1.44 kN/m^2). Second floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(21).

For three-story buildings, the tabulated stud thickness for walls supporting one or two floors, roof and ceiling shall be used when the third floor live load is 30 psf (1.44 kN/m^2). Third floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(22) through R603.3.2(31).

(PORTIONS OF THESE TABLES AND ANY FOOTNOTES NOT SHOWN REMAIN UNCHANGED)

TABLE R603.3.1
WALL TO FOUNDATION OR FLOOR CONNECTION REQUIREMENTS[a,b]

FRAMING CONDITION	WIND SPEED (MPH) & EXPOSURE					
	85 ~~A~~/B	90 ~~A~~/B	100 ~~A~~/B 85 C	110 ~~A~~/B 90 C	100 C	< 110 C

TABLE R603.3.1.1(1)
GABLE ENDWALL TO FLOOR CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		WALL BOTTOM TRACK TO FLOOR JOIST OR TRACK CONNECTION		
Exposure		STUD HEIGHT, h (ft)		
~~A~~/B	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22

TABLE R603.3.1.1(2)
GABLE ENDWALL BOTTOM TRACK TO FOUNDATION CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		MINIMUM SPACING FOR $^1/_2$" DIAMETER ANCHOR BOLTS[D]		
Exposure		STUD HEIGHT, h (ft)		
~~A~~/B	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22

TABLE R603.3.2(2)
24-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL
THROUGH
TABLE R603.3.2(31)
40-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)		
				8-Foot Studs	9-Foot Studs	10-Foot Studs
Exp. ~~A~~/B	Exp. C			Ground Snow Load (psf)		

TABLE R603.3.2.1(1)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. ~~A~~/B	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs

TABLE R603.3.2.1(2)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. ~~A~~/B	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs

TABLE 603.3.2.1(3)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [a,b,c]
33 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. ~~A/~~B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22

TABLE R603.3.2.1(4)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [A,B,C]
50 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. ~~A/~~B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22

TABLE R603.7(2)
HEADER TO KING STUD CONNECTION REQUIREMENTS[a,b,c,d]

HEADER SPAN (feet)	BASIC WIND SPEED (mph), EXPOSURE		
	85 ~~A/~~B or Seismic Design Categories A, B, C, D_0, D_1 and D_2	85C or less than 110 ~~A/~~B	Less than 110C

TABLE R603.8
HEAD AND SILL TRACK SPAN
F_y = 33 ksi

BASIC WIND SPEED (mph)		ALLOWABLE HEAD AND SILL TRACK SPAN[a,b,c] (ft-in.)					
EXPOSURE		TRACK DESIGNATION					
~~A/~~B	C	350T125-33	350T125-43	350T125-54	550T125-33	550T125-43	550T125-54

Commenter's Reason: In Section R603.1.1, the addition of "cold-formed steel" is editorial and the change from "in height" to "above grade plane" is to maintain consistency with terminology already used throughout the IRC. Additionally, the reference to wind Exposure A has been eliminated, since it is no longer defined in ASCE 7-05.

In Section R603.2, the addition of "cold-formed steel" is editorial. The other modification corrects the maximum inside bend radius to reflect the latest requirements found in AISI S201-07, *North American Standard for Cold-Formed Steel Framing – Product Data*, which is referenced in the adopted AISI S230-07.

In Section R603.3.2, the reference to wind Exposure A has been eliminated, since it is no longer defined in ASCE 7-05.

The modifications to the Tables are editorial in nature and include deleting the reference to wind Exposure A, since it is no longer defined in ASCE 7-05.

Public Comment 2:

Bonnie Manley, American Iron and Steel Institute, requests Approval as Modified by this Public Comment.

Modify proposal as follows:

R603.1.1 Applicability limits. The provisions of this section shall control the construction of exterior cold-formed steel wall framing and interior load-bearing cold-formed steel wall framing for buildings not more than 60 feet (18 288 mm) long perpendicular to the joist or truss span, not more than 40 feet (12 192mm) wide parallel to the joist or truss span, and less than or equal to three stories above grade plane ~~in height~~. All exterior walls installed in accordance with the provisions of this section shall be considered as load-bearing walls. Cold-formed steel walls constructed in accordance with the provisions of this section shall be limited to sites subjected to a maximum design wind speed of 110 miles per hour (49 m/s) Exposure ~~A,~~ B or C and a maximum ground snow load of 70 psf (3.35 kPa).

Part 2: Modify Section R603.2 as follows

R603.2 Structural framing. Load-bearing cold-formed steel wall framing members shall comply with Figure R603.2(1) and with the dimensional and minimum thickness requirements specified in Tables R603.2(1) and R603.2(2). Tracks shall comply with Figure R603.2(2) and shall have a minimum flange width of 11/4 inches (32 mm). The maximum inside bend radius for members shall be the greater of 3/32 inch (2.4 mm) minus half the base steel thickness or ~~twice~~ 1.5 times the base steel thickness.

Part 3: Modify Section R603.3.2 as follows:

R603.3.2 Minimum stud sizes. Cold-formed steel walls shall be constructed in accordance with Figures R603.3.1(1), R603.3.1(2), or R603.3.1(3), as applicable. Exterior wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31). Interior load-bearing wall stud size and thickness shall be determined in accordance with the limits set forth in Tables R603.3.2(2) through R603.3.2(31) based upon an 85 mph (137 km/hr) Exposure ~~A/~~B wind value and the building width, stud spacing and snow load as appropriate. Fastening requirements shall be in accordance with Section R603.2.4 and Table R603.3.2(1). Top and bottom tracks shall have the same minimum thickness as the wall studs.

Exterior wall studs shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm) ,where both of the following conditions exist:

1. Minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on the interior surface.
2. Wood structural sheathing panels of minimum 7/16 inch (11 mm) thick oriented strand board or 15/32 inch (12 mm) thick plywood is installed and fastened in accordance with Section R603.9.1 and Table R603.3.2(1) on the outside surface.

Interior load-bearing walls shall be permitted to be reduced to the next thinner size, as shown in Tables R603.3.2(2) through R603.3.2(31), but not less than 33 mils (0.84 mm), where a minimum of 1/2 inch (13 mm) gypsum board is installed and fastened in accordance with Section R702 on both sides of the wall.

The tabulated stud thickness for load-bearing walls shall be used when the attic load is 10 psf (0.48 kN/m^2) or less. A limited attic storage load of 20 psf (0.96 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(31).

For two-story buildings, the tabulated stud thickness for walls supporting one floor, roof and ceiling shall be used when second floor live load is 30 psf (1.44 kN/m^2). Second floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(2) through R603.3.2(21).

For three-story buildings, the tabulated stud thickness for walls supporting one or two floors, roof and ceiling shall be used when the third floor live load is 30 psf (1.44 kN/m^2). Third floor live loads of 40 psf (1.92 kN/m^2) shall be permitted provided that the next higher snow load column is used to select the stud size from Tables R603.3.2(22) through R603.3.2(31).

Part 4: Modify Section R603.9 as follows:

R603.9 Structural sheathing. Structural sheathing shall be installed on all sheathable exterior wall surfaces, including areas above and below openings, in accordance with Figure R603.9 and this section ~~Section R603.9.1~~.

R603.9.1 Sheathing materials. Structural sheathing panels shall consist of minimum 7/16-inch (11 mm) thick oriented strand board or 15/32-inch (12 mm) thick plywood.

R603.9.2 Determination of minimum length of full height sheathing. The minimum length of full height sheathing on each ~~exterior~~ braced wall line shall be determined by multiplying the length of the braced wall line by the percentage ~~values~~ obtained from Table R603.9.2(1) and by the plan aspect ratio adjustment factors obtained from ~~in~~ Table R603.9.2(2). The minimum length of full height sheathing shall not be less than 20 percent of the braced wall line length.

~~For hip roofed homes the minimum percentage of full height sheathing in Table R603.9(1), based upon wind, shall be permitted to be multiplied by a factor of 0.95 for roof slopes not exceeding 7:12 and a factor of 0.9 for roof slopes greater than 7:12.~~

To be considered full height sheathing, s~~S~~tructural sheathing shall extend~~, full height,~~ from the bottom to the top of the wall without interruption by openings. Only sheathed, full height wall sections, uninterrupted by openings, which are a minimum of 48 inches (1220 mm) wide, shall be counted toward meeting t~~T~~he minimum percentages ~~of full height sheathing~~ in Table R603.9.2(1) ~~shall include only those sheathed wall sections, uninterrupted by openings, which are a minimum of 48 inches (1220 mm) wide~~. ~~The minimum percentage of full-height structural sheathing shall be multiplied by 1.10 for 9 foot (2.74 m) high walls and multiplied by 1.20 for 10 foot (3.05 m) high walls.~~ In addition, structural sheathing shall comply with all of the following requirements:

1. Be installed with the long dimension parallel to the stud framing (i.e. vertical orientation) and shall cover the full vertical height of wall from the bottom of the bottom track to the top of the top track of each story. It shall be permitted to install the long dimension perpendicular to the stud framing or to use shorter segments provided that the horizontal joint is blocked as described in Item 2 below.
2. Be blocked when the long dimension installed perpendicular to the stud framing (i.e. horizontal orientation). Blocking shall be a minimum of 33 mil (0.84 mm) thickness. Each horizontal structural sheathing panel shall be fastened with No.8 screws spaced at 6 inches (152 mm) on center to the blocking at the joint.
3. Be applied to each end (corners) of each of the exterior walls with a minimum 48 inch (1220 mm) wide panel.

R603.9.2.1 The minimum percentage of full-height structural sheathing shall be multiplied by 1.10 for 9 foot (2.74 m) high walls and multiplied by 1.20 for 10 foot (3.05 m) high walls.

R603.9.2.2 For hip roofed homes, the minimum percentages of full height sheathing in Table R603.9.2(1), based upon wind, shall be permitted to be multiplied by a factor of 0.95 for roof slopes not exceeding 7:12 and a factor of 0.9 for roof slopes greater than 7:12.

R603.9.2.3 In the lowest story of a dwelling, the percent of full height sheathing required in Table R603.9.2(1) shall be permitted to be multiplied by 0.6, provided hold down anchors are provided in accordance with Section R603.9.4.2.

Part 5: Modify Section R603.9.1 as follows:

R603.9.3~~1~~ Structural sheathing fastening. All edges and interior areas of structural sheathing panels shall be fastened to framing members and tracks in accordance with Figure R603.9 and Table R603.3.2(1). Screws for attachment of structural sheathing panels shall be bugle-head, flat-head, or similar head style with a minimum head diameter of 0.29 inches (8 mm).

For continuously-sheathed braced wall lines using wood structural panels installed with No. 8 screws spaced 4-inch (102 mm) on center at all panel edges and 12-inch (305 mm) on center on intermediate framing members, the following shall apply:

1. The percentages of full height sheathing, in Table R603.9.2(1), shall be permitted to be multiplied by 0.72~~ for 4-inch (102 mm) edge screw spacing~~.
2. For bottom track attached to foundations or framing below, the bottom track anchor or screw connection spacing in Table R505.3.1(1) and Table R603.3.1 shall be multiplied by 2/3.

Part 6: Modify Section R603.9.2 as follows:

R603.9.4~~2~~ Uplift connection ~~Hold-down~~ requirements. Uplift connections shall be provided in accordance with this section.

R603.9.4.1 ~~In conditions w~~Where wind speeds are in excess of 100-mph (161 km/hr) ~~e~~Exposure C, ~~hold-down brackets~~ walls shall be ~~provided in accordance with Table 603.3.1~~provided wind direct uplift connections in accordance with AISI S230, Section E13.3, and AISI S230, Section F7.2, as required for 110 mph, Exposure C.

R603.9.4.2 ~~T~~Where the percentage of ~~structural~~ full height sheathing ~~required in Table R603.9(1) shall be permitted to be multiplied by 0.6 where~~ is adjusted in accordance with Section R603.9.2.3, a hold-down anchor, with a strength ~~capacity~~ of 4,300 pounds (19 kN), ~~is~~ shall be provided at each end of ~~exterior walls~~ each full-height sheathed wall section used to meet the minimum percent sheathing requirements of Section R603.9.2. Hold down anchors shall be attached to back-to-back studs; structural sheathing panels shall have edge fastening to the studs, in accordance with Section R603.9.3 and AISI S230, Table E11-1.

A single hold down anchor, installed in accordance with Figure R603.9.2, shall be permitted at the corners of buildings.

(PORTIONS OF THESE TABLES AND ANY FOOTNOTES NOT SHOWN REMAIN UNCHANGED)

TABLE R603.3.1
WALL TO FOUNDATION OR FLOOR CONNECTION REQUIREMENTS[a,b]

FRAMING CONDITION	WIND SPEED (MPH) & EXPOSURE					
	85 ~~A/B~~	90 ~~A/B~~	100 ~~A/B~~ 85 C	110 ~~A/B~~ 90 C	100 C	< 110 C

TABLE R603.3.1.1(1)
GABLE ENDWALL TO FLOOR CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		WALL BOTTOM TRACK TO FLOOR JOIST OR TRACK CONNECTION		
Exposure		STUD HEIGHT, h (ft)		
~~A/B~~	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22

TABLE R603.3.1.1(2)
GABLE ENDWALL BOTTOM TRACK TO FOUNDATION CONNECTION REQUIREMENTS[a, b, c]

BASIC WIND SPEED (MPH)		MINIMUM SPACING FOR $^1/_2$" DIAMETER ANCHOR BOLTS[D]		
Exposure		STUD HEIGHT, h (ft)		
~~A/B~~	C	10 < h ≤ 14	14 < h ≤ 18	18 < h ≤ 22

TABLE R603.3.2(2)
24-FOOT-WIDE BUILDING SUPPORTING ROOF AND CEILING ONLY [a,b,c]
33 ksi STEEL
THROUGH
TABLE R603.3.2(31)
40-FOOT-WIDE BUILDING SUPPORTING TWO FLOORS, ROOF & CEILING [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	MINIMUM STUD THICKNESS (mils)		
				8-Foot Studs	9-Foot Studs	10-Foot Studs
Exp. ~~A/B~~	Exp. C			Ground Snow Load (psf)		

TABLE R603.3.2.1(1)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
33 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. ~~A/B~~	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs

TABLE R603.3.2.1(2)
ALL BUILDING WIDTHS
GABLE ENDWALLS 8, 9 or 10 FEET IN HEIGHT [a,b,c]
50 ksi STEEL

WIND SPEED		MEMBER SIZE	STUD SPACING (inches)	Minimum Stud Thickness (Mils)		
Exp. ~~A/B~~	Exp. C			8-Foot Studs	9-Foot Studs	10-Foot Studs

TABLE 603.3.2.1(3)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [a,b,c]
33 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. ~~A/~~B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22

TABLE R603.3.2.1(4)
ALL BUILDING WIDTHS
GABLE ENDWALLS OVER 10 FEET IN HEIGHT [A,B,C]
50 ksi Steel

WIND SPEED		MEMBER SIZE	STUD SPACING (inch)	MINIMUM STUD THICKNESS (Mils)					
				Stud Height, h (feet)					
Exp. ~~A/~~B	Exp. C			10 < h ≤ 12	12 < h ≤ 14	14 < h ≤ 16	16 < h ≤ 18	18 < h ≤ 20	20 < h ≤ 22

TABLE R603.7(2)
HEADER TO KING STUD CONNECTION REQUIREMENTS[a,b,c,d]

HEADER SPAN (feet)	BASIC WIND SPEED (mph), EXPOSURE		
	85 ~~A/~~B or Seismic Design Categories A, B, C, D_0, D_1 and D_2	85C or less than 110 ~~A/~~B	Less than 110C

TABLE R603.8
HEAD AND SILL TRACK SPAN
F_y = 33 ksi

BASIC WIND SPEED (mph)		ALLOWABLE HEAD AND SILL TRACK SPAN[a,b,c] (ft-in.)					
EXPOSURE		TRACK DESIGNATION					
~~A/~~B	C	350T125-33	350T125-43	350T125-54	550T125-33	550T125-43	550T125-54

TABLE R603.9.2(1)
MINIMUM PERCENTAGE OF FULL HEIGHT
STRUCTURAL SHEATHING ON ~~EXTERIOR WALLS~~ BRACED WALL LINE [a,b]

WALL SUPPORTING	ROOF SLOPE	BASIC WIND SPEED (MPH) AND EXPOSURE					
		85 A/B	90 ~~A/~~B	100 ~~A/~~B	<110 ~~A/~~B	100 C	<110 C
				85 C	90 C		

TABLE R603.9.2(2)
~~EXTERIOR WALL~~ FULL HEIGHT SHEATHING LENGTH ADJUSTMENT FACTORS

PLAN ASPECT RATIO	LENGTH ADJUSTMENT FACTORS	
	SHORT WALL	Long Wall
1:1	1.0	1.0
1.5:1	1.5	0.67
2:1	2.0	0.50
3:1	3.0	0.33
~~4:1~~	~~4.0~~	~~0.25~~

Commenter's Reason: In Section R603.1.1, the addition of "cold-formed steel" is editorial and the change from "in height" to "above grade plane" is to maintain consistency with terminology already used throughout the IRC. Additionally, the reference to wind Exposure A has been eliminated, since it is no longer defined in ASCE 7-05.

In Section R603.2, the addition of "cold-formed steel" is editorial. The other modification corrects the maximum inside bend radius to reflect the latest requirements found in AISI S201-07, *North American Standard for Cold-Formed Steel Framing – Product Data*, which is referenced in the adopted AISI S230-07.

In Section R603.3.2, the reference to wind Exposure A has been eliminated, since it is no longer defined in ASCE 7-05.

In Section R603.9, the modifications incorporate the recently completed Supplement 2 to AISI S230-07 (*Standard for Cold-Formed Steel Framing – Prescriptive Method for One- and Two-family Dwellings*, 2007 Edition) into the IRC. This supplement was issued in June 2008 and is available for download from the AISI website: www.steel.org. (Click on "Construction" link and then click on "Codes and Standards" link.) It fully replaces Supplement 1 to AISI S230-07, and is intended to revise and clarify provisions related to low wind and low seismic wall bracing.

The modifications to the Tables are editorial in nature and include deleting the reference to wind Exposure A, since it is no longer defined in ASCE 7-05, and the 4:1 diaphragm span-to-depth ratio row in Table R603.9.2(2), since 4:1 ratio is not permitted in the low wind and seismic requirements of AISI S230-07.

To fully incorporate AISI S230, Supplement 2 into the IRC, a public comment has also been submitted on Proposal RB11-07/08. Also, to fully integrate AISI S230-07, Supplement 2 into the ICC Codes, a public comment has been submitted on Proposal S238-07/08.

Final Action: AS AM AMPC____ D

RB173-07/08, Part I

R613.2, R613.3, R613.4, R613.4.1, R613.4.2 (New), Chapter 43 (New); IBC 1405.12.2, 1405.12.3 (New), 1405.12.4 (New), 1405.12.4.1 (New), 1405.12.4.2 (New), Chapter 35 (New)

Proposed Change as Submitted:

Proponent: Paul Heilstedt, Chair for the Code Technology Committee

PART I – IRC

1. Revise as follows:

R613.2 Window sills. In dwelling units, where the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches (610 mm) above the finished floor of the room in which the window is located. Glazing between the floor and 24 inches (610 mm) shall be fixed or have openings through which a 4-inch-diameter (102 mm) sphere cannot pass.

Exceptions:

1. Windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.
2. Openings that are provided with window fall prevention devices ~~guards~~ that comply with R613.3 ~~ASTM F 2006 or F 2090~~.
3. Openings that are provided with fall prevention devices that comply with ASTM F 2090 or screens that comply with SMA 6001.
4. Windows that are provided with opening limiting devices that comply with Section R613.4.

R613.3 Window fall prevention devices. Window fall prevention devices and window guards, where provided, shall comply with the requirements of ASTM F 2090.

R613.4 Window opening limiting devices. When required elsewhere in this code, window opening limiting devices shall comply with the provisions of this section.

R613.4.1 General requirements. Window opening limiting devices shall be self acting and shall be positioned so as to prohibit the free passage of a 4.0-in. (102-mm) diameter rigid sphere through the window opening when the window opening limiting device is installed in accordance with the manufacturer's instructions.

(Renumber subsequent sections)

2. Add new text as follows:

R613.4.2 Operation for Emergency Escape. Window opening limiting devices shall be designed with release mechanisms to allow for emergency escape through the window opening without the need for keys, tools or special knowledge. Window opening limiting devices shall comply with all of the following:

1. Release of the window opening-limiting device shall require no more than 15 lbf (66 N) of force.
2. The window opening limiting device release mechanism shall operate properly in all types of weather.
3. Window opening limiting devices shall have their release mechanisms clearly identified for proper use in an emergency.
4. The window opening limiting device shall not reduce the minimum net clear opening area of the window unit below what is required by Section R310.1.1 of the code.

3. Add standard to Chapter 43 as follows:

SMA 6001-2002Specifications for Metal Protection Screens

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html Since its inception in April/2005, the CTC has held twelve meetings - all open to the public.