P2604.1 (Supp) Trenching and bedding. Where trenches are excavated such that the bottom of the trench forms the bed for the pipe, solid and continuous load-bearing support shall be provided between joints. Where over-excavated, the trench shall be backfilled to the proper grade with compacted earth, sand, fine gravel or similar granular or controlled low-strength materials (CLSM). Piping shall not be supported on rocks or blocks at any point. Rocky or unstable soil shall be over excavated by two or more pipe diameters and brought to the proper grade with suitable compacted granular material or CLSM. Backfill bedding constructed with CLSM shall not be required to be compacted.

P2604.3 Backfilling. Backfill shall be free from discarded construction material and debris. Backfill shall be free from rocks, broken concrete and frozen chunks until the pipe is covered by at least 12 inches (305 mm) of tamped earth or controlled low-strength materials (CLSM). Backfill shall be placed evenly on both sides of the pipe and tamped to retain proper alignment. Loose earth shall be carefully placed in the trench in 6-inch (152 mm) layers and tamped in place. Backfill with CLSM shall not be required to be tamped.

Add new text as follows:

SECTION R202
DEFINITIONS

CONTROLLED LOW-STRENGTH MATERIAL. A self-compacted, cementitious material used primarily as a backfill in place of compacted fill.

Reason: These five (5) proposed changes to the 2003 International Residential Code, which, taken together, will clarify where and how Controlled Low-Strength Material (CLSM) may be utilized as an alternative to soil or compacted fill on a project.

The Proposal will eliminate any misconception that Controlled Low-Strength Material (CLSM) is prohibited from use on a project. The current IRC 2003 does not recognize the long standing class of construction materials known as Controlled Low-Strength Material (CLSM). Said class of construction materials is known by many local names and used throughout the United States as available generic soil replacement materials. The American Concrete Institute's Committee 229 describes Controlled Low-Strength Material (CLSM) as "a self-compacted, cementitious material used primarily as a backfill in place of compacted fill."

In 2002, CLSM was incorporated into the International Building Code, specifically in sections, 202, 1803.2, 1803.6, 1805.1, 1805.7.3 and 1805.8.3.

Just as there is no one national reference standard for compacted fill material, there is no one national reference standard for controlled low-strength material CLSM). There is however, a national report on CLSM promulgated according to a consensus procedure. Specifically, that document is ACI 229R-99 Controlled Low-Strength Materials, reported by ACI Committee 229, of the American Concrete Institute (ACI).

This proposal does not speak for any proprietary products that may be available now, or in the past, or in the future, as products that fit into the class of controlled low-strength materials (CLSM), nor for ingredients that may be used in CLSM; nor does this proposal exclude opportunities for said proprietary products, now or in the future.

There are nationally promulgated standards for sampling and testing Controlled Low-Strength Materials (CLSM), by the American Society for testing and Materials (ASTM). Those documents include:

- ASTM D 4832-95, Standard test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders;
- ASTM D 5971-96, Standard Practice for Sampling Freshly Mixed Controlled Low-Strength Material;
- ASTM D 6023-96, Standard Test Method for Unit Weight, Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low Strength Material (CLSM);
- ASTM D 6024-96, Standard Test method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application; and
- ASTM D 6103-97, Standard Test Method for Flow Consistency of Controlled Low Strength Material (CLSM).

On 19-20 June 1997, ASTM Committee D-18 conducted the first International Symposium on *The Design and Application of Controlled Low-Strength Materials (Flowable Fill)* in St. Louis, Missouri. A bound set of papers from that symposium is available from ASTM as Stock # STP1331.

Use of controlled low-strength materials (CLSM) is commonly included in bridge or pavement construction work by Department of Transportation (DOT) contracts. By October 15,1993, specifications for controlled low-strength materials, from at least 20 different DOT's and 5 separate municipalities around the United States, were on file at the National Ready Mixed Concrete Association.

In October 1981, the Controlled Low-Strength Materials (CLSM) specification, *Specification for Lean Mix Backfill,* was published for use on building projects of the U.S. Department of Housing and Urban Development (HUD), per HUD Contract #H-5208. A copy of that document is also on file at the National Ready Mixed Concrete Association.

ASTM D 4832-95, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders evolved from ASTM D 4832-88, Standard Test Method for Preparation and Testing of Soil-Cement Slurry Test Cylinders. The original document was developed from the U.S. Bureau of Reclamation's use of soil-cement slurry since 1961. Soil-cement slurry is a controlled low-strength material.

A current specification of the U.S. Army Corps of Engineers is Item P-630 Controlled Low Strength Material (Flowable Fill).

The U.S. Environmental Protection Agency (USEPA), Office of Solid Waste has identified flowable fill (another name for Controlled Low-Strength Materials) as a material commonly used for an economical fill or backfill in road construction, that can help put significant quantities of recovered materials back to use. Refer to 40 CFR Section 247.12 (I), effective January 19, 2001, Comprehensive Procurement Guidelines of the U.S. Environmental Protection Agency, wherein the agency recommends that procuring agencies use flowable fill containing coal fly ash and/or ferrous foundry sands for backfill and other fill

applications.

Cost Impact: Compared to properly constructed engineered backfill this change may reduce cost of construction. Compared to backfill dumped without regard to compaction or other stabilization, this change may increase the cost of construction.

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

RB139-04/05
R502.2.1 and R602.10.8

Proponent: Kelly Cobeen, BSSC Code Resource Support Committee, representing the National Institute of Building Sciences

Gerald Jones, FEMA, representing Building Seismic Safety Council

Add new text as follows:

R502.2.1 Framing at braced wall lines. A load path for lateral forces shall be provided between floor framing and braced wall panels located above or below a floor, as specified in Section R602.10.8.

(Renumber remaining sections)

Revise as follows:

R602.10.8 Connections. Braced wall line sole plates shall be fastened to the floor framing and top plates shall be connected to the framing above in accordance with Table R602.3(1). Sills shall be fastened to the foundation or slab in accordance with Sections R403.1.6 and R602.11. Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced wall panels. Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1).

Reason: At braced wall panels, joists and blocking are an essential part of a complete lateral load path for either wind or seismic loads. These framing members are needed to accomplish the framing to framing connections currently specified in Table R602.3(1) and Section R602.10.8. However, the current IRC requirements in section R602.10.8 do not address the framing needed when braced wall panels occur below a floor, or when framing is parallel to a braced wall panel. Consequently, new language has been added to Section R602.10.8 to specify the framing required for a complete load path for these conditions. Because these requirements affect framing, a reference is provided in Section R502, where the balance of floor framing requirements are located.

Cost Impact: This proposal will increase the cost of construction.

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

RB140-04/05
R502.3.1

Proponent: Joseph Knarich, representing the National Association of Home Builders (NAHB)

Revise as follows:

R502.3.1 Sleeping areas and attic joists. Table R502.3.1(1) shall be utilized to determine the maximum allowable span of floor joists that support sleeping areas and attics that are accessed by means of a fixed stairway in accordance with R311.5 provided that the design live load does not exceed 30 psf (1.44 kN/m^2) and the design dead load does not exceed 10 psf (0.48 kN/m^2). The allowable span of ceiling joists that support attics utilized for limited storage or no storage shall be determined in accordance with Section R802.4.

Reason: This proposal seeks to clarify the requirements for fixed stairs that access an attic area. Accessibility requirements for stairways are provided in the code in section R311.5, but as currently written, the code does not reference these requirements for stairs that lead to attics. As modified, this change will lead the builder and code official to refer to the existing requirements for fixed stairways as listed in the code.

Cost Impact: None

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

RB141-04/05
Table R502.3.1(1)

Proponent: Joseph Knarich, representing the National Association of Home Builders (NAHB)

Revise as follows:

TABLE R502.3.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential sleeping areas, live load = 30 psf, L/△=360)[a]

(No change to table)

a. Dead loads for townhouses in Seismic Design Category C and all structures in Seismic Design Category D_0, D_1 and D_2 shall be determined in accordance with Section R301.2.2.2.

Reason: The current tables list allowable spans for given dead loads, yet no reference for the determination of the dead load for a given structure. By approving this change, a reference can be made to the current code section for the determination of dead loads for structures that are subject to the seismic provisions of the code.

Cost Impact: None

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

RB142-04/05
Table R502.3.1(2)

Proponent: Joseph Knarich, representing the National Association of Home Builders (NAHB)

Revise as follows:

TABLE R502.3.1(2)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, L/△=360)[(b)]

(No change to table)

a. End bearing length shall be increased to 2 inches.
b. Dead loads for townhouses in Seismic Design Category C and all structures in Seismic Design Category D_0, D_1 and D_2 shall be determined in accordance with Section R301.2.2.2.

Reason: The current tables list allowable spans for given dead loads, yet no reference for the determination of the dead load for a given structure. By approving this change, a reference can be made to the current code section for the determination of dead loads for structures that are subject to the seismic provisions of the code.

Cost Impact: None

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

RB143-04/05
R502.7

Proponent: Randall Shackelford, representing Simpson Strong-Tie Co.

Revise as follows:

R502.7 (Supp) Lateral restraint at supports. Joists shall be supported laterally at the ends by full-depth solid blocking not less than 2 inches (51 mm) nominal in thickness; or by attachment to a full-depth header, band or rim joist, or to an adjoining stud or shall be otherwise provided with lateral support to prevent rotation.

Exception: In Seismic Design Categories D_0, D_1 and D_2, lateral restraint shall also be provided at each intermediate support.

Reason: This change is to clarify that band or rim joists must be single full-depth members. More and more I see multiple 2x4's being set on edge and used as a band joist. This will not, however, prevent rotation of the joist. It should not be allowed.

Cost Impact: None

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

RB144-04/05
R502.11.1 and R802.10.2

Proponent: Kirk Grundahl, P.E., Wood Truss Council of America (WTCA)

1. Revise as follows:

R502.11 Wood trusses.

R502.11.1 Design. Wood trusses shall be designed in accordance with approved engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI 1. When ANSI/TPI 1 or the provisions of this section are used to design wood trusses, project drawings, typical details and specifications are not required to bear the seal of the engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority. ~~The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section R106.1.~~

2. Revise as follows:

R802.10 Wood trusses.

R802.10.2 Design. Wood trusses shall be designed in accordance with approved engineering practice. The design and manufacture of metal plate connected wood trusses shall comply with ANSI/TPI 1. When ANSI/TPI 1 or the provisions of this section are used to design wood trusses, project drawings, typical details and specifications are not required to bear the seal of the engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority. ~~The truss design drawings shall be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed in accordance with Section R106.1.~~

Reason: (**R502.11.1)** Truss design drawings are held to a higher standard for the submission of design information than for the construction of concrete and masonry walls per the requirements ACI 530. Truss design should not have more restrictive requirements for seals on drawings.

R404.1 Concrete and masonry foundation walls. Concrete and masonry foundation walls shall be selected and constructed in accordance with the provisions of this section or in accordance with ACI 318, NCMA TR68-A or ACI 530/ASCE 5/TMS 402 or other approved structural standards. When ACI 318 or ACI 530/ASCE 5/TMS402 or the provisions of this section are used to design concrete or masonry foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority.

The truss industry respectfully requests that there is a level engineering playing field when it comes to the requirements of structural building components. In this case the industry requests that approach taken by the code with respect to the design of concrete or masonry foundation walls, project drawings, typical details and specifications, be allowed to be the approach taken for design of trusses, project drawings, typical details and specifications. The design of all structural building components should have uniform requirements for seals on drawings.

Reason: (R802.10.2) Truss design drawings are being held to a higher engineering standard than similar structural building components and that is discriminatory. The submission of design information for the construction of concrete and masonry walls per the requirements ACI 530, follow:

R404.1 Concrete and masonry foundation walls. Concrete and masonry foundation walls shall be selected and constructed in accordance with the provisions of this section or in accordance with ACI 318, NCMA TR68-A or ACI 530/ASCE 5/TMS 402 or other approved structural standards. When ACI 318 or ACI 530/ASCE 5/TMS402 or the provisions of this section are used to design concrete or masonry foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for design, unless otherwise required by the state law of the jurisdiction having authority.

The truss industry respectfully requests that there is a level engineering playing field when it comes to the requirements of structural building components. In this case the industry requests that approach taken by the code with respect to the design of concrete or masonry foundation walls, project drawings, typical details and specifications, be allowed to be the approach taken for design of trusses, project drawings, typical details and specifications. The design of all structural building components should have uniform requirements for seals on drawings.

Analysis: No coordinating IBC change submitted.

Cost Impact: None

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

RB145-04/05
R502.11.2 and R802.10.3

Proponent: Kirk Grundahl, P.E., Wood Truss Council of America (WTCA)

1. Revise as follows:

R502.11.2 Bracing. Trusses shall be braced to prevent rotation and provide lateral stability in accordance with the requirements specified in the construction documents for the building and on the individual truss design drawings. In the absence of specific bracing requirements, trusses shall be braced in accordance with the ~~TPI, HIB~~ Building Component Safety Information (BCSI 1-03) Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

2. Revise as follows:

R802.10.3 Bracing. Trusses shall be braced to prevent rotation and provide lateral stability in accordance with the requirements specified in the construction documents for the building and on the individual truss design drawings. In the absence of specific bracing requirements, trusses shall be braced in accordance with the ~~TPI, HIB~~ Building Component Safety Information (BCSI 1-03) Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Reason: HIB-91 is no longer produced. WTCA and TPI have developed the BCSI 1-03 booklet to replace HIB-91. The announcement on this industry publication change was made, by letter from WTCA and TPI, in January 2004. The BCSI 1-03 can be viewed at http://www.woodtruss.com/images/publicationimages/bcsi103.pdf.

Bibliography

Bill Turnbull, TPI President & Dan Holland, WTCA President, Letter to Building/Government Officials and Specifiers: "Updated Truss Safety Information from TPI and WTCA".

Cost Impact: None

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

RB146-04/05

R502.11.4 and R802.10.1

Proponent: Joseph Knarich, representing the National Association of Home Builders (NAHB)

1. Revise as follows:

R502.11.4 Truss design drawings. Truss design drawings, prepared in compliance with Section R502.11.1, shall be provided to the building official and approved prior to installation. Truss design drawing shall be provided with the shipment of trusses delivered to the job site. Truss design drawings shall include, at a minimum, the information specified below:

1. Slope or depth, span, and spacing.
2. Location of all joints.
3. Required bearing widths.
4. Design loads as applicable.
   4.1. Top chord live load ~~(including snow loads)~~.
   4.2. Top chord dead load.
   4.3. Bottom chord live load.
   4.4. Bottom chord dead load.
   4.5. Concentrated loads and their points of application.
   4.6. Controlling wind and earthquake loads.
5. Adjustments to lumber and joint connector design values for conditions of use.
6. Each reaction force and direction.
7. Joint connector type and description (e.g., size, thickness or gauge); and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.
8. Lumber size, species and grade for each member.
9. Connection requirements for:
   9.1. Truss-to-~~truss~~ girder-truss.
   9.2. Truss ply-to-ply.
   9.3. Field splices.
10. Calculated deflection ratio and/or maximum description for live and total load.
11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss drawing or on supplemental documents.
12. Required permanent truss member bracing location.

2. Revise as follows:

R802.10.1 Truss design drawings. Truss design drawings, prepared in conformance with Section R802.10.1, shall be provided to the building official and approved prior to installation. Truss design drawings shall include, at a minimum, the information specified below. Truss design drawing shall be provided with the shipment of trusses delivered to the jobsite.

1. Slope or depth, span and spacing.
2. Location of all joints.
3. Required bearing widths.
4. Design loads as applicable.
   4.1. Top chord live load (~~including~~ or snow loads).
   4.2. Top chord dead load.
   4.3. Bottom chord live load.
   4.4. Bottom chord dead load.
   4.5. Concentrated loads and their points of application.
   4.6. Controlling wind and earthquake loads.
5. Adjustments to lumber and joint connector design values for conditions of use.
6. Each reaction force and direction.
7. Joint connector type and description (e.g., size, thickness or gauge) and the dimensioned location of each joint connector except where symmetrically located relative to the joint interface.
8. Lumber size, species and grade for each member.
9. Connection requirements for:
   9.1. Truss to ~~truss~~ girder-truss.
   9.2. Truss ply to ply.
   9.3. Field splices.
10. Calculated deflection ratio and/or maximum description for live and total load.
11. Maximum axial compression forces in the truss members to enable the building designer to design the size, connections and anchorage of the permanent continuous lateral bracing. Forces shall be shown on the truss design drawing or on supplemental documents.
12. Required permanent truss member bracing location.

Reason: (R502.11.4) This change is essentially editorial as this section of code deals with floor trusses. These trusses, which are inside of a structure, will not carry roof snow loading and the design drawings should be required to reflect this load condition. In addition, the terminology in Section 9 should be changed to reflect the actual connection type.

Reason: (R802.10.1) This change is essentially editorial as Section R301.6 of code specifies that roof load shall be the live load or the snow load, whichever is greater. In addition, the terminology in Section 9 should be changed to reflect the actual connection type.

Cost Impact: None

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

RB147-04/05

R503.2.2, Table R503.2.1.1(1) and R803.2.2

Proponent: Joseph Hill, RA, representing the New York State Department of State, Codes Division

Revise as follows:

R503.2.2 Allowable spans. The maximum allowable span for wood structural panels used as subfloor or combination subfloor underlayment shall be as set forth in Table R503.2.1.1(1), or APA E30. The maximum span for sanded plywood combination subfloor underlayment shall be as set forth in Table R503.2.1.1(2).

TABLE R503.2.1.1(1) (Supp)
ALLOWABLE SPANS AND LOADS FOR WOOD STRUCTURAL PANELS FOR ROOF AND SUBFLOOR SHEATHING AND COMBINATION SUBFLOOR UNDERLAYMENT[a, b, c]

SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (inch)	ALLOWABLE LIVE LOAD (psf) [h,l]		MAXIMUM SPAN (Inches)		LOAD (pounds per square foot, at maximum span)		MAXIMUM SPAN (inches)
		SPAN @ 16" o.c.	SPAN @ 24" o.c.	With edge support[d]	Without edge support	Total load	Live load	
Sheathing[e]				Roof[f]				Subfloor[j]
(no change)	(no change)	---	---	(no change)	(no change)	(no change)	(no change)	(no change)
		30	---					
		50	---					
		100	30					
		100	40					
		180	70					
		305	30					
		---	175					
		---	305					
Underlayment, C-C plugged, single floor[e]				Roof[f]				Combination subfloor underlayment[k]
(no change)	(no change)	100	40	(no change)				(no change0
		150	60					
		240	100					
		---	185					
		---	290					

a through k (no change)

l. Allowable live load values at spans of 16" o.c. and 24" o.c. taken from reference standard APA-E30 APA Engineered Wood Construction Guide. Refer to reference standard for allowable spans not listed in the table.

R803.2.2 Allowable spans. The maximum allowable spans for wood structural panel roof sheathing shall not exceed the values set forth in Table R503.2.1.1(1), or APA E30.

Reason: Table R503.2.1.1 (1) has been problematic to the users of the code for a number of reasons. Foremost, the table does not provide the user with the allowable loading values at standard spacing intervals utilized in construction practice, i.e., spans of 16"o.c. and 24"o.c. Lacking this pertinent information, the table is of little use to the user in selecting appropriate thickness and span rating of plywood panels for specific live loading conditions and spacing of structural members. For example, a code user cannot enter the table with a live roof load of 60 psf, with roof truss spacing of 24" o.c. and select appropriate roof sheathing for that application. It would be more appropriate to provide allowable loading values for all range of thicknesses of roof (and floor) sheathing, at standardized common practice spacing of structural members. The maximum span values provided in the table are of little use, since it is rarely common practice (for example) to use 5/8" roof sheathing in a situation at which roof members are placed at 32" o.c. spacing. Since the intent of the code is to provide the user with a stand alone document to design a residential structure for ground snow load values up to and including 70 psf, the table does not afford that ability to the user. Secondly, for allowable plywood spans for floor or roof construction, there is no direct reference to Reference standard APA E30, unless the user reads further into Section R803.2.3 which deals with the *installation* of sheathing, rather than the specificity of the sheathing. For this reason, the text of the code Sections R503.2.2 and R803.2.2 should be changed to add the reference to APA E30.

Cost Impact: None

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

RB148-04/05

R505.1.1,R505.1.3, R505.2,Table R505.2(3), Figure R505.2(3), R505.3.2, R505.3.6, Table R505.3.2(1), Table R505.3.2(2) and Table R505.3.2(3)

Proponent: Jonathan Humble, representing the American Iron and Steel Institute

Revise as follows:

R505.1.1 (Supp) Applicability limits. The provisions of this section shall control the construction of steel floor framing for buildings not greater than 60 feet (18,288 mm) in length perpendicular to the joist span, not greater than ~~36~~ 40 feet (~~10,973~~ 12 192 mm) in width parallel to the joist span, and not greater than two stories in height. Steel floor framing 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 kN/m^2).

Add new text as follows:

R505.1.3 Floor trusses. The design, quality assurance, installation and testing of cold-formed steel trusses shall be in accordance with the AISI Standard for Cold-formed Steel Framing-Truss Design (COFS/Truss). Truss members shall not be notched, cut or altered in any manner without an approved design.

Revise as follows:

R505.2 Structural framing. Load-bearing floor framing members shall comply with R505.2(1) and with the dimensional and minimum thickness requirements specified in Tables R505.2(1) and R505.2(2). Tracks shall comply with Figure R505.2(2) and shall have a minimum flange width of 1-1/4 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 steel thickness. Holes in joist webs shall comply with all of the following conditions: ~~conform to Figure R505.2(3) and to the dimensional requirements specified in Table R505.2(3). Holes shall be permitted only along the centerline of the web of the framing member. Holes for 800S162-33, 1000S162-43, 1200S162-43 and 1200S162-54 nominal joist sizes located less than 10 inches (254 mm) from the edge of load-bearing surface shall be patched in accordance with Section R505.3.6~~.

1. Holes shall conform to Figure R505.2(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 web hole width not greater than 0.5 times the member depth, or 2-1/2 inches (64.5 mm),
5. Holes shall have a web hole length not exceeding 4-1/2 inches (114 mm),
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 patched in accordance with Section R505.3.6 or designed in accordance with accepted engineering practices.

Delete without substitution:

~~**TABLE R505.2(3)**~~
~~**MAXIMUM HOLE DIMENSIONS AND SPACING IN JOIST WEBS**~~

Delete existing Figure R505.2(3) and substitute as follows:

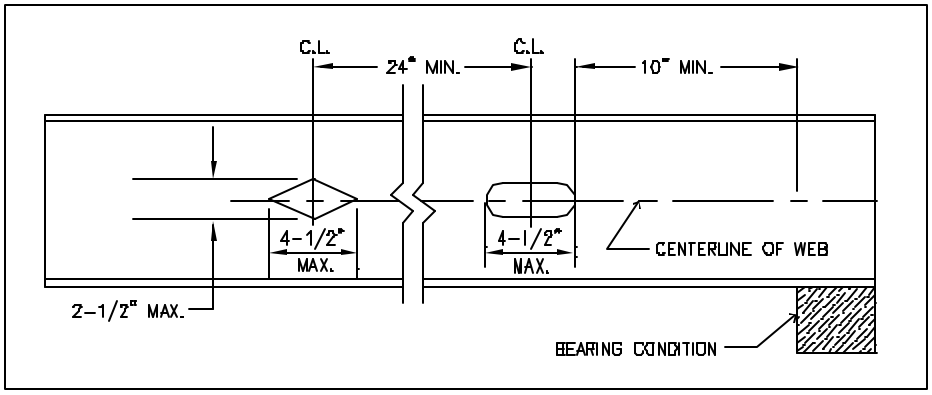

FIGURE R502(3)
FLOOR JOIST WEB HOLES

Revise as follows:

R505.3.2 Allowable joist spans. The clear span of cold-formed steel floor joists shall not exceed the limits set forth in Table**s** R505.3.2(1), R505.3.2(2), and R505.3.2(3). Floor joists shall have a minimum bearing length of 1.5 inches (38 mm). When continuous joists are used the interior bearing supports shall be located within 2 feet (610 mm) of mid span of the steel joists, and the individual spans shall not exceed the span in Table**s** R505.3.2(2) and R505.3.2(3). Bearing stiffeners shall be installed at each bearing location in accordance with Section R505.3.4 and as shown in figure R505.3.

Blocking is not required for continuous back-to-back floor joists at bearing supports. Blocking shall be installed between the joists for single continuous floor joists across bearing supports. Blocking shall be spaced at a maximum of 12 feet (3660 mm) on center. Blocking shall consist of C-shape or track section with a minimum thickness of 33 mils (0.84 mm). Blocking shall be fastened to each adjacent joist through a 33 mill (0.84 mm) clip angle, bent web of blocking or flanges of web stiffeners with two No. 8 screws on each side. The minimum depth of the blocking shall be equal to the depth of the joist minus 2 inches (51 mm). The minimum length of the angle shall be equal to the depth of the joist minus 2 inches (51 mm).

Delete and substitute as follows:

R505.3.6 Hole patching. ~~Web holes for 800S162-33, 1000S162-43, 1200S162-43 and 1200S162-54 nominal joist sizes with dimensions conforming to Section R505.2 that are closer than 10 inches (305 mm) from the edge of the hole to the edge of the bearing surface shall be patched with a solid steel plate, C-section or track section in accordance with Figure R505.3.6. The steel patch shall be of a minimum thickness as the receiving member and shall extend at least 1 inch (25.4 mm) beyond all edges of the hole. The steel patch shall be fastened to the web with No. 8 screws (minimum) spaced no greater than 1 inch (25.4 mm) center-to-center along the edges of the patch, with a minimum edge distance of 0.5 inch (12.7 mm).~~

R505.3.6 Hole patching. Web holes not conforming to the requirements in Section R505.2 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:

   (a) The depth of the hole, measured across the web, exceeds 70% of the flat width of the web; and/or,
   (b) 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 R505.3.6(1) shall be patched with a solid steel plate, stud section, or track section in accordance with Figure R505.3.6. The steel patch shall be of a minimum thickness as the receiving member and shall extend at least 1 inch (25.4 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 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).

Delete existing Table R505.3.2 and substitute as follows:

TABLE R505.3.2(1)
ALLOWABLE SPANS FOR COLD-FORMED STEEL
JOISTS-SINGLE SPANS[a,b] 33 ksi STEEL

JOIST DESIGNATION	30 psf Live Load				40 psf Live Load			
	Spacing (inches)				Spacing (inches)			
	12	16	19.2	24	12	16	19.2	24
550S162-33	11'-7"	10'-7"	9'-6"	8'-6"	10'-7"	9'-3"	8'-6"	7'-6"
550S162-43	12'-8"	11'-6"	10'-10"	10'-2"	11'-6"	10'-5"	9'-10"	9'-1"
550S162-54	13'-7"	12'-4"	11'-7"	10'-9"	12'-4"	11'-2"	10'-6"	9'-9"
550S162-68	14'-7"	13'-3"	12'-6"	11'-7"	13'-3"	12'-0"	11'-4"	10'-6"
550S162-97	16'-2"	14'-9"	13'-10"	12'-10"	14'-9"	13'-4"	12'-7"	11'-8"
800S162-33	15'-8"	13'-11"	12'-9"	11'-5"	14'-3"	12'-5"	11'-3"	9'-0"
800S162-43	17'-1"	15'-6"	14'-7"	13'-7"	15'-6"	14'-1"	13'-3"	12'-4"
800S162-54	18'-4"	16'-8"	15'-8"	14'-7"	16'-8"	15'-2"	14'-3"	13'-3"
800S162-68	19'-9"	17'-11"	16'-10"	15'-8"	17'-11"	16'-3"	15'-4"	14'-2"
800S162-97	22'-0"	20'-0"	18'-10"	17'-5"	20'-0"	18'-2"	17'-1"	15'-10"
1000S162-43	20'-6"	18'-8"	17'-6"	15'-8"	18'-8"	16'-11"	15'-6"	13'-11"
1000S162-54	22'-1"	20'-0"	18'-10"	17'-6"	20'-0"	18'-2"	17'-2"	15'-11"
1000S162-68	23'-9"	21'-7"	20'-3"	18'-10"	21'-7"	19'-7"	18'-5"	17'-1"
1000S162-97	26'-6"	24'-1"	22'-8"	21'-0"	24'-1"	21'-10"	20'-7"	19'-1"
1200S162-43	23'-9"	20'-10"	19'-0"	16'-8"	21'-5"	18'-6"	16'-6"	13'-2"
1200S162-54	25'-9"	23'-4"	22'-0"	20'-1"	23'-4"	21'-3"	20'-0"	17'-10"
1200S162-68	27'-8"	25'-1"	23'-8"	21'-11"	25'-1"	22'-10"	21'-6"	21'-1"
1200S162-97	30'-11"	28'-1"	26'-5"	24'-6"	28'-1"	25'-6"	24'-0"	22'-3"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m^2

a. Deflection criteria: L/480 for live loads, L/240 for total loads.
b. Floor dead load = 10 psf

Add new table as follows:

TABLE R505.3.2(2)
ALLOWABLE SPANS FOR COLD-FORMED STEEL
JOISTS-MULTIPLE SPANS[a,b] 33 ksi STEEL

JOIST DESIGNATION	30 psf Live Load				40 psf Live Load			
	Spacing (inches)				Spacing (inches)			
	12	16	19.2	24	12	16	19.2	24
550S162-33	12'-1"	10'-5"	9'-6"	8'-6"	10'-9"	9'-3"	8'-6"	7'-6"
550S162-43	14'-5"	12'-5"	11'-4"	10'-2"	12'-9"	11'-11"	10'-1"	9'-0"
550S162-54	16'-3"	14'-1"	12'-10"	11'-6"	14'-5"	12'-6"	11'-5"	10'-2"
550S162-68	19'-7"	17'-9"	16'-9"	15'-6"	17'-9"	16'-2"	15'-2"	14'-1"
550S162-97	21'-9"	19'-9"	18'-7"	17'-3"	19'-9"	17'-11"	16'-10"	15'-4"
800S162-33	14'-8"	11'-10"	10'-4"	8'-8"	12'-4"	9'-11"	8'-7"	7'-2"
800S162-43	20'-0"	17'-4"	15'-9"	14'-1"	17'-9"	15'-4"	14'-0"	12'-0"
800S162-54	23'-7"	20'-5"	18'-8"	16'-8"	21'-0"	18'-2"	16'-7"	14'-10"
800S162-68	26'-5"	23'-1"	21'-0"	18'-10"	23'-8"	20'-6"	18'-8"	16'-9"
800S162-97	29'-6"	26'-10"	25'-3"	22'-8"	26'-10"	24'-4"	22'-6"	20'-2"
1000S162-43	22'-2"	18'-3"	16'-0"	13'-7"	18'-11"	15'-5"	13'-6"	11'-5"
1000S162-54	26'-2"	22'-8"	20'-8"	18'-6"	23'-3"	20'-2"	18'-5"	16'-5"
1000S162-68	31'-5"	27'-2"	24'-10"	22'-2"	27'-11"	24'-2"	22'-1"	19'-9"
1000S162-97	35'-6"	32'-3"	29'-11"	26'-9"	32'-3"	29'-2"	26'-7"	23'-9"
1200S162-43	21'-8"	17'-6"	15'-3"	12'-10"	18'-3"	14'-8"	12'-8"	10'-6"
1200S162-54	28'-5"	24'-8"	22'-6"	19'-6"	25'-3"	21'-11"	19'-4"	16'-6"
1200S162-68	33'-7"	29'-1"	26'-6"	23'-9"	29'-10"	25'-10"	23'-7"	21'-1"
1200S162-97	41'-5"	37'-8"	34'-6"	30'-10"	37'-8"	33'-6"	30'-7"	27'-5"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m^2

a. Deflection criteria: L/480 for live loads, L/240 for total loads.
b. Floor dead load = 10 psf

TABLE R505.3.2(3)
ALLOWABLE SPANS FOR COLD-FORMED STEEL
JOISTS - MULTIPLE SPANS[a,b] 50 ksi STEEL

JOIST DESIGNATION	30 psf Live Load				40 psf Live Load			
	Spacing (inches)				Spacing (inches)			
	12	16	19.2	24	12	16	19.2	24
550S162-33	13'-11"	12'-0"	11'-0"	9'-3"	12'-3"	10'-8"	9'-7"	8'-4"
550S162-43	16'-3"	14'-1"	12'-10"	11'-6"	14'-6"	12'-6"	11'-5"	10'-3"
550S162-54	18'-2"	16'-6"	15'-4"	13'-8"	16'-6"	14'-11"	13'-7"	12'-2"
550S162-68	19'-6"	17'-9"	16'-8"	15'-6"	17'-9"	16'-1"	15'-2"	14'-0"
550S162-97	21'-9"	19'-9"	18'-6"	17'-2"	19'-8"	17'-10"	16'-8"	15'-8"
800S162-33	15'-6"	12'-6"	10'-10"	9'-1"	13'-0"	10'-5"	8'-11"	6'-9"
800S162-43	22'-0"	19'-1"	17'-5"	15'-0"	19'-7"	16'-11"	14'-10"	12'-8"
800S162-54	24'-6"	22'-4"	20'-6"	17'-11"	22'-5"	19'-9"	17'-11"	15'-10"
800S162-68	26'-6"	24'-1"	22'-8"	21'-0"	24'-1"	21'-10"	20'-7"	19'-2"
800S162-97	29'-3"	26'-8"	25'-2"	23'-5"	26'-8"	24'-3"	22'-11"	21'-4"
1000S162-43	23'-6"	19'-2"	16'-9"	14'-2"	19'-11"	16'-2"	14'-0"	11'-9"
1000S162-54	28'-2"	23'-10"	21'-7"	18'-11"	24'-8"	20'-11"	18'-9"	18'-4"
1000S162-68	31'-10"	28'-11"	27'-2"	25'-3"	28'-11"	26'-3"	24'-9"	22'-9"
1000S162-97	35'-4"	32'-1"	30'-3"	28'-1"	32'-1"	29'-2"	27'-6"	25'-6"
1200S162-43	22'-11"	18'-5"	16'-0"	13'-4"	19'-2"	15'-4"	13'-2"	10'-6"
1200S162-54	32'-8"	28'-1"	24'-9"	21'-2"	29'-0"	23'-10"	20'-11"	17'-9"
1200S162-68	37'-1"	32'-5"	29'-4"	25'-10"	33'-4"	28'-6"	25'-9"	22'-7"
1200S162-97	41'-2"	37'-6"	35'-3"	32'-9"	37'-6"	34'-1"	32'-1"	29'-9"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m^2

a. Deflection criteria: L/480 for live loads, L/240 for total loads.
b. Floor dead load = 10 psf

Reason: This code change is intended to coordinate the text of the AISI Standard ANSI/COFS/PM-2001 and PM Supplement-2004 (Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings) with the International Residential Code-2006 edition.

Sections R505.1.1 and R505.3.2, and Tables R505.3.2(1) through R505.3.2(3):
In this proposal are modifications to the scoping requirements (Section R505.1.1) which change the overall width of the prescriptive building design from 36 feet in width to 40 feet in width, and the replacement of the span tables to match those contained in the ANSI/COFS/PM-2001 document as a result of the modification to IRC Section R505.1.1 above. The enhancements to the proposed tables are the identification of single spans and multiple spans, and the recognition of 97 mil thick members. In addition, language has been proposed to recognize additional blocking requirements for floor framing spans at interior bearing supports.

Section R505.1.3:
This is a new section that is proposed to recognize the truss design standard (ANSI/COFS/Truss-Standard for Cold-Formed Steel Framing-Truss Design), a standard that is currently recognized in Section R804. In this proposal floor framing consisting of truss construction will only be designed in accordance with the standard (i.e. Requiring a design professional).

Sections R505.2 and R505.3.6, Table R505.2(3), and Figure R505.2(3):
Modifications are proposed to the web hole provisions by deleting the text, table and figure and replacing it with language and a new figure consistent with the ANSI/COFS/PM-2001. The differences between the IRC-2003 and the proposal are that the proposal for Section R505.2 lists the requirements in text form (thus eliminating the need for a table), and that proposed Section R505.3.6 contains additional provisions to recognize limitations when a design professional is necessary or when the member is to be replaced.

Cost Impact: None

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

RB149-04/05
R506.2 & R506.2.1

Proponent: Rick Davidson, representing the City of Hopkins, MN

Revise as follows:

R506.2 Site preparation. The area within the foundation walls shall have all vegetation, topsoil, wood forms used for placing concrete and foreign material removed.

R506.2.1 Fill. Fill material shall be free of vegetation and foreign material. The fill shall be compacted to assure uniform support of the slab, and except where approved, the fill depths shall not exceed 24 inches (610 mm) for clean sand or gravel and 8 inches (203 mm) for earth.

Reason: This change impacts "concrete on ground" floors only. It is unclear that "foreign material" includes wood forms. The term "wood forms used for placing concrete" is used in a similar section in R408.4 Removal of Debris, which would be applicable to crawl spaces only. This proposal makes clear that all wood forms are also required to be removed from the area under slab on grade floors.

Cost Impact: None

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

RB150-04/05
R506.2.4

Proponent: Rick Davidson, City of Hopkins, MN, representing the Association of Minnesota Building Officials

Revise as follows:

R506.2.4 (Supp) Reinforcement support. Where provided in slabs on ground, ~~welded wire fabric~~ reinforcement shall be supported to remain in place from the center to upper one third of the slab, for the duration of the concrete placement.

Reason: This rule should apply to all types of reinforcement, not just welded wire fabric. The title of the section is "Reinforcement" support.

Cost Impact: None

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

RB151-04/05
Table R602.3(1)

Proponent: Edward L. Keith, APA-The Engineered Wood Association

Revise as follows:

TABLE R602.3(1) (Supp)
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

(No change to table)

a through h (No change)

I. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking ~~and at all roof plane perimeters~~. Blocking of roof or floor sheathing panel edges perpendicular to framing members need not be provided except as required by other provisions of this code. ~~shall not be required except at intersection of adjacent roof planes.~~ Floor ~~and roof~~ perimeter shall be supported by framing members or solid blocking.

Reason: The proposed change eliminates the requirement to provide framing and blocking at roof plane perimeters for the express purpose of providing roof sheathing edge nailing. . Fastening at required blocking is instead emphasized. Blocking is currently required by Sections R502.7 and R802.8. Edge fastening of floor and roof diaphragms to blocking at supporting/bracing walls is an important part of maintaining the load path for resistance to wind and seismic forces.

While fastening at all roof perimeters is probably good construction practice, it is certainly not a minimum construction requirement. This language is eliminated for a number of additional reasons:

- The IRC prescriptively relies on the use of unblocked roof and floor diaphragms. Perimeter nailing is therefore not required unless there happens to be an incidental structural support at that point – then it becomes a "supported edge" and requires fastening by the remaining provision.
- The language we propose to eliminate required blocking and perimeter nailing at roof rake-ends and gable-ends at well as the peak where two planes intersect. Note that the "chords" in a roof diaphragm are the double top plates in the end wall and sidewalls. In a blocked diaphragm the blocking and perimeter nailing has to be at *these* locations, but not at the "roof plane perimeters".
- A corresponding requirement is not in the IBC. As the IRC is supposed to be primarily a prescriptive interpretation of the IBC for conventional construction in one and two family dwellings, it is not appropriate for more restrictive requirements to be in the IRC than are in the IBC.
- Providing additional framing and blocking is not conventional construction. It is inappropriate to require blocked diaphragm details in roof systems that not only do not require blocked diaphragms but also can be built with spaced boards with no specific detailing or blocking.
- Unnecessary blocking at the ridge restricts ventilation via continuous ridge vents.
- Increases construction costs to provide complicated detailing for which there is no documented need.

The proposed change does not eliminate the nailing of sheathing to necessary structural framing members as these members become a "supported edge" and fastening is required by the remaining provision.

Cost Impact: None

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