

standards or where materials are of questionable suitability, testing by an *approved* testing agency shall be required by the *building official* to determine the character, quality and limitations of application of the materials.

R904.4 Product identification. Roof covering materials shall be delivered in packages bearing the manufacturer's identifying marks and *approved* testing agency *labels* when required. Bulk shipments of materials shall be accompanied by the same information issued in the form of a certificate or on a bill of lading by the manufacturer.

SECTION R905

REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R905.2 Asphalt shingles. The installation of asphalt shingles shall comply with the provisions of this section.

R905.2.1 Sheathing requirements. Asphalt shingles shall be fastened to solidly sheathed decks.

R905.2.2 Slope. Asphalt shingles shall be used only on roof slopes of two units vertical in 12 units horizontal (2: 12) or greater. For roof slopes from two units vertical in 12 units horizontal (2: 12) up to four units vertical in 12 units horizontal (4: 12), double underlayment application is required in accordance with Section R905.2.7.

R905.2.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASTM D 226 Type I, ASTM D 4869 Type I, or ASTM D 6757.

Self-adhering polymer modified bitumen sheet shall comply with ASTM D 1970.

R905.2.4 Asphalt shingles. Asphalt shingles shall comply with ASTM D 225 or D 3462.

R905.2.4.1 Wind resistance of asphalt shingles. Asphalt shingles shall be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table R905.2.4.1(1) for the appropriate maximum basic wind speed. Asphalt shingle packaging shall bear a *label* to indicate compliance with ASTM D 7158 and the required classification in Table R905.2.4.1 (1).

Exception: Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and *labeled* to indicate compliance with ASTM D 3161 and the required classification in Table R905.2.4.1(2).

TABLE R905.2.4.1(1)
CLASSIFICATION OF ASPHALT ROOF SHINGLES PER ASTM D 7158

MAXIMUM BASIC WIND SPEED FROM FIGURE 301.2(4) (mph)	CLASSIFICATION REQUIREMENT
85	D, GorH
90	D, GorH
100	GorH
110	GorH
120	GorH
130	H
140	H
150	H

For 51: 1 mile per hour = 0.447 m/s.

TABLE R905.2.4.1(2)
CLASSIFICATION OF ASPHALT SHINGLES PER ASTM D 3161

MAXIMUM BASIC WIND SPEED FROM FIGURE 301.2(4) (mph)	CLASSIFICATION REQUIREMENT
85	A, D or F
90	A, D or F
100	A, D or F
110	F
120	F
130	F
140	F
150	F

For 51: 1 mile per hour = 0.447 m/s.

SECTION R803 ROOF SHEATHING

R803.1 Lumber sheathing. Allowable spans for lumber used as roof sheathing shall conform to Table R803.1. Spaced lumber sheathing for wood shingle and shake roofing shall conform to the requirements of Sections R905.7 and R905.8. Spaced lumber sheathing is not allowed in Seismic Design Category D₂.

TABLE R803.1
MINIMUM THICKNESS OF LUMBER ROOF SHEATHING

RAFTER OR BEAM SPACING (inches)	MINIMUM NET THICKNESS (inches)
24	5/8
48 ^a	
60 ^b	1 1/2 T & G
72 ^c	

For 51: 1 inch = 25.4 mm.

- a. Minimum 270 F_b , 340,000 E .
- b. Minimum 420 F_b , 660,000 E .
- c. Minimum 600 F_b , 1,150,000 E .

R803.2 Wood structural panel sheathing.

R803.2.1 Identification and grade. *Wood structural panels shall conform to DOCPS 1, DOCPS 2 or, when manufactured in Canada, CSA 0437 or CSA 0325, and shall be identified by a grade mark or certificate of inspection issued by an approved agency.* Wood structural panels shall comply with the grade specified in Table R503.2.1.1 (1).

R803.2.1.1 Exposure durability. All wood structural panels, when designed to be permanently exposed in outdoor applications, shall be of an exterior exposure durability. Wood structural panel roof sheathing exposed to the underside may be of interior type bonded with exterior glue, identified as Exposure 1.

R803.2.1.2 Fire-retardant-treated plywood. The allowable unit stresses for fire-retardant-treated plywood, including fastener values, shall be developed from an *approved* method of investigation that considers the effects of anticipated temperature and humidity to which the fire-retardant-treated plywood will be subjected, the type of treatment and redrying process. The fire-retardant-treated plywood shall be graded by an *approved agency*.

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

R803.2.3 Installation. Wood structural panel used as roof sheathing shall be installed with joints staggered or not staggered in accordance with Table R602.3(1), or APA E30 for wood roof framing or with Table R804.3 for steel roof framing.

SECTION R804 STEEL ROOF FRAMING

R804.1 General. Elements shall be straight and free of any defects that would significantly affect their structural performance. Cold-formed steel roof framing members shall comply with the requirements of this section.

R804.1.1 Applicability limits. The provisions of this section shall control the construction of cold-formed steel roof framing for buildings not greater than 60 feet (18 288 mm) perpendicular to the joist, rafter or truss span, not greater than 40 feet (12 192 mm) in width parallel to the joist span or truss, less than or equal to three stories above grade plane and with roof slopes not less than 3:12 (25-percent slope) or greater than 12:12 (100 percent slope). Cold-formed steel roof 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 B or C, and a maximum ground snow load of 70 pounds per square foot (3350 Pa).

R804.1.2 In-line framing. Cold-formed steel roof framing constructed in accordance with Section R804 shall be located in line with load-bearing studs in accordance with Figure R804.1.2 and the tolerances specified as follows:

1. The maximum tolerance shall be $3/16$ inch (19.1 mm) between the centerline of the horizontal framing member and the centerline of the vertical framing member.
2. Where the centerline of the horizontal framing member and bearing stiffener are located to one side of the center line 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.

R804.2.1 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 and 50 (Class 1 and 3).*
2. ASTM A 792: *Grades 33 and 50A.*
3. ASTM A 1003: Structural *Grades 33 Type H and 50 Type H.*

R804.2.2 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 base steel thickness in inches (mm).
3. Minimum coating designation.
4. Minimum yield strength, in kips per square inch (ksi) (MPa).

TABLE R503.2.1.1(1)
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) ^{d,f}		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								
16/0	3/8	30	-	16	16	40	30	0
20/0	3/8	50	-	20	20	40	30	0
24/0	3/8	100	30	24	20 ^g	40	30	0
24/16	7/16	100	40	24	24	50	40	16
32/16	15/32, 1/2	180	70	32	28	40	30	16 ^h
40/20	19/32, 5/8	305	130	40	32	40	30	20 ^{h,i}
48/24	23/32, 3/4	-	175	48	36	45	35	24
60/32	7/8	-	305	60	48	45	35	32
Underlayment, C-C plugged, single floor^j								
Roof^f								
16 D.C.	19/32, 5/8	100	40	24	24	50	40	16 ⁱ
20 D.C.	19/32, 5/8	150	60	32	32	40	30	20 ^{h,j}
24 D.C.	23/32, 3/4	240	100	48	36	35	25	24
32 D.C.	7/8	-	185	48	40	50	40	32
48 D.C.	13/32, 1 1/8	-	290	60	48	50	40	48

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

- a. The allowable total loads were determined using a dead load of 10 psf. If the dead load exceeds 10 psf, then the live load shall be reduced accordingly.
- b. Panels continuous over two or more spans with long dimension (strength axis) perpendicular to supports. Spans shall be limited to values shown because of possible effect of concentrated loads.
- c. Applies to panels 24 inches or wider.
- d. Lumber blocking, panel edge clips (one midway between each support, except two equally spaced between supports when span is 48 inches), tongue-and-groove panel edges, or other approved type of edge support.
- e. Includes Structural 1 panels in these grades.
- f. Uniform load deflection limitation: $\frac{1}{160}$ of span under live load plus dead load, $\frac{1}{240}$ of span under live load only.
- g. Maximum span 24 inches for 15/32-and 1 1/8-inch panels.
- h. Maximum span 24 inches where 5/8-inch wood finish flooring is installed at right angles to joists.
- i. Maximum span 24 inches where 1.5 inches of lightweight concrete or approved cellular concrete is placed over the subfloor.
- j. Unsupported edges shall have tongue-and-groove joints or shall be supported with blocking unless minimum nominal 1/4-inch thick underlayment with end and edge joints offset at least 2 inches or 1.5 inches of lightweight concrete or approved cellular concrete is placed over the subfloor, or 5/8-inch wood finish flooring is installed at right angles to the supports. Allowable uniform live load at maximum span, based on deflection of $\frac{1}{360}$ of span, is 100 psf.
- k. Unsupported edges shall have tongue-and-groove joints or shall be supported by blocking unless nominal 1/4-inch-thick underlayment with end and edge joints offset at least 2 inches or 3/4-inch wood finish flooring is installed at right angles to the supports. Allowable uniform live load at maximum span, based on deflection of $\frac{1}{360}$ of span, is 100 psf, except panels with a span rating of 48 on center are limited to 65 psf total uniform load at maximum span.
- 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.

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Municipalities that begin with the letter "O"

Municipality	Adopted Codes
Oakland, Town of PO Box 541 Madill, OK 73446 580-795-3467 County: Marshall Population: 1,057	
Oaks, Town of PO Box 138 Oaks, OK 74359 000-000-0000 County: Delaware Population: 288	
Oakwood, Town of PO Box 56 Oakwood, OK 73658 580-891-3316 County: Dewey Population: 65	
Ochelata, Town of PO Box 268 Ochelata, OK 74051 000-000-0000 County: Washington Population: 424	
Oilton, City of PO Box 400 Oilton, OK 74052 918-862-3202 County: Creek Population: 1,013	
Okarche, Town of PO Box 116 Okarche, OK 73762 405-263-7290 County: Kingfisher Population: 1,215	
Okay, City of PO Box 505 Weleetka, OK 74446 405-786-2673 County: Wagoner Population: 620	
Okeene, Town of PO Box 800 Okeene, OK 73763 580-822-3035 County: Blaine Population: 1,204	<u>Ordinance 2012-05 Adopting the 2009 editions of the IBC, IEBC, IFC, IFGC, IMC, IPC and</u> <u>IRC and the 2011 edition of the NEC</u>
Okemah, City of 502 West Broadway Okemah, OK 74859 918-623-1050 County: Okfuskee Population: 3,223	<u>IRC® 2009 Edition Adoption Ordinance</u>
Oklahoma City, City of 420 W Main St., 8th Fl Oklahoma City, OK 73102 405-297-3622 County: Oklahoma Population: 579,999	 <u>IBC®, IFC®, IEBC®, IFGC®, IMC®, IPC®, and IPMC® 2009 editions and the 2011 edition of the NEC® Code Adoption</u>
Okmulgee, City of PO Box 250 Okmulgee, OK 74447 918-758-1105 County: Okmulgee Population: 12,321	

Adopted Building Codes

Code Adopted

Effective Date of Adoption

Modifications to the code

International Residential Code®, 2009 Edition (IRC®, 2009)

July 15, 2011

[Click Here](#) for modifications to the code adopted by reference.

International Building Code®, 2009 Edition (IBC®, 2009)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

Please Note: Two typos have been found in the above adopted modification. [Click Here](#) for the corrections.

International Existing Building Code®, 2009 Edition (IEBC®, 2009)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

International Fire Code®, 2009 Edition (IFC®, 2009)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

Please Note: A typo has been found in the above adopted modification. [Click Here](#) for the corrections.

International Fuel Gas Code®, 2009 Edition (IFGC®, 2009)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

International Mechanical Code®, 2009 Edition (IMC®, 2009)

November 2, 2012

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International Plumbing Code®, 2009 Edition (IPC®, 2009)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

National Electrical Code®, 2011 Edition (NEC®, 2011)

November 2, 2012

[Click Here](#) for modifications to the code adopted by reference.

Base model codes have been adopted by reference and amended at the state level.

Only the state amendments are available on this website for viewing and download.
For information about the base model codes, see the Resources page.

