BILL NO. 15-30 **ORDINANCE NO. 4.321**

AN ORDINANCE AMENDING TITLE IX OF THE CITY OF GLADSTONE, CLAY COUNTY, MISSOURI, CODE OF ORDINANCES BY REPEALING CERTAIN PROVISIONS CONTAINED THEREIN AND ENACTING IN LIEU THEREOF NEW PROVISIONS DESIGNATED AS TITLE IX RELATING TO THE CONSTRUCTION AND MAINTENANCE OF STRUCTURES AND PROPERTY WITHIN THE CITY AND DESIGNATED AS THE "BUILDING AND CONSTRUCTION ORDINANCE" FOR THE CITY OF GLADSTONE, CLAY COUNTY, MISSOURI.

LEGISATIVE FINDINGS:

1. The City has conducted a comprehensive review of certain chapters in Title IX of the Code of Ordinances relating to the construction and maintenance of structures and property within the City: and
2. Certain technical codes concerning the construction and maintenance of structures within the City have been reviewed by the City for incorporation by reference and such adoption is deemed advisable by the City Council for the health, safety, and welfare of the residents of the City; and
3. One (1) copy of such technical codes were filed in the office of the City Clerk and kept available for public use, inspection, and examination for a period of time in excess of ninety (90) days preceding the adoption of this Ordinance, all as provided by Section 67.280 RSMo; and
4. The City Council of the City of Gladstone finds that it is in the best interest of the citizens of the City of Gladstone, Clay County, Missouri to enact the provisions of the Building and Construction Ordinance set forth herein;

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GLADSTONE, CLAY COUNTY, MISSOURI AS FOLLOWS;

SECTION 1: REPEAL OF CERTAIN CHAPTERS WITHIN TITLE IX OF THE GLADSTONE CODE OF ORDINANCES.

The following Chapters contained within Title IX of the Gladstone City Code, and adopted under Ordinance 4.230, are hereby repealed:

Chapter 200. Building Regulations
Chapter 400. Electrical Regulations
Chapter 500. Energy Conservation Regulations

Chapter 600. Fire Prevention Regulations
Chapter 700. Fuel Gas Regulations
Chapter 800. Mechanical Regulations
Chapter 900. Plumbing Regulations
Chapter 1000. Property Maintenance Regulations
Chapter 2000. Swimming Pool and Spa Regulations

SECTION 2: ENACTMENT OF CERTAIN NEW CHAPTERS WITHIN TITLE IX OF THE GLADSTONE CODE OF ORDINANCES.

a. The following new Chapters are hereby incorporated within Title IX of the Gladstone Code of Ordinances in lieu of the Chapters that are repealed under Section 1 above.
   Chapter 200. Building Regulations
   Chapter 400. Electrical Regulations
   Chapter 500. Energy Conservation Regulations
   Chapter 600. Fire Prevention Regulations
   Chapter 700. Fuel Gas Regulations
   Chapter 800. Mechanical Regulations
   Chapter 900. Plumbing Regulations
   Chapter 1000. Property Maintenance Regulations
   Chapter 2000. Swimming Pool and Spa Regulations

b. The specific provisions of the foregoing Chapters are attached, and incorporated as part of the Ordinance by this reference as if fully set forth herein.

SECTION 3: EFFECT OF REPEAL.

The provisions of the Gladstone Code of Ordinances repealed herein shall not be construed to revive any former Ordinance, clause, or provision of the Gladstone Code of Ordinances.

SECTION 4: SEVERABILITY CLAUSE.

The provisions of this Ordinance are severable and if any provision hereof is declared invalid, unconstitutional, or unenforceable, such determination shall not affect the validity of the remainder of this Ordinance.

SECTION 5: EFFECTIVE DATE.

This Ordinance shall be effective October 1, 2015.

PASSED, SIGNED, AND MADE EFFECTIVE BY THE CITY COUNCIL OF THE CITY OF GLADSTONE, CLAY COUNTY, MISSOURI THIS 14TH DAY OF SEPTEMBER, 2015.

Mayor Bill Garnos

Attest:

Ruth Bocchino, City Clerk

1st Reading: September 14, 2015

2nd Reading: September 14, 2015

MEMORANDUM

To: Kirk L. Davis, City Manager

From: Alan D. Napoli, C.B.O.
Building Official

CC: Scott C. Wingerson, Assistant City Manager
Craig Slaughter, Building Inspections Coordinator

Date: August 6, 2015

Re: Adoption of the 2015 International Building Codes

As presented at the City Council open study session on Tuesday, May 26, 2015, we currently are enforcing the 2012 edition of the International Building Codes and the 2011 National Electrical Code. We are proposing the adoption of the 2015 edition of the International Building Codes and the 2014 edition of the National Electrical Code.

The following is a list of the codes proposed for adoption with their respective chapters attached from Title IX, which lists the amendments, additions, and deletions.

- 2015 International Building Code (IBC) – Chapter 200. Building Regulations (Article 1)
- 2015 International Residential Code (IRC) – Chapter 200. Building Regulations (Article 2)
- 2015 International Existing Building Code (IEBC) – Chapter 200. Building Regulations (Article 3)
- 2014 National Electrical Code (NED) – Chapter 400. Electrical Regulations
- 2015 International Energy Conservation Code (IECC) – Chapter 500. Energy Conservations Regulations.
- 2015 International Fire Code (IFC) – Chapter 600. Fire Prevention Regulations.
- 2015 International Fuel Gas Code (IFGC) – Chapter 700. Fuel Gas Regulations.
- 2015 International Mechanical Code (IMC) – Chapter 800. Mechanical Regulations.
- 2015 International Plumbing Code (IPC) – Chapter 900. Plumbing Regulations.
- 2015 International Property Maintenance Code (IPMC) – Chapter 1000. Property Maintenance Regulations.
- 2015 International Swimming Pool and Spa Code (ISPSC) – Chapter 2000. Swimming Pool and Spa Regulations.

Attached is a bill and documents that would adopt the 2015 International Building Codes and the 2014 National Electrical Code along with any amendments, additions, and deletions. I would like this to be presented to the City Council for their consideration at the September 14, 2015 City Council Meeting.

CHAPTER 200. BUILDING REGULATIONS

Article 1. Building Code

Sec. 9.200.010 Adoption of the 2015 International Building Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Building Code*, 2015 edition, including Appendix Chapters:

Appendix C, Group U – Agricultural Buildings,

Appendix I, Patio Covers,

Appendix J, Grading, and

Appendix K, Administrative Provisions.

as published by the International Code Council, be and is hereby adopted as the Building Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the conditions and maintenance of all property, buildings, and structures; providing the standards for supplied utilities and facilities and other physical things and conditions essential to ensure that structures are safe, sanitary, and fit for occupation and use; and the condemnation of buildings and structures unfit for human occupancy and use and the demolition of such structures as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions, and terms of said Building Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.200.020 of this chapter.

That if any section, subsection, sentence, clause, or phrase of this legislation is, for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this law, and each section, subsection, clause, or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

That nothing in this legislation or in the Building Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired, or affected by this legislation.

Sec. 9.200.020 Amendments, additions, and deletions to the 2015 International Building Code.

9.200.020.1 Amendments. The following sections of the 2015 International Building Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *Building Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. *Permits* shall not be required for the following:

Building:

1. Fences not over 6 feet (1829 mm) high.
2. Oil derricks.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
4. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or *story* below, are not part of an *accessible route*, and are not located within the city or state right-of-way.
6. Painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.
7. Temporary motion picture, television, and theater stage sets and scenery.
8. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
9. Swings and other playground equipment accessory to detached one- and two-family *dwellings*.
10. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
11. Non-fixed and movable fixtures, cases, racks, counters, and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installation of the towers and antennas.

Temporary testing systems: A *permit* shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste, or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste, or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes, or fixtures.

[A] 105.5 Expiration. Every permit issued shall become invalid 180 days from the date of issuance. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

[A] 107.3.1 Approval of construction documents. When the *building official* issues a *permit*, the *construction documents* shall be *approved*, in writing or by stamp, as "Reviewed for Code Compliance and Subject to Field Inspection." *Construction documents* requiring approval by the City Council as set forth in Section 107.3.1.1, shall be *approved*, in writing or by stamp, as "Approved by City Council Reviewed for Code Compliance and Subject to Field Inspections." One set of *construction documents* so

reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of the work and shall be open to inspection by the *building official* or a duly authorized representative.

1612.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency (FEMA) in an engineering report entitled "The Flood Insurance Study for City of Gladstone, Clay County, Missouri, current adopted addition, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

TABLE 2308.4.2.1(1)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	12-6	16-6	21-0	25-7	12-6	16-6	21-0	25-7
	Douglas Fir-Larch	#1	12-0	15-10	20-3	24-8	12-0	15-7	19-0	22-0
	Douglas Fir-Larch	#2	11-10	15-7	19-10	23-0	11-6	14-7	17-9	20-7
	Hem-Fir	SS	11-10	15-7	19-10	24-2	11-10	15-7	19-10	24-2
	Hem-Fir	#1	11-7	15-3	19-5	23-7	11-7	15-2	18-6	21-6
	Hem-Fir	#2	11-0	14-6	18-6	22-6	11-0	14-4	17-6	20-4
	Southern Pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern Pine	#1	11-10	15-7	19-10	24-2	11-10	15-7	18-7	22-0
	Southern Pine	#2	11-3	14-11	18-1	21-4	11-10	10-9	13-8	19-1
	Spruce-Pine-Fir	SS	11-7	15-3	19-5	23-7	11-7	15-3	19-5	23-7
	Spruce-Pine-Fir	#1	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-Pine-Fir	#2	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
16	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-0
	Douglas Fir-Larch	#1	10-11	14-5	18-5	21-4	10-8	13-6	16-5	19-1
	Douglas Fir-Larch	#2	10-9	14-1	17-2	19-11	9-11	12-7	15-5	17-10
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	20-9	10-4	13-1	16-0	18-7
	Hem-Fir	#2	10-0	13-2	16-10	19-8	9-10	12-5	15-2	17-7
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	10-9	14-2	18-0	21-4	10-9	13-9	16-1	19-1
	Southern Pine	#2	10-3	13-3	15-8	18-6	9-4	11-10	14-0	16-6
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-4
	Spruce-Pine-Fir	#1	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
19.2	Douglas Fir-Larch	SS	10-8	14-1	18-0	21-10	10-8	14-1	18-0	21-0
	Douglas Fir-Larch	#1	10-4	13-7	16-9	19-6	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	10-1	12-10	15-8	18-3	9-1	11-6	14-1	16-3
	Hem-Fir	SS	10-1	13-4	17-0	20-8	10-1	13-4	17-0	20-7
	Hem-Fir	#1	9-10	13-0	16-4	19-0	9-6	12-0	14-8	17-0
	Hem-Fir	#2	9-5	12-5	15-6	17-1	8-11	11-4	13-10	16-1
	Southern Pine	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern Pine	#1	10-1	13-4	16-5	19-6	9-11	12-7	14-8	17-5
	Southern Pine	#2	9-6	12-1	14-4	16-10	8-6	10-10	12-10	15-1
	Spruce-Pine-Fir	SS	9-10	13-0	16-7	20-2	9-10	13-0	16-7	19-6
	Spruce-Pine-Fir	#1	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
24	Douglas Fir-Larch	SS	9-11	13-1	16-8	20-3	9-11	13-1	16-2	18-9
	Douglas Fir-Larch	#1	9-7	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Douglas Fir-Larch	#2	9-1	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Hem-Fir	SS	9-4	12-4	15-9	19-2	9-4	12-4	15-9	18-5
	Hem-Fir	#1	9-2	12-0	14-8	17-0	8-6	10-9	13-1	15-2
	Hem-Fir	#2	8-9	11-4	13-10	16-1	8-0	10-2	12-5	14-4
	Southern Pine	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-8
	Southern Pine	#1	9-4	12-4	14-8	17-5	8-10	11-3	13-1	15-7
	Southern Pine	#2	8-6	10-10	12-10	15-1	7-7	9-8	11-5	13-6
	Spruce-Pine-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-0	17-5
	Spruce-Pine-Fir	#1	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-Pine-Fir	#2	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7

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

Note: Check sources for availability of lumber in lengths greater than 20 feet.

TABLE 2308.4.2.1(2)
FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
(Residential Living Areas, Live Load = 40 psf, L/Δ = 360)

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas Fir-Larch	#1	10-11	14-5	18-5	22-0	10-11	14-2	17-4	20-1
	Douglas Fir-Larch	#2	10-9	14-2	17-9	20-7	10-6	13-3	16-3	18-10
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	21-6	10-6	13-10	16-11	19-7
	Hem-Fir	#2	10-0	13-2	16-10	20-4	10-0	13-1	16-0	18-6
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	10-9	14-2	18-0	21-11	10-9	14-2	16-11	20-1
	Southern Pine	#2	10-3	13-6	16-2	19-1	9-10	12-6	14-9	17-5
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Spruce-Pine-Fir	#1	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
16	Douglas Fir-Larch	SS	10-4	13-7	17-4	21-1	10-4	13-7	17-4	21-0
	Douglas Fir-Larch	#1	9-11	13-1	16-5	19-1	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	9-9	12-7	15-5	17-10	9-1	11-6	14-1	16-3
	Hem-Fir	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
	Hem-Fir	#1	9-6	12-7	16-0	18-7	9-6	12-0	14-8	17-0
	Hem-Fir	#2	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
	Southern Pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
	Southern Pine	#1	9-9	12-10	16-1	19-1	9-9	12-7	14-8	17-5
	Southern Pine	#2	9-4	11-10	14-0	16-6	8-6	10-10	12-10	15-1
	Spruce-Pine-Fir	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Spruce-Pine-Fir	#1	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
19.2	Douglas Fir-Larch	SS	9-8	12-10	16-4	19-10	9-8	12-10	16-4	19-2
	Douglas Fir-Larch	#1	9-4	12-4	15-0	17-5	8-10	11-3	13-8	15-11
	Douglas Fir-Larch	#2	9-1	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Hem-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-5	18-9
	Hem-Fir	#1	9-0	11-10	14-8	17-0	8-8	10-11	13-4	15-6
	Hem-Fir	#2	8-7	11-3	13-10	16-1	8-2	10-4	12-8	14-8
	Southern Pine	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Southern Pine	#1	9-1	12-1	14-8	17-5	9-0	11-5	13-5	15-11
	Southern Pine	#2	8-6	10-10	12-10	15-1	7-9	9-10	11-8	13-9
	Spruce-Pine-Fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-Pine-Fir	#1	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-Pine-Fir	#2	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
24	Douglas Fir-Larch	SS	9-0	11-11	15-2	18-5	9-0	11-11	14-9	17-1
	Douglas Fir-Larch	#1	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Douglas Fir-Larch	#2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Hem-Fir	SS	8-6	11-3	14-4	17-5	8-6	11-3	14-4	16-10[a]
	Hem-Fir	#1	8-4	10-9	13-1	15-2	7-9	9-9	11-11	13-10
	Hem-Fir	#2	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
	Southern Pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-0
	Southern Pine	#1	8-6	11-3	13-1	15-7	8-1	10-3	12-0	14-3
	Southern Pine	#2	7-7	9-8	11-5	13-6	7-0	8-10	10-5	12-4
	Spruce-Pine-Fir	SS	8-4	11-0	14-0	17-0	8-4	11-0	13-8	15-11
	Spruce-Pine-Fir	#1	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-Pine-Fir	#2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4

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

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.

TABLE 2308.7.1(1)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics Without Storage, Live Load = 10 psf, L/Δ = 240)

CEILING JOISTS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2x4	2x6	2x8	2x10
			Maximum ceiling joist spans			
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	13-2	20-8	Note a	Note a
	Douglas Fir-Larch	#1	12-8	19-11	Note a	Note a
	Douglas Fir-Larch	#2	12-5	19-6	25-8	Note a
	Hem-Fir	SS	12-5	19-6	25-8	Note a
	Hem-Fir	#1	12-2	19-1	25-2	Note a
	Hem-Fir	#2	11-7	18-2	24-0	Note a
	Southern Pine	SS	12-11	20-3	Note a	Note a
	Southern Pine	#1	12-5	19-6	25-8	Note a
	Southern Pine	#2	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir	SS	12-2	19-1	25-2	Note a
	Spruce-Pine-Fir	#1	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir	#2	11-10	18-8	24-7	Note a
16	Douglas Fir-Larch	SS	11-11	18-9	24-8	Note a
	Douglas Fir-Larch	#1	11-6	18-1	23-10	Note a
	Douglas Fir-Larch	#2	11-3	17-8	23-0	Note a
	Hem-Fir	SS	11-3	17-8	23-4	Note a
	Hem-Fir	#1	11-0	17-4	22-10	Note a
	Hem-Fir	#2	10-6	16-6	21-9	Note a
	Southern Pine	SS	11-9	18-5	24-3	Note a
	Southern Pine	#1	11-3	17-8	23-4	Note a
	Southern Pine	#2	10-9	16-11	21-7	25-7
	Spruce-Pine-Fir	SS	11-0	17-4	22-10	Note a
	Spruce-Pine-Fir	#1	10-9	16-11	22-4	Note a
	Spruce-Pine-Fir	#2	10-9	16-11	22-4	Note a
19.2	Douglas Fir-Larch	SS	11-3	17-8	23-3	Note a
	Douglas Fir-Larch	#1	10-10	17-0	22-5	Note a
	Douglas Fir-Larch	#2	10-7	16-7	21-0	25-8
	Hem-Fir	SS	10-7	16-8	21-11	Note a
	Hem-Fir	#1	10-4	16-4	21-6	Note a
	Hem-Fir	#2	9-11	15-7	20-6	25-3
	Southern Pine	SS	11-0	17-4	22-10	Note a
	Southern Pine	#1	10-7	16-8	22-0	Note a
	Southern Pine	#2	10-2	15-7	19-8	23-5
	Spruce-Pine-Fir	SS	10-4	16-4	21-6	Note a
	Spruce-Pine-Fir	#1	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir	#2	10-2	15-11	21-0	25-8
24	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Hem-Fir	SS	9-10	15-6	20-5	Note a
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Southern Pine	SS	10-3	16-1	21-2	Note a
	Southern Pine	#1	9-10	15-6	20-5	24-0
	Southern Pine	#2	9-3	13-11	17-7	20-11
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. Span exceeds 26 feet in length.

TABLE 2308.7.1(2)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics With Limited Storage, Live Load = 20 psf, L/Δ = 240)

CEILING JOISTS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2x4	2x6	2x8	2x10
			Maximum ceiling joist spans			
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Hem-Fir	SS	9-10	15-6	20-5	Note a
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Southern Pine	SS	10-3	16-1	21-2	Note a
	Southern Pine	#1	9-10	15-6	20-5	24-0
	Southern Pine	#2	9-3	13-11	17-7	20-11
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0
	Douglas Fir-Larch	#1	9-1	13-9	17-5	21-3
	Douglas Fir-Larch	#2	8-9	12-10	16-3	19-10
	Hem-Fir	SS	8-11	14-1	18-6	23-8
	Hem-Fir	#1	8-9	13-5	16-10	20-8
	Hem-Fir	#2	8-4	12-8	16-0	19-7
	Southern Pine	SS	9-4	14-7	19-3	24-7
	Southern Pine	#1	8-11	14-0	17-9	20-9
	Southern Pine	#2	8-0	12-0	15-3	18-1
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1
	Spruce-Pine-Fir	#1	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir	#2	8-7	12-10	16-3	19-10
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-4
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2
	Hem-Fir	SS	8-5	13-3	17-5	22-3
	Hem-Fir	#1	8-3	12-3	15-6	18-11
	Hem-Fir	#2	7-10	11-7	14-8	17-10
	Southern Pine	SS	8-9	13-9	18-2	23-1
	Southern Pine	#1	8-5	12-9	16-2	18-11
	Southern Pine	#2	7-4	11-0	13-11	16-6
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-8
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2
24	Douglas Fir-Larch	SS	8-3	13-0	17-1	20-11
	Douglas Fir-Larch	#1	7-8	11-2	14-2	17-4
	Douglas Fir-Larch	#2	7-2	10-6	13-3	16-3
	Hem-Fir	SS	7-10	12-3	16-2	20-6
	Hem-Fir	#1	7-6	10-11	13-10	16-11
	Hem-Fir	#2	7-1	10-4	13-1	16-0
	Southern Pine	SS	8-1	12-9	16-10	21-6
	Southern Pine	#1	7-8	11-5	14-6	16-11
	Southern Pine	#2	6-7	9-10	12-6	14-9
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	19-5
	Spruce-Pine-Fir	#1	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir	#2	7-2	10-6	13-3	16-3

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8N/m^2
a. Span exceeds 26 feet in length.

TABLE 2308.7.2(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-5	Note b	Note b
	Douglas Fir-Larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	10-10	16-7	21-10	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Hem-Fir	SS	10-10	17-10	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-Fir	#1	10-7	16-8	21-10	Note b	Note b	10-3	14-11	18-11	23-2	Note b
	Hem-Fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Southern Pine	SS	11-3	17-8	23-4	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern Pine	#1	10-10	17-0	22-5	26-0	26-0	10-6	15-8	19-10	23-2	Note b
	Southern Pine	#2	10-4	15-7	19-8	23-5	26-0	9-0	13-6	17-1	23-0	23-10
	Spruce-Pine-Fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-Pine-Fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
16	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-0	20-3	24-9	Note b
	Douglas Fir-Larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	9-10	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-Fir	#1	9-8	14-11	18-11	23-2	Note b	8-10	12-11	16-5	20-0	23-3
	Hem-Fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	25-7	Note b
	Southern Pine	#1	9-10	15-6	19-10	23-2	26-0	9-1	13-7	17-2	20-1	23-10
	Southern Pine	#2	9-0	13-6	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	Spruce-Pine-Fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	9-5	14-4	18-2	22-3	15-9	8-6	12-5	15-9	19-3	22-4
19.2	Douglas Fir-Larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-7	18-6	22-7	Note b
	Douglas Fir-Larch	#1	9-5	14-10	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-11	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Hem-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-4	18-2	22-3	25-9
	Hem-Fir	#1	9-1	13-8	17-4	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Southern Pine	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-7	23-4	Note b
	Southern Pine	#1	9-3	14-3	18-1	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-2	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Spruce-Pine-Fir	SS	9-1	14-3	18-9	23-11	Note b	9-1	13-7	17-2	21-0	24-4
	Spruce-Pine-Fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4

(continued)

TABLE 2308.7.2(1) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-4	Note b	8-11	13-1	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	12-10	16-3	19-10	23-0
	Hem-Fir	#1	8-4	12-3	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-11	11-7	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	13-10	17-6	20-10	24-8
	Southern Pine	#1	8-7	12-9	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(2)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
	Douglas Fir-Larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	9-10	15-6	20-5	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	Note b	Note b
	Hem-Fir	#1	9-8	15-2	19-11	25-5	Note b	9-8	14-11	18-11	23-2	Note b
	Hem-Fir	#2	9-2	14-5	19-0	24-3	Note b	9-2	14-2	17-11	21-11	25-5
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	Note b	Note b
	Southern Pine	#1	9-10	15-6	20-5	26-0	26-0	9-10	15-6	19-10	23-2	26-0
	Southern Pine	#2	9-5	14-9	19-6	23-5	26-0	9-0	13-6	17-1	20-3	23-10
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
	Spruce-Pine-Fir	#1	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0	Note b	9-6	14-11	19-7	24-9	Note b
	Douglas Fir-Larch	#1	9-1	14-4	18-11	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	8-11	14-1	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Hem-Fir	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Hem-Fir	#1	8-9	13-9	18-1	23-1	Note b	8-9	12-11	16-5	20-0	23-3
	Hem-Fir	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
	Southern Pine	SS	9-4	14-7	19-3	24-7	Note b	9-4	14-7	19-3	24-7	Note b
	Southern Pine	#1	8-11	14-1	18-6	23-2	26-0	8-11	13-7	17-2	20-1	23-10
	Southern Pine	#2	8-7	13-5	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-0	Note b
	Spruce-Pine-Fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-7	Note b	8-11	14-0	18-5	22-7	Note b
	Douglas Fir-Larch	#1	8-7	13-6	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-5	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Hem-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	25-9
	Hem-Fir	#1	8-3	12-11	17-1	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	7-10	12-4	16-3	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Southern Pine	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-1	Note b
	Southern Pine	#1	8-5	13-3	17-5	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-1	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-9	Note b	8-3	12-11	17-1	21-0	24-4
	Spruce-Pine-Fir	#1	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4

(continued)

TABLE 2308.7.2(2) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-0	12-6	15-10	19-3	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	7-10	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-10	23-0
	Hem-Fir	#1	7-8	12-0	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-3	11-5	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	20-10	24-8
	Southern Pine	#1	7-10	12-3	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	10-0	15-9	20-9	Note b	Note b	10-0	15-9	20-1	24-6	Note b
	Douglas Fir-Larch	#1	9-8	14-9	18-8	22-9	Note b	9-0	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	9-5	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Hem-Fir	SS	9-6	14-10	19-7	25-0	Note b	9-6	14-10	19-7	24-1	Note b
	Hem-Fir	#1	9-3	14-1	18-2	22-2	25-9	8-9	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-10	13-7	17-2	21-0	24-4	8-4	12-2	15-4	18-9	21-9
	Southern Pine	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	25-4	Note b
	Southern Pine	#1	9-6	14-1	19-0	22-3	26-0	9-0	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-7	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Spruce-Pine-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-7	18-8	22-9	Note b
	Spruce-Pine-Fir	#1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
16	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-9	Note b	9-1	13-9	17-5	21-3	24-8
	Douglas Fir-Larch	#1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-1	20-10	24-2
	Hem-Fir	#1	8-5	12-5	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-5	21-11	25-11
	Southern Pine	#1	8-7	13-0	16-6	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10
	Spruce-Pine-Fir	#1	8-2	11-11	15-11	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	8-2	11-11	15-11	18-5	21-5	7-3	10-8	13-6	16-6	19-2
19.2	Douglas Fir-Larch	SS	8-7	13-6	17-9	21-8	25-2	8-7	12-6	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Hem-Fir	SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1
	Hem-Fir	#1	7-9	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Southern Pine	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	16-10	20-0	23-7
	Southern Pine	#1	8-0	11-10	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Spruce-Pine-Fir	SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6

(continued)

TABLE 2308.7.2(3) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	7-11	12-6	15-10	19-5	22-6	7-8	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Hem-Fir	SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	7-10	12-3	16-2	20-0	23-7	7-10	11-10	15-0	17-11	21-2
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Spruce-Pine-Fir	SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-0	20-9	24-10
	Douglas Fir-Larch	#1	8-2	12-0	15-3	18-7	21-7	7-7	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Hem-Fir	SS	8-0	12-6	16-6	21-1	2-6	8-0	12-6	16-6	20-4	23-7
	Hem-Fir	#1	7-10	11-9	14-10	18-1	21-0	7-5	10-10	13-9	16-9	19-5
	Hem-Fir	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Southern Pine	SS	8-4	13-0	17-2	21-11	Note b	8-4	13-1	17-2	21-5	25-3
	Southern Pine	#1	8-0	12-3	15-6	18-2	21-7	7-7	11-4	14-5	16-10	20-0
	Southern Pine	#2	7-0	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Spruce-Pine-Fir	SS	7-10	12-3	16-2	20-8	24-1	7-10	12-3	15-9	19-3	22-4
	Spruce-Pine-Fir	#1	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
16	Douglas Fir-Larch	SS	7-8	12-1	15-10	19-5	22-6	7-8	11-7	14-8	17-11	20-10
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Hem-Fir	SS	7-3	11-5	15-0	19-1	22-1	7-3	11-5	14-5	17-8	20-5
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Southern Pine	SS	7-6	11-10	15-7	19-11	23-7	7-6	11-10	15-7	18-6	21-10
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	16-8	19-4
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
19.2	Douglas Fir-Larch	SS	7-3	11-4	14-6	17-8	20-6	7-3	10-7	13-5	16-5	19-0
	Douglas Fir-Larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Hem-Fir	SS	6-10	10-9	14-2	17-5	20-2	6-10	10-5	13-2	16-1	18-8
	Hem-Fir	#1	6-4	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Southern Pine	SS	7-1	11-2	14-8	18-3	21-7	7-1	11-2	14-2	16-11	20-0
	Southern Pine	#1	6-6	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Spruce-Pine-Fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9

(continued)

TABLE 2308.7.2(4) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	6-8	10-3	13-0	15-10	18-4	6-6	9-6	12-0	14-8	17-0
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Southern Pine	SS	6-7	10-4	13-8	16-4	19-3	6-7	10-0	12-8	15-2	17-10
	Southern Pine	#1	5-10	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Spruce-Pine-Fir	SS	6-2	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(5)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-4	18-10	24-1	Note b
	Douglas Fir-Larch	#1	8-9	13-9	18-2	22-9	Note b	8-9	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	8-7	13-6	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-10	22-9	Note b
	Hem-Fir	#1	8-5	13-3	17-5	22-2	25-9	8-5	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-0	12-7	16-7	21-0	24-4	8-0	12-2	15-4	18-9	21-9
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Southern Pine	#1	8-7	13-6	17-10	22-3	Note b	8-7	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-3	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	Note b
	Spruce-Pine-Fir	#1	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
16	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	17-2	21-3	24-8
	Douglas Fir-Larch	#1	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	7-10	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	20-8	24-2
	Hem-Fir	#1	7-8	12-0	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	7-3	11-5	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	21-6	25-11
	Southern Pine	#1	7-10	12-3	16-2	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	19-9	22-10
	Spruce-Pine-Fir	#1	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
19.2	Douglas Fir-Larch	SS	7-9	12-3	16-1	20-7	25-0	7-9	12-3	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-6	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-4	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Hem-Fir	SS	7-4	11-7	15-3	19-5	23-7	7-4	11-7	15-3	19-1	22-1
	Hem-Fir	#1	7-2	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Southern Pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	20-0	237
	Southern Pine	#1	7-4	11-7	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Spruce-Pine-Fir	SS	7-2	11-4	14-11	19-0	23-1	7-2	11-4	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6

(continued)

TABLE 2308.7.2(5) - continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	7-3	11-4	15-0	19-1	22-6	7-3	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Hem-Fir	SS	6-10	10-9	14-2	18-0	21-11	6-10	10-9	13-11	17-0	19-9
	Hem-Fir	#1	6-8	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	17-11	21-2
	Southern Pine	#1	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Spruce-Pine-Fir	SS	6-8	10-6	13-10	17-8	20-11	6-8	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.
Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(6)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	7-8	12-1	15-11	20-3	24-8	7-8	12-1	15-11	20-3	24-0
	Douglas Fir-Larch	#1	7-5	11-7	15-3	18-7	21-7	7-5	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-3	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Hem-Fir	SS	7-3	11-5	15-0	19-2	23-4	7-3	11-5	15-0	19-2	23-4
	Hem-Fir	#1	7-1	11-2	14-8	18-1	21-0	7-1	10-10	13-9	16-9	19-5
	Hem-Fir	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Southern Pine	SS	7-6	11-0	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern Pine	#1	7-3	11-5	15-0	18-2	21-7	7-3	11-4	14-5	16-10	20-0
	Southern Pine	#2	6-11	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	18-9	22-4
	Spruce-Pine-Fir	#1	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
16	Douglas Fir-Larch	SS	7-0	11-0	14-5	18-5	22-5	7-0	11-0	14-5	17-11	20-10
	Douglas Fir-Larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-7	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Hem-Fir	SS	6-7	10-4	13-8	17-5	21-2	6-7	10-4	13-8	17-5	20-5
	Hem-Fir	#1	6-5	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Southern Pine	SS	6-10	10-9	14-2	18-1	22-0	6-10	10-9	14-2	18-1	21-10
	Southern Pine	#1	6-7	10-4	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Spruce-Pine-Fir	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-8	19-4
	Spruce-Pine-Fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
19.2	Douglas Fir-Larch	SS	6-7	10-4	13-7	17-4	20-6	6-7	10-4	13-5	16-5	19-0
	Douglas Fir-Larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Hem-Fir	SS	6-2	9-9	12-10	16-5	19-11	6-2	9-9	12-10	16-1	18-8
	Hem-Fir	#1	6-1	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#2	5-9	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Southern Pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-11	20-0
	Southern Pine	#1	6-2	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Spruce-Pine-Fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9

(continued)

TABLE 2308.7.2(6) - continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum ceiling joist spans[a]									
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
24	Douglas Fir-Larch	SS	6-1	9-7	12-7	15-10	18-4	6-1	9-6	12-0	14-8	17-0
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	5-9	9-1	11-11	15-12	18-0	5-9	9-1	11-9	14-5	16-8
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Southern Pine	SS	6-0	9-5	12-5	15-10	19-3	6-0	9-5	12-5	15-2	17-10
	Southern Pine	#1	5-9	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Spruce-Pine-Fir	SS	5-8	8-10	11-8	14-8	17-1	5-8	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.
Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

9.200.020.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Building Code:

107.3.1.1 City Council approval of construction documents. The following types of construction shall require the approval by the City Council:

1. New buildings or structures.
2. Additions to existing buildings or structures.
3. Exterior modifications to existing buildings or structures.

   Exception: Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures.

9.200.020.3 Deletions. The following sections of the 2015 International Building Code are omitted and not hereby incorporated:

No sections deleted.

9.200.030 Violations.

9.200.030.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.200.030.2 Violation; penalties. Any person, who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

Article 2. Residential Code

Sec. 9.200.040 Adoption of the 2015 International Residential Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Residential Code*, 2015 edition, including Appendix Chapters:

Appendix E, Manufactured Housing Used as Dwellings,

Appendix H, Patio Covers,

Appendix J, Existing Building and Structures, and

Appendix U, Solar-Ready Provisions–Detached One- And Two-Family Dwellings, Multiple Single-Family Dwellings (Townhouses)

as published by the International Code Council, be and is hereby adopted as the Residential Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the construction, alteration, movement, enlargement, replacement, repair, equipment, location, removal, and demolition of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height with separate means of egress as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions, and terms of said Residential Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.200.050 of this chapter.

That if any section, subsection, sentence, clause, or phrase of this legislation is, for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this law, and each section, subsection, clause, or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

That nothing in this legislation or in the Residential Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired, or affected by this legislation.

Sec. 9.200.050 Amendments, additions, and deletions to the 2015 International Residential Code.

9.200.050.1 Amendments. The following sections of the 2015 International Residential Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

R101.1 Title. These provisions shall be known as the *Residential Code for One- and Two-Family Dwellings* of the City of Gladstone, Clay County, Missouri, and shall be cited as such and will be referred to herein as "this code."

R105.2 Work exempt from permit. *Permits* shall not be required for the following. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction.*

Building:

1. Fences not over 6 feet (1829 mm) high.
2. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
3. Water tanks supported directly on *grade* if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width does not exceed 2 to 1.
4. Sidewalks and driveways not located within the city or state right-of-way.
5. Painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.
6. Swings and other playground equipment.
7. Window awnings supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.

Electrical:

1. *Listed* cord-and-plug connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles but not the outlets therefore.
3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Electrical wiring, devices, *appliances*, apparatus, or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
5. Minor repair work, including the replacement of lamps or the connection of *approved* portable electrical *equipment* to *approved* permanently installed receptacles.

Gas:

1. Portable heating, cooking, or clothes drying *appliances*.
2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
3. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Mechanical:

1. Portable heating *appliances*.
2. Portable ventilation *appliances*.
3. Portable cooling unit.
4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.
5. Replacement of any minor part that does not alter its approval or *equipment* or make such *equipment* unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste, or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste, or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do

not involve or require the replacement or rearrangement of valves, pipes, or fixtures.

R105.5 Expiration. Every *Permit* issued shall become invalid 180 days from the date of issuance. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEAN ANNUAL TEMP[j]
	Speed[d] (mph)	Topographical effects[k]	Special wind region[l]	Wind-borne debris zone[m]		Weathering[a]	Frost line depth[b]	Termite[c]					
20	115(51)	NO	NO	NO	A	SEVERE	36"	M to H	6	NO	8/5/86	1500 or less	50-55

For SI: 1 pound per square foot = 0.0479kPa, 1 mile per hour = 0.447 m/s.

a. Weathering may require a higher strength concrete or *grade* of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index (i.e. "negligible," "moderate" or severe") for concrete as determined from the Weathering Probability Map [Figure R301.2(3)]. The *grade* of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216, or C652.

b. The front line depth may require deeper footings than indicated in Figure R403.1(1). The *jurisdiction* shall fill in the frost line depth column with the minimum depth of footing below finish *grade*.

c. The *jurisdiction* shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

d. The *jurisdiction* shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(4)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

e. The outdoor design dry-bulb temperature shall be selected form the columns of 97½-percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the *building official*.

f. The *jurisdiction* shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.

g. The *jurisdiction* shall fill in this part of the table with (a) the date of the *jurisdiction's* entry into the National Flood Insurance Program (date of adoption of the first code ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study, and (c) the panel numbers and dates of all currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having *jurisdiction*, as amended.

h. In accordance with Sections R905.2.7.1, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1, and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall fill in this part of the table with "NO."

i. The *jurisdiction* shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)" at www.ncdc.noaa.gov/fpsf.html.

j. The *jurisdiction* shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)" at www.ncdc.noaa.gov/fpsf.html.

k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.

l. In accordance with Figure 301.2(4)A, where there is local historical data documenting unusual wind conditions, the *jurisdiction* shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.

m. In accordance with Section R301.2.1.2.1, the *jurisdiction* shall indicate the wind-borne debris wind zone(s). Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.

R310.1 Emergency escape and rescue opening required. Every sleeping room shall have not less than one operable emergency escape and rescue opening. Where *basements* contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a *yard* or court that opens to a public way.

R310.5 Dwelling additions. Where *dwelling additions* occur that contain sleeping rooms, an emergency escape and rescue opening shall be provided in each new sleeping room. Where *dwelling additions* occur that have one or more sleeping rooms in the *basement* an emergency escape and rescue opening shall be provided in each new sleeping room.

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

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	12-6	16-6	21-0	25-7	12-6	16-6	21-0	25-7
	Douglas Fir-Larch	#1	12-0	15-10	20-3	24-8	12-0	15-7	19-0	22-0
	Douglas Fir-Larch	#2	11-10	15-7	19-10	23-4	11-8	14-9	18-0	20-11
	Hem-Fir	SS	11-10	15-7	19-10	24-2	11-10	15-7	19-10	24-2
	Hem-Fir	#1	11-7	15-3	19-5	23-7	11-7	15-3	18-9	21-9
	Hem-Fir	#2	11-0	14-6	18-6	22-6	11-0	14-4	17-6	20-4
	Southern Pine	SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern Pine	#1	11-10	15-7	19-10	24-2	11-10	15-7	18-7	22-0
	Southern Pine	#2	11-3	14-11	18-1	21-4	10-9	13-8	16-2	19-1
	Spruce-Pine-Fir	SS	11-7	15-3	19-5	23-7	11-7	15-3	19-5	23-7
	Spruce-Pine-Fir	#1	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
	Spruce-Pine-Fir	#2	11-3	14-11	19-0	23-0	11-3	14-7	17-9	20-7
16	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas Fir-Larch	#1	10-11	14-5	18-5	21-4	10-8	13-6	16-5	19-1
	Douglas Fir-Larch	#2	10-9	14-2	17-5	20-3	10-1	12-9	15-7	18-1
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	21-1	10-6	13-4	16-3	18-10
	Hem-Fir	#2	10-0	13-2	16-10	19-8	9-10	12-5	15-2	17-7
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	10-9	14-2	18-0	21-4	10-9	13-9	16-1	19-1
	Southern Pine	#2	10-3	13-3	15-8	18-6	9-4	11-10	14-0	16-6
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-4
	Spruce-Pine-Fir	#1	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-2	19-11	9-11	12-7	15-5	17-10
19.2	Douglas Fir-Larch	SS	10-8	14-1	18-0	21-10	10-8	14-1	18-0	21-4
	Douglas Fir-Larch	#1	10-4	13-7	16-9	19-6	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	10-1	13-0	15-11	18-6	9-3	11-8	14-3	16-6
	Hem-Fir	SS	10-1	13-4	17-0	20-8	10-1	13-4	17-0	20-7
	Hem-Fir	#1	9-10	13-0	16-7	19-3	9-7	12-2	14-10	17-2
	Hem-Fir	#2	9-5	12-5	15-6	17-1	8-11	11-4	13-10	16-1
	Southern Pine	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern Pine	#1	10-1	13-4	16-5	19-6	9-11	12-7	14-8	17-5
	Southern Pine	#2	9-6	12-1	14-4	16-10	8-6	10-10	12-10	15-1
	Spruce-Pine-Fir	SS	9-10	13-0	16-7	20-2	9-10	13-0	16-7	19-6
	Spruce-Pine-Fir	#1	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-8	12-9	15-8	18-3	9-1	11-6	14-1	16-3
24	Douglas Fir-Larch	SS	9-11	13-1	16-8	20-3	9-11	13-1	16-5	19-1
	Douglas Fir-Larch	#1	9-7	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Douglas Fir-Larch	#2	9-3	11-8	14-3	16-6	8-3	10-5	12-9	14-9
	Hem-Fir	SS	9-4	12-4	15-9	19-2	9-4	12-4	15-9	18-5
	Hem-Fir	#1	9-2	12-1	14-10	17-2	8-7	10-10	13-3	15-5
	Hem-Fir	#2	8-9	11-4	13-10	16-1	8-0	10-2	12-5	14-4
	Southern Pine	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	15-7
	Southern Pine	#1	9-4	12-4	14-8	17-5	8-10	11-3	13-1	17-5
	Southern Pine	#2	8-6	10-10	12-10	15-1	7-7	9-8	11-5	13-6
	Spruce-Pine-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-0	17-5
	Spruce-Pine-Fir	#1	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7
	Spruce-Pine-Fir	#2	8-11	11-6	14-1	16-3	8-1	10-3	12-7	14-7

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

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1, and D_2 shall be determined in accordance with Section R301.2.2.2.1.

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

JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf				DEAD LOAD = 20 psf			
			2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
			Maximum floor joist spans							
			(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)	(ft. – in.)
12	Douglas Fir-Larch	SS	11-4	15-0	19-1	23-3	11-4	15-0	19-1	23-3
	Douglas Fir-Larch	#1	10-11	14-5	18-5	22-0	10-11	14-2	17-4	20-1
	Douglas Fir-Larch	#2	10-9	14-2	18-0	20-11	10-8	13-6	16-5	19-1
	Hem-Fir	SS	10-9	14-2	18-0	21-11	10-9	14-2	18-0	21-11
	Hem-Fir	#1	10-6	13-10	17-8	21-6	10-6	13-10	17-1	19-10
	Hem-Fir	#2	10-0	13-2	16-10	20-4	10-0	13-1	16-0	18-6
	Southern Pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern Pine	#1	10-9	14-2	18-0	21-11	10-9	14-2	16-11	20-1
	Southern Pine	#2	10-3	13-6	16-2	19-1	9-10	12-6	14-9	17-5
	Spruce-Pine-Fir	SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Spruce-Pine-Fir	#1	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
	Spruce-Pine-Fir	#2	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
16	Douglas Fir-Larch	SS	10-4	13-7	17-4	21-1	10-4	13-7	17-4	21-1
	Douglas Fir-Larch	#1	9-11	13-1	16-5	19-1	9-8	12-4	15-0	17-5
	Douglas Fir-Larch	#2	9-9	12-9	15-7	18-1	9-3	11-8	14-2	16-6
	Hem-Fir	SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
	Hem-Fir	#1	9-6	12-7	16-0	18-10	9-6	12-2	14-10	17-2
	Hem-Fir	#2	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
	Southern Pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
	Southern Pine	#1	9-9	12-10	16-1	19-1	9-9	12-7	14-8	17-5
	Southern Pine	#2	9-4	11-10	14-0	16-6	8-6	10-10	12-10	15-1+
	Spruce-Pine-Fir	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Spruce-Pine-Fir	#1	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
	Spruce-Pine-Fir	#2	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
19.2	Douglas Fir-Larch	SS	9-8	12-10	16-4	19-10	9-8	12-10	16-4	19-6
	Douglas Fir-Larch	#1	9-4	12-4	15-0	17-5	8-10	11-3	13-8	15-11
	Douglas Fir-Larch	#2	9-2	11-8	14-3	16-6	8-5	10-8	13-10	15-1
	Hem-Fir	SS	9-2	12-1	15-5	18-9	9-2	12-1	15-5	18-9
	Hem-Fir	#1	9-0	11-10	14-10	17-2	8-9	11-1	13-6	15-8
	Hem-Fir	#2	8-7	11-3	13-10	16-1	8-2	10-4	12-8	14-8
	Southern Pine	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Southern Pine	#1	9-2	12-1	14-8	17-5	9-0	11-5	13-5	15-11
	Southern Pine	#2	8-6	10-10	12-10	15-1	7-9	9-10	11-8	13-9
	Spruce-Pine-Fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-Pine-Fir	#1	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
	Spruce-Pine-Fir	#2	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
24	Douglas Fir-Larch	SS	9-0	11-11	15-2	18-5	9-0	11-11	15-0	17-5
	Douglas Fir-Larch	#1	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Douglas Fir-Larch	#2	8-3	10-5	12-9	14-9	7-6	9-6	11-8	13-6
	Hem-Fir	SS	8-6	11-3	14-4	17-5	8-6	11-3	14-4	16-10[a]
	Hem-Fir	#1	8-4	10-10	13-3	15-5	7-10	9-11	12-1	14-0
	Hem-Fir	#2	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
	Southern Pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-0
	Southern Pine	#1	8-6	11-3	13-1	15-7	8-1	10-3	12-0	14-3
	Southern Pine	#2	7-7	9-8	11-5	13-6	7-0	8-10	10-5	12-4
	Spruce-Pine-Fir	SS	8-4	11-0	14-0	17-0	8-4	11-0	13-8	15-11
	Spruce-Pine-Fir	#1	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4
	Spruce-Pine-Fir	#2	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4

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

Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.

b. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D_0, D_1, and D_2 shall be determined in accordance with Section R301.2.2.2.1.

R602.2 Grade. Studs shall be a minimum No. 2 grade lumber.

TABLE R802.4(1)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics without storage, live load = 10 psf, L/Δ = 240)

CEILING JOISTS SPACING (inches)	SPECIES AND GRADE	DEAD LOAD = 5 psf			
		2x4	2x6	2x8	2x10
		Maximum ceiling joist spans			
		(feet - inches)	(feet - inches	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch SS	13-2	20-8	Note a	Note a
	Douglas Fir-Larch #1	12-8	19-11	Note a	Note a
	Douglas Fir-Larch #2	12-5	19-6	25-8	Note a
	Hem-Fir SS	12-5	19-6	25-8	Note a
	Hem-Fir #1	12-2	19-1	25-2	Note a
	Hem-Fir #2	11-7	18-2	24-0	Note a
	Southern Pine SS	12-11	20-3	Note a	Note a
	Southern Pine #1	12-5	19-6	25-8	Note a
	Southern Pine #2	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir SS	12-2	19-1	25-2	Note a
	Spruce-Pine-Fir #1	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir #2	11-10	18-8	24-7	Note a
16	Douglas Fir-Larch SS	11-11	18-9	24-8	Note a
	Douglas Fir-Larch #1	11-6	18-1	23-10	Note a
	Douglas Fir-Larch #2	11-3	17-8	23-4	Note a
	Hem-Fir SS	11-3	17-8	23-4	Note a
	Hem-Fir #1	11-0	17-4	22-10	Note a
	Hem-Fir #2	10-6	16-6	21-9	Note a
	Southern Pine SS	11-9	18-5	24-3	Note a
	Southern Pine #1	11-3	17-8	23-10	Note a
	Southern Pine #2	10-9	16-11	21-7	25-7
	Spruce-Pine-Fir SS	11-0	17-4	22-10	Note a
	Spruce-Pine-Fir #1	10-9	16-11	22-4	Note a
	Spruce-Pine-Fir #2	10-9	16-11	22-4	Note a
19.2	Douglas Fir-Larch SS	11-3	17-8	23-3	Note a
	Douglas Fir-Larch #1	10-10	17-0	22-5	Note a
	Douglas Fir-Larch #2	10-7	16-8	21-4	26-0
	Hem-Fir SS	10-7	16-8	21-11	Note a
	Hem-Fir #1	10-4	16-4	21-6	Note a
	Hem-Fir #2	9-11	15-7	20-6	25-3
	Southern Pine SS	11-0	17-4	22-10	Note a
	Southern Pine #1	10-7	16-8	22-0	Note a
	Southern Pine #2	10-2	15-7	19-8	23-5
	Spruce-Pine-Fir SS	10-4	16-4	21-6	Note a
	Spruce-Pine-Fir #1	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir #2	10-2	15-11	21-0	25-8
24	Douglas Fir-Larch SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch #1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch #2	9-10	15-0	19-1	23-3
	Hem-Fir SS	9-10	15-6	20-5	Note a
	Hem-Fir #1	9-8	15-2	19-10	24-3
	Hem-Fir #2	9-2	14-5	18-6	22-7
	Southern Pine SS	10-3	16-1	21-2	Note a
	Southern Pine #1	9-10	15-6	20-5	24-0
	Southern Pine #2	9-3	13-11	17-7	20-11
	Spruce-Pine-Fir SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir #1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir #2	9-5	14-9	18-9	22-11

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. Span exceeds 26 feet in length.

TABLE R802.4(2)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable attics with limited storage, live load = 20 psf, L/Δ = 240)

CEILING JOISTS SPACING (inches)	SPECIES AND GRADE	DEAD LOAD = 10 psf			
		2x4	2x6	2x8	2x10
		Maximum ceiling joist spans			
		(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch #1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch #2	9-10	15-0	19-1	23-3
	Hem-Fir SS	9-10	15-6	20-5	Note a
	Hem-Fir #1	9-8	15-2	19-10	24-3
	Hem-Fir #2	9-2	14-5	18-6	22-7
	Southern Pine SS	10-3	16-1	21-2	Note a
	Southern Pine #1	9-10	15-6	20-5	24-0
	Southern Pine #2	9-3	13-11	17-7	20-11
	Spruce-Pine-Fir SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir #1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir #2	9-5	14-9	18-9	22-11
16	Douglas Fir-Larch SS	9-6	14-11	19-7	25-0
	Douglas Fir-Larch #1	9-1	13-9	17-5	21-3
	Douglas Fir-Larch #2	8-11	13-0	16-6	20-2
	Hem-Fir SS	8-11	14-1	18-6	23-8
	Hem-Fir #1	8-9	13-7	17-2	21-0
	Hem-Fir #2	8-4	12-8	16-0	19-7
	Southern Pine SS	9-4	14-7	19-3	24-7
	Southern Pine #1	8-11	14-0	17-9	20-9
	Southern Pine #2	8-0	12-0	15-3	18-1
	Spruce-Pine-Fir SS	8-9	13-9	18-1	23-1
	Spruce-Pine-Fir #1	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir #2	8-7	12-10	16-3	19-10
19.2	Douglas Fir-Larch SS	8-11	14-0	18-5	23-7
	Douglas Fir-Larch #1	8-7	12-6	15-10	19-5
	Douglas Fir-Larch #2	8-2	11-11	15-1	18-5
	Hem-Fir SS	8-5	13-3	17-5	22-3
	Hem-Fir #1	8-3	12-4	15-8	19-2
	Hem-Fir #2	7-10	11-7	14-8	17-10
	Southern Pine SS	8-9	13-9	18-2	23-1
	Southern Pine #1	8-5	12-9	16-2	18-11
	Southern Pine #2	7-4	11-0	13-11	16-6
	Spruce-Pine-Fir SS	8-3	12-11	17-1	21-8
	Spruce-Pine-Fir #1	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir #2	8-0	11-9	14-10	18-2
24	Douglas Fir-Larch SS	8-3	13-0	17-2	21-3
	Douglas Fir-Larch #1	7-8	11-2	14-2	17-4
	Douglas Fir-Larch #2	7-3	10-8	13-6	16-5
	Hem-Fir SS	7-10	12-3	16-2	20-6
	Hem-Fir #1	7-7	11-1	14-0	17-1
	Hem-Fir #2	7-1	10-4	13-1	16-0
	Southern Pine SS	8-1	12-9	16-10	21-6
	Southern Pine #1	7-8	11-5	14-6	16-11
	Southern Pine #2	6-7	9-10	12-6	14-9
	Spruce-Pine-Fir SS	7-8	12-0	15-10	19-5
	Spruce-Pine-Fir #1	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir #2	7-2	10-6	13-3	16-3

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. Span exceeds 26 feet in length.

TABLE R802.5.1(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load = 20 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-9	Note b	Note b
	Douglas Fir-Larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	10-10	16-7	21-10	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Hem-Fir	SS	10-10	17-0	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-Fir	#1	10-7	16-8	22-0	Note b	Note b	10-4	15-2	19-2	23-5	Note b
	Hem-Fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Southern Pine	SS	11-3	17-8	23-4	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern Pine	#1	10-10	17-0	22-5	Note b	Note b	10-6	15-8	19-10	23-2	Note b
	Southern Pine	#2	10-4	15-7	19-8	23-5	Note b	9-0	13-6	17-1	20-3	23-10
	Spruce-Pine-Fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-Pine-Fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
16	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-3	20-7	25-2	Note b
	Douglas Fir-Larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	9-10	14-7	18-5	22-6	26-0	8-7	12-7	16-0	19-6	22-7
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-Fir	#1	9-8	15-2	19-2	23-5	Note b	9-0	13-1	16-7	20-4	23-7
	Hem-Fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	25-7	Note b
	Southern Pine	#1	9-10	15-6	19-10	23-2	Note b	9-1	13-7	17-2	20-1	23-10
	Southern Pine	#2	9-0	13-6	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	Spruce-Pine-Fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	9-5	14-4	18-2	22-3	15-9	8-6	12-5	15-9	19-3	22-4
19.2	Douglas Fir-Larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-10	18-10	23-0	Note b
	Douglas Fir-Larch	#1	9-5	14-10	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	9-1	13-3	16-10	20-7	23-10	7-10	11-6	14-7	17-10	20-8
	Hem-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-4	18-2	22-3	25-9
	Hem-Fir	#1	9-1	13-10	17-6	21-5	24-10	8-2	12-0	15-2	18-6	21-6
	Hem-Fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Southern Pine	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-7	23-4	Note b
	Southern Pine	#1	9-3	14-3	18-1	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-2	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Spruce-Pine-Fir	SS	9-1	14-3	18-9	23-11	Note b	9-1	13-7	17-2	21-0	24-4
	Spruce-Pine-Fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4

(continued)

TABLE R802.5.1(1) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load = 20 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	8-2	11-11	15-1	18-5	21-4	7-0	10-4	13-0	15-11	18-6
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	12-10	16-3	19-10	23-0
	Hem-Fir	#1	8-5	12-4	15-8	19-2	22-2	7-4	10-9	13-7	16-7	19-3
	Hem-Fir	#2	7-11	11-7	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	13-10	17-6	20-10	24-8
	Southern Pine	#1	8-7	12-9	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	10-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3

Check sources for availability of lumber in lengths greater than 20 feet.

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

c. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

d. Span exceeds 26 feet in length.

TABLE R802.5.1(2)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load = 20 psf, ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
	Douglas Fir-Larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	9-10	15-6	20-5	26-0	Note b	9-10	14-7	18-5	22-6	26-0
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	Note b	Note b
	Hem-Fir	#1	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-2	23-5	Note b
	Hem-Fire	#2	9-2	14-5	19-0	24-3	Note b	9-2	14-2	17-11	21-11	25-5
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	Note b	Note b
	Southern Pine	#1	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-10	25-10	Note b
	Southern Pine	#2	9-5	14-9	19-6	23-5	Note b	9-0	13-6	17-1	20-3	23-10
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
	Spruce-Pine-Fir	#1	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0	Note b	9-6	14-11	19-7	25-0	Note b
	Douglas Fir-Larch	#1	9-1	14-4	18-11	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	8-11	14-1	18-5	22-6	26-0	8-7	12-7	16-0	19-6	22-7
	Hem-Fir	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Hem-Fir	#1	8-9	13-9	18-1	23-1	Note b	8-9	13-1	16-7	20-4	23-7
	Hem-Fire	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
	Southern Pine	SS	9-4	14-7	19-3	24-7	Note b	9-4	14-7	19-3	24-7	Note b
	Southern Pine	#1	8-11	14-1	18-6	23-2	Note b	8-11	13-7	17-2	20-1	23-10
	Southern Pine	#2	8-7	13-5	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-0	Note b
	Spruce-Pine-Fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-7	Note b	8-11	14-0	18-5	23-0	Note b
	Douglas Fir-Larch	#1	8-7	13-6	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-5	13-3	16-10	20-7	23-10	7-10	11-6	14-7	17-10	20-8
	Hem-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	25-9
	Hem-Fir	#1	8-3	12-11	17-1	21-5	24-10	8-2	12-0	15-2	18-6	21-6
	Hem-Fire	#2	7-10	12-4	16-3	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Southern Pine	SS	8-9	13-9	18-2	23-1	Note b	8-9	13-9	18-2	23-1	Note b
	Southern Pine	#1	8-5	13-3	17-5	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-1	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-9	Note b	8-3	12-11	17-1	21-0	24-4
	Spruce-Pine-Fir	#1	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4

(continued)

TABLE R802.5.1(2) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load = 20 psf, ceiling attached to rafters, L/Δ = 240))

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	16-10	20-7	23-10
	Douglas Fir-Larch	#1	8-0	12-6	15-10	19-3	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	7-10	11-11	15-1	18-5	21-4	7-0	10-4	13-0	15-11	18-6
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-10	23-0
	Hem-Fir	#1	7-8	12-0	15-8	19-2	22-2	7-4	10-9	13-7	16-7	19-3
	Hem-Fire	#2	7-3	11-5	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	20-10	24-8
	Southern Pine	#1	7-10	12-3	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE R802.5.1(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 30 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	10-0	15-9	20-9	Note b	Note b	10-0	15-9	20-5	24-11	Note b
	Douglas Fir-Larch	#1	9-8	14-9	18-8	22-9	Note b	9-0	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	9-6	14-0	17-8	21-7	25-1	8-6	12-6	15-10	19-4	22-5
	Hem-Fir	SS	9-6	14-10	19-7	25-0	Note b	9-6	14-10	19-7	24-1	Note b
	Hem-Fir	#1	9-3	14-6	18-5	22-6	26-0	8-11	13-0	16-6	20-1	23-4
	Hem-Fire	#2	8-10	13-7	17-2	21-0	24-4	8-4	12-2	15-4	18-9	21-9
	Southern Pine	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	25-4	Note b
	Southern Pine	#1	9-6	14-10	19-0	22-3	Note b	9-0	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-7	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Spruce-Pine-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-7	18-8	22-9	Note b
	Spruce-Pine-Fir	#1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
16	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-9	Note b	9-1	14-0	17-8	21-7	25-1
	Douglas Fir-Larch	#1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	8-3	12-1	15-4	18-9	21-8	7-5	10-10	13-8	16-9	19-5
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-1	20-10	24-2
	Hem-Fir	#1	8-5	12-7	15-11	19-6	22-7	7-8	11-3	14-3	17-5	20-2
	Hem-Fire	#2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-5	21-11	25-11
	Southern Pine	#1	8-7	13-0	16-6	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10
	Spruce-Pine-Fir	#1	8-2	11-11	15-11	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	8-2	11-11	15-11	18-5	21-5	7-3	10-8	13-6	16-6	19-2
19.2	Douglas Fir-Larch	SS	8-7	13-6	17-9	22-1	25-7	8-7	12-9	16-2	19-9	22-10
	Douglas Fir-Larch	#1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-7	11-0	14-0	17-1	19-10	6-9	9-10	12-6	15-3	17-9
	Hem-Fir	SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1
	Hem-Fir	#1	7-10	11-6	14-7	17-9	20-7	7-0	10-3	13-0	15-11	18-5
	Hem-Fire	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Southern Pine	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	16-10	20-0	23-7
	Southern Pine	#1	8-0	11-10	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Spruce-Pine-Fir	SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6

(continued)

TABLE R802.5.1(3) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 30 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Hem-Fir	SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-Fir	#1	7-0	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-Fire	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	7-10	12-3	16-2	20-0	23-7	7-10	11-10	15-0	17-11	21-2
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Spruce-Pine-Fir	SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE R802.5.1(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 50 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-3	21-1	24-5
	Douglas Fir-Larch	#1	8-2	12-0	15-3	18-7	21-7	7-7	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-10	11-5	14-5	17-8	20-5	7-3	10-7	13-4	16-4	18-11
	Hem-Fir	SS	8-0	12-6	16-6	21-1	2-6	8-0	12-6	16-6	20-4	23-7
	Hem-Fir	#1	7-10	11-10	15-0	18-4	21-3	7-6	11-0	13-11	17-0	19-9
	Hem-Fire	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Southern Pine	SS	8-4	13-1	17-2	21-11	Note b	8-4	13-1	17-2	21-5	25-3
	Southern Pine	#1	8-0	12-3	15-6	18-2	21-7	7-7	11-4	14-5	16-10	20-0
	Southern Pine	#2	7-0	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Spruce-Pine-Fir	SS	7-10	12-3	16-2	20-8	24-1	7-10	12-3	15-9	19-3	22-4
	Spruce-Pine-Fir	#1	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
16	Douglas Fir-Larch	SS	7-8	12-1	15-11	19-9	22-10	7-8	11-10	14-11	18-3	21-2
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-9	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Hem-Fir	SS	7-3	11-5	15-0	19-1	22-1	7-3	11-5	14-5	17-8	20-5
	Hem-Fir	#1	7-0	10-3	13-0	15-11	18-5	6-6	9-6	12-1	14-9	17-1
	Hem-Fire	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Southern Pine	SS	7-6	11-10	15-7	19-11	23-7	7-6	11-10	15-7	18-6	21-10
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	16-8	19-4
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
19.2	Douglas Fir-Larch	SS	7-3	11-4	14-9	18-0	20-11	7-3	10-9	13-8	16-8	19-4
	Douglas Fir-Larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	10-9	12-11	15-0
	Hem-Fir	SS	6-10	10-9	14-2	17-5	20-2	6-10	10-5	13-2	16-1	18-8
	Hem-Fir	#1	6-5	9-2	11-11	14-6	16-10	8-11	8-8	11-0	13-5	15-7
	Hem-Fire	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Southern Pine	SS	7-1	11-2	14-8	18-3	21-7	7-1	11-2	14-2	16-11	20-0
	Southern Pine	#1	6-6	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Spruce-Pine-Fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9

(continued)

TABLE R802.5.1(4) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 50 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2X4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	6-8	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-6	8-1	10-3	12-6	14-6	5-1	7-6	9-5	11-7	13-5
	Hem-Fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	#1	5-9	8-5	10-8	13-0	15-1	8-4	7-9	9-10	12-0	13-11
	Hem-Fire	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Southern Pine	SS	6-7	10-4	13-8	16-4	19-3	6-7	10-0	12-8	15-2	17-10
	Southern Pine	#1	5-10	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Spruce-Pine-Fir	SS	6-2	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE R802.5.1(5)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 30 psf, ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-4	18-10	24-1	Note b
	Douglas Fir-Larch	#1	8-9	13-9	18-2	22-9	Note b	8-9	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	8-7	13-6	17-8	21-7	25-1	8-6	12-6	15-10	19-4	22-5
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-10	22-9	Note b
	Hem-Fir	#1	8-5	13-3	17-5	22-3	26-0	8-5	13-0	16-6	20-1	23-4
	Hem-Fire	#2	8-0	12-7	16-7	21-0	24-4	8-0	12-2	15-4	18-9	21-9
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Southern Pine	#1	8-7	13-6	17-10	22-3	Note b	8-7	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-3	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	Note b
	Spruce-Pine-Fir	#1	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
16	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	17-2	21-7	25-1
	Douglas Fir-Larch	#1	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	7-10	12-1	15-4	18-9	21-8	7-5	10-10	13-8	16-9	19-5
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	20-8	24-2
	Hem-Fir	#1	7-8	12-0	15-10	19-6	22-7	7-8	11-3	14-3	17-5	20-2
	Hem-Fire	#2	7-3	11-5	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	21-6	25-11
	Southern Pine	#1	7-10	12-3	16-2	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	19-9	22-10
	Spruce-Pine-Fir	#1	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
19.2	Douglas Fir-Larch	SS	7-9	12-3	16-1	20-7	25-0	7-9	12-3	15-10	19-5	22-10
	Douglas Fir-Larch	#1	7-6	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-4	11-0	14-0	17-1	19-10	6-9	9-1	12-6	15-3	17-9
	Hem-Fir	SS	7-4	11-7	15-3	19-5	23-7	7-4	11-7	15-3	19-1	22-1
	Hem-Fir	#1	7-2	11-4	14-7	17-9	20-7	7-0	16-3	13-0	15-11	18-5
	Hem-Fire	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Southern Pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	20-2	23-7
	Southern Pine	#1	7-4	11-7	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Spruce-Pine-Fir	SS	7-2	11-4	14-11	19-0	23-1	7-2	11-4	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6

(continued)

TABLE R802.5.1(5) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 30 psf, ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	7-3	11-4	15-0	19-1	22-10	7-3	11-4	14-5	17-8	20-5
	Douglas Fir-Larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-9	9-10	12-6	15-3	17-9	6-0	8-10	11-2	13-8	15-10
	Hem-Fir	SS	6-10	10-9	14-2	18-0	21-11	6-10	10-9	13-11	17-0	19-9
	Hem-Fir	#1	6-8	10-3	13-0	15-11	18-5	6-3	9-2	11-8	14-3	16-6
	Hem-Fire	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	17-11-9	21-2
	Southern Pine	#1	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Spruce-Pine-Fir	SS	6-8	10-6	13-10	17-8	20-11	6-8	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE R802.5.1(6)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 50 psf, ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	7-8	12-1	15-11	20-3	24-8	7-8	12-1	15-11	20-3	24-5
	Douglas Fir-Larch	#1	7-5	11-7	15-3	18-7	21-7	7-5	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-3	11-5	14-5	17-8	20-5	7-3	10-7	13-4	16-4	18-11
	Hem-Fir	SS	7-3	11-5	15-0	19-2	23-4	7-3	11-5	15-0	19-2	23-4
	Hem-Fir	#1	7-1	11-2	14-8	18-4	21-3	7-1	11-0	13-11	17-0	19-9
	Hem-Fire	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Southern Pine	SS	7-6	11-10	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern Pine	#1	7-3	11-5	15-0	18-2	21-7	7-3	11-4	14-5	16-10	20-0
	Southern Pine	#2	6-11	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	18-9	22-4
	Spruce-Pine-Fir	#1	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
16	Douglas Fir-Larch	SS	7-0	11-0	14-5	18-5	22-5	7-0	11-0	14-5	18-3	21-2
	Douglas Fir-Larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-7	9-10	12-6	15-3	17-9	6-3	9-2	11-7	14-2	16-5
	Hem-Fir	SS	6-7	10-4	13-8	17-5	21-2	6-7	10-4	13-8	17-5	20-5
	Hem-Fir	#1	6-5	10-2	13-0	15-11	18-5	6-5	9-6	12-1	14-9	17-1
	Hem-Fire	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Southern Pine	SS	6-10	10-9	14-2	18-1	22-0	6-10	10-9	14-2	18-1	21-10
	Southern Pine	#1	6-7	10-4	13-5	15-9	18-8	6-7	9-10	13-8	16-2	19-4
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Spruce-Pine-Fir	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-8	19-4
	Spruce-Pine-Fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
19.2	Douglas Fir-Larch	SS	6-7	10-4	13-7	17-4	20-11	6-7	10-4	13-7	16-8	19-8
	Douglas Fir-Larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-2	9-0	11-5	13-11	16-2	5-8	8-4	10-7	12-11	15-0
	Hem-Fir	SS	6-2	9-9	12-10	16-5	19-11	6-2	9-9	12-10	16-1	18-8
	Hem-Fir	#1	6-1	9-5	11-11	14-6	16-10	5-11	8-8	11-0	13-5	15-7
	Hem-Fire	#2	5-9	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Southern Pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	17-0	20-0
	Southern Pine	#1	6-2	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Spruce-Pine-Fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9

(continued)

TABLE R802.5.1(6) – continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground snow load = 50 psf, ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	6-1	9-7	12-7	16-1	18-8	6-1	9-7	12-2	14-11	17-3
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-6	8-1	10-3	12-6	14-6	5-1	7-6	9-5	11-7	13-5
	Hem-Fir	SS	5-9	9-1	11-11	15-12	18-0	5-9	9-1	11-9	14-5	16-8
	Hem-Fir	#1	5-8	8-5	10-8	13-0	15-1	5-4	7-9	9-10	12-0	13-11
	Hem-Fire	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Southern Pine	SS	6-0	9-5	12-5	15-10	19-3	6-0	9-5	12-5	15-2	17-10
	Southern Pine	#1	5-9	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Spruce-Pine-Fir	SS	5-8	8-10	11-8	14-8	17-1	5-8	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.
Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE R802.5.1(7)
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling not attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	7-7	11-10	15-8	19-9	22-10	7-7	11-10	15-3	18-7	21-7
	Douglas Fir-Larch	#1	7-1	11-5	13-2	16-1	18-8	6-8	9-10	12-5	15-2	17-7
	Douglas Fir-Larch	#2	6-9	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	7-2	11-3	14-9	18-10	22-1	7-2	11-3	14-8	18-0	20-10
	Hem-Fir	#1	7-0	10-3	13-0	15-11	18-5	6-7	9-8	12-3	15-0	17-5
	Hem-Fire	#2	6-7	9-7	12-2	14-10	17-3	6-2	9-1	11-5	14-0	16-3
	Southern Pine	SS	7-5	11-8	15-4	19-7	23-7	7-5	11-8	15-4	18-10	22-3
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-9	10-0	12-8	14-10	17-7
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Spruce-Pine-Fir	SS	7-0	11-0	14-6	18-0	20-11	7-0	11-0	13-11	17-0	19-8
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	6-3	9-2	11-8	14-2	16-6
16	Douglas Fir-Larch	SS	6-10	10-9	14-0	17-1	19-10	6-10	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#1	6-2	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas Fir-Larch	#2	5-10	8-7	10-10	13-3	15-4	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	6-6	10-2	13-5	16-6	1-2	6-6	10-1	12-9	15-7	18-0
	Hem-Fir	#1	6-1	8-11	11-3	13-9	16-0	5-9	8-5	10-8	13-0	15-1
	Hem-Fire	#2	5-8	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Southern Pine	SS	6-9	10-7	14-0	17-4	20-5	6-9	10-7	13-9	16-4	19-3
	Southern Pine	#1	6-2	9-2	11-8	13-8	16-2	5-10	8-8	11-0	12-10	15-3
	Southern Pine	#2	5-3	7-11	10-0	11-11	14-0	5-0	7-5	9-5	11-3	13-2
	Spruce-Pine-Fir	SS	6-4	10-0	12-9	15-7	18-1	6-4	9-6	12-0	14-8	17-1
	Spruce-Pine-Fir	#1	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-Pine-Fir	#2	5-9	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
19.2	Douglas Fir-Larch	SS	6-6	10-1	12-9	15-7	18-1	6-6	9-6	12-0	14-8	17-1
	Douglas Fir-Larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas Fir-Larch	#2	5-4	7-10	9-10	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	6-1	9-7	12-4	15-1	17-4	6-1	9-2	11-8	14-2	15-5
	Hem-Fir	#1	5-7	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-Fire	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Southern Pine	SS	6-4	10-0	13-2	15-10	18-8	6-4	9-10	12-6	14-11	17-7
	Southern Pine	#1	5-8	8-5	10-8	12-5	14-9	5-4	7-11	10-0	11-9	13-11
	Southern Pine	#2	4-10	7-3	9-2	10-10	12-9	4-6	6-10	8-8	10-3	12-1
	Spruce-Pine-Fir	SS	6-0	9-2	11-8	14-3	16-6	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine-Fir	#1	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-Pine-Fir	#2	5-3	7-8	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0

(continued)

TABLE R802.5.1(7) – continued
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling not attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas Fir-Larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas Fir-Larch	#2	4-9	7-0	8-10	10-10	12-6	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	5-8	8-8	11-0	13-6	13-11	5-7	8-3	10-5	12-4	12-4
	Hem-Fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-Fire	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Southern Pine	SS	5-11	9-3	11-11	14-2	16-8	5-11	8-10	11-2	13-4	15-9
	Southern Pine	#1	5-0	7-6	9-6	11-1	13-2	4-9	7-1	9-0	10-6	12-5
	Southern Pine	#2	4-4	6-5	8-2	9-9	11-5	4-1	6-1	7-9	9-2	10-9
	Spruce-Pine-Fir	SS	5-6	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	12-11
	Spruce-Pine-Fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-Pine-Fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE R802.5.1(8)
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas Fir-Larch	SS	6-10	10-9	14-3	18-2	22-1	6-10	10-9	14-3	18-2	21-7
	Douglas Fir-Larch	#1	6-7	10-5	13-2	16-1	18-8	6-7	9-10	12-5	15-2	17-7
	Douglas Fir-Larch	#2	6-6	9-10	12-6	15-3	17-9	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	6-6	10-2	13-5	17-2	20-10	6-6	10-2	13-5	17-2	20-10
	Hem-Fir	#1	6-4	10-0	13-0	15-11	18-5	6-4	9-8	12-3	15-0	17-5
	Hem-Fire	#2	6-1	9-6	12-2	14-10	17-3	6-1	9-1	11-5	14-0	16-3
	Southern Pine	SS	6-9	10-7	14-0	17-10	21-8	6-9	10-7	14-0	17-10	21-8
	Southern Pine	#1	6-6	10-2	13-5	15-9	18-8	6-6	10-0	12-8	14-10	17-7
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-9	8-7	10-11	12-11	15-3
	Spruce-Pine-Fir	SS	6-4	10-0	13-2	16-9	20-5	6-4	10-0	13-2	16-9	19-8
	Spruce-Pine-Fir	#1	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
	Spruce-Pine-Fir	#2	6-2	9-9	12-4	15-1	17-6	6-2	9-2	11-8	14-2	16-6
16	Douglas Fir-Larch	SS	6-3	9-10	12-11	16-6	19-10	6-3	9-10	12-11	16-1	18-8
	Douglas Fir-Larch	#1	6-0	9-0	11-5	13-11	16-2	5-10	8-6	10-9	13-2	15-3
	Douglas Fir-Larch	#2	5-10	8-7	10-10	13-3	15-4	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	5-11	9-3	12-2	15-7	18-11	5-11	9-3	12-2	15-7	18-0
	Hem-Fir	#1	5-9	8-11	11-3	13-9	16-0	5-9	8-5	10-8	13-0	15-1
	Hem-Fire	#2	5-6	8-4	10-6	12-10	14-11	5-4	7-10	9-11	12-1	14-1
	Southern Pine	SS	6-1	9-7	12-8	16-2	19-8	6-1	9-7	12-8	16-2	19-3
	Southern Pine	#1	5-11	9-2	11-8	13-8	16-2	5-10	8-8	11-0	12-10	15-3
	Southern Pine	#2	5-3	7-11	10-0	11-11	14-0	5-0	7-5	9-5	11-3	13-2
	Spruce-Pine-Fir	SS	5-9	9-1	11-11	15-3	18-1	5-9	9-1	11-11	14-8	17-1
	Spruce-Pine-Fir	#1	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
	Spruce-Pine-Fir	#2	5-8	8-5	10-8	13-1	15-2	5-5	7-11	10-1	12-4	14-3
19.2	Douglas Fir-Larch	SS	5-10	9-3	12-2	15-6	18-1	5-10	9-3	12-0	14-8	17-1
	Douglas Fir-Larch	#1	5-7	8-3	10-5	12-9	14-9	5-4	7-9	9-10	12-0	13-11
	Douglas Fir-Larch	#2	5-4	7-10	9-11	12-1	14-0	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	5-6	8-8	11-6	14-8	17-4	5-6	8-8	11-6	14-2	15-5
	Hem-Fir	#1	5-5	8-2	10-3	12-7	14-7	5-3	7-8	9-8	11-10	13-9
	Hem-Fire	#2	5-2	7-7	9-7	11-9	13-7	4-11	7-2	9-1	11-1	12-10
	Southern Pine	SS	5-9	9-1	11-11	15-3	18-6	5-9	9-1	11-11	14-11	17-7
	Southern Pine	#1	5-6	8-5	10-8	12-5	14-9	5-4	7-11	10-0	11-9	13-11
	Southern Pine	#2	4-10	7-3	9-2	10-10	12-9	4-6	6-10	8-8	10-3	12-1
	Spruce-Pine-Fir	SS	5-5	11-3	11-3	14-3	16-6	5-5	8-6	11-0	13-5	15-7
	Spruce-Pine-Fir	#1	5-3	9-9	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0
	Spruce-Pine-Fir	#2	5-3	9-9	9-9	11-11	13-10	5-0	7-3	9-2	11-3	13-0

(continued)

TABLE R802.5.1(8) – continued
RAFTER SPANS FOR 70 PSF GROUND SNOW LOAD
(Ceiling attached to rafters, L/Δ = 240)

RAFTERS SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
24	Douglas Fir-Larch	SS	5-5	8-7	11-3	13-11	16-2	5-5	8-6	10-9	13-2	15-3
	Douglas Fir-Larch	#1	5-0	7-4	9-4	11-5	13-2	4-9	6-11	8-9	10-9	12-5
	Douglas Fir-Larch	#2	4-9	7-0	8-10	10-10	12-6	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	5-2	8-1	10-8	13-6	13-11	5-2	8-1	10-5	12-4	12-4
	Hem-Fir	#1	5-0	7-3	9-2	11-3	13-0	4-8	6-10	8-8	10-7	12-4
	Hem-Fire	#2	4-8	6-9	8-7	10-6	12-2	4-4	6-5	8-1	9-11	11-6
	Southern Pine	SS	5-4	8-5	11-1	14-2	16-8	5-4	8-5	11-1	13-4	15-9
	Southern Pine	#1	5-0	7-6	9-6	11-1	13-2	4-9	7-1	9-0	10-6	12-5
	Southern Pine	#2	4-4	6-5	8-2	9-9	11-5	4-1	6-1	7-9	9-2	10-9
	Spruce-Pine-Fir	SS	5-0	7-11	10-5	12-9	14-9	5-0	7-9	9-10	12-0	12-11
	Spruce-Pine-Fir	#1	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8
	Spruce-Pine-Fir	#2	4-8	6-11	8-9	10-8	12-4	4-5	6-6	8-3	10-0	11-8

Check sources for availability of lumber in lengths greater than 20 feet.

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

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below.

Hc/Hr	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

Hc = Height of ceiling joist or rafter ties measured vertically above the top of the rafter support walls.

Hr = Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE N1102.1.2 (R402.1.2)
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b, e]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE	MASS WALL *R*-VALUE[i]	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c] WALL *R*-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4 except Marine	0.35	0.55	0.40	38	13	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5[h]	13/17	30[g]	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10[h]	15/20	30[g]	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

For SI: 1 foot = 304.8 mm.

a. *R*-values are minimums. *U*-factors and SHGC are maximum. When insulation is installed in a cavity, which is less than the label of design thickness or the insulation, the installed *R*-value of the insulation shall not be less than the *R*-value specified in the table.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylight does not exceed 0.30.

c. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home. "10/13" means R-10 continuous on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.

d. R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zone 1 through 3 for heated slabs.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in warm-humid locations as defined by Figure 1101.10 and Table 1101.10.

g. Or insulation sufficient to fill the framing cavity, R-19 minimum.

h. First value is cavity insulation, second is continuous insulation, so "13+5" means R-13 cavity insulation plus R-5 continuous insulation.

i. The second *R*-values applies when more than half the insulation is on the interior of the mass wall.

TABLE N1102.1.4 (R402.1.4)
EQUIVALENT U-FACTORS[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR	SKYLIGHT *U*-FACTOR	CEILING *U*-FACTOR	FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	BASEMENT WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091[c]	0.136
4 except Marine	0.35	0.55	0.030	0.082	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

a. Nonfenestration *U*-factors shall be obtained from measurement, calculations, or an approved source.

b. When more than half the insulation is on the interior, the mass wall *U*-factor shall be a minimum of 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

c. Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Figure 1101.10 and Table 1101.10.

N1102.4.2 (R402.4.2) Fireplaces. New wood-burning fireplaces shall have tight-fitting dampers or doors. When using tight fitting doors, outdoor combustion air is required. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace. Where using tight-fitting doors on masonry fireplaces, the doors shall be listed and labeled in accordance with UL 907.

N1103.3.5 (R403.3.5) Building cavities (Mandatory). Building framing cavities shall not be used as supply ducts or supply plenums.

N1103.5.3 (R403.5.3) Hot water pipe insulation (Prescriptive). Insulation for hot water pipe with a minimum thermal resistance (*R*-value) of R-3 shall be applied to the following:

1. Piping serving more than one dwelling unit.
2. Piping located outside of the conditioned space.
3. Piping located under a floor slab.
4. Buried piping.
5. Supply and return piping in recirculation systems other than demand recirculation systems.

M1601.6 Independent garage HVAC systems. Furnaces and air-handling systems that supply air to living space shall not supply air to or return air from a garage.

Exception: Supply air to a garage is allowed with the use of an approved fire damper supply grill.

G2414.5.2 (403.5.2) Copper tubing. Copper *tubing* shall not be used.

P2603.5.1 Sewer depth. *Building sewers* shall be not less than 36 inches (914 mm) below finished grade.

P2902.3 Backflow Protection. A means of protection against backflow shall be provided in accordance with Sections P2902.3.1 through P2902.3.6 and Title IX, Chapter 300 of the Gladstone Code of Ordinances. Backflow prevention applications shall conform to Table P2902.3, except as specifically stated in Title IX, Chapter 300 of the Gladstone Code of Ordinances and Section P2902.4 through P2902.5.5.

Where there is a conflict between Title IX, Chapter 300 of the Gladstone Code of Ordinances and any of the aforementioned sections or tables, the more restrictive shall govern.

P2906.4 Water service pipe. Water service pipe shall be a minimum of ¾-inch (19 mm) Type K copper conforming to ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 447. Water service pipe or tubing, installed underground and outside of the structure, shall have a working pressure rating of not less than 160 pounds per square inch at 73°F (1103

kPa at 23°C). Where the water pressure exceeds 160 pounds per square inch (1103 kPa), piping material shall have a rated working pressure equal to or greater than the highest available pressure. Water service piping materials not third-party certified for water distribution shall terminate at or before the full open valve located at the entrance to the structure.

E3902.9 Laundry areas. 125-volt, single-phase, 15- and 20-ampere receptacles installed in laundry areas shall have ground-fault circuit protection for personnel. [210.8(A)(10)]

Exception: Receptacles for the sole use of the washer and/or dryer.

9.200.050.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Residential Code:

M1101.1.1 One building or other structure not to be supplied through another. Heating, Cooling and Ventilation equipment supplying a building or other structure shall not pass through the interior of another building or other structure.

G2412.1.2 One building or other structure not to be supplied through another. Utility service *piping, piping,* and *piping systems* supplying a building or other structure shall not pass through the interior of another building or other structure.

P2601.4 One building or other structure not to be supplied through another. *Water distribution pipe, water service pipe*, *building sewer, sanitary sewer*, and *vents pipe* supplying a building or other structure shall not pass through the interior of another building or structure.

9.200.050.3 Deletions. The following sections of the 2015 International Residential Code are omitted and not hereby incorporated:

R302.13 Fire protection of floors.

R314.2.2 Alterations, repairs and additions.

R314.5 Combination alarms.

R314.7.4 Combination alarms.

R315.2.2 Alterations, repairs and additions.

R315.4 Combination alarms.

R315.6.4 Combination alarms.

R907.3 Fire Classification.

N1101.14 (R401.3) Certificate (Mandatory).

N1102.2.9 (R402.2.9) Basement walls.

N1102.2.10 (R402.2.10) Slab-on-grade floors.

N1102.4.1.2 (R402.4.1.2) Testing.

N1102.4.4 (R402.4.4) Rooms containing fuel-burning appliances.

N1103.2 (R403.2) Hot water boiler outdoor temperature setback.

N1103.3.3 (R403.3.3) Duct testing (Mandatory).

N1103.3.4 (R403.3.4) Duct leakage (Prescriptive).

N1103.10.4 (R403.10.4) Covers.

N1104.1 (R404.1) Lighting equipment (Mandatory).

N1104.1.1 (R401.1.1) Lighting equipment (Mandatory).

N1111.1 (R505.1) General.

N1111.2 (R502.2) General.

P2503.4 Building sewer testing.

P2503.5 Drain, waste and vent systems testing.

P2503.5.1 Rough plumbing.

P2503.5.2 Finished plumbing.

P2503.6 Shower liner test.

P2503.7 Water-supply system testing.

P2503.8.1 Inspections.

Table P2906.4 Water service pipe

P3008.1 Sewage backflow.

E3902.10 Kitchen dishwasher branch circuit.

E3902.16 Arc-fault circuit-interrupter protection.

E3902.17 Arc-fault circuit interrupter protection for branch circuit extensions or modifications.

E4002.14 Tamper-resistant receptacles.

9.200.060.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.200.060.2 Violation; penalties. Any person, who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

Article 3. Existing Building Code

Sec. 9.200.070 Adoption of the 2015 International Existing Building Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri being marked and designate as the *International Existing Code*, 2015 edition, including Appendix Chapters:

Appendix B, Supplementary Accessibility Requirements for Existing Buildings and Facilities.

as published by the International Code Council, be and is hereby adopted as the Existing Building Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the repair, alteration, change of occupancy, addition, and relocation of existing buildings, including historic buildings, as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions, and terms of said Existing Building Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.200.080 of this chapter.

That if any section, subsection, sentence, clause, or phrase of this legislation is, for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this law, and each section, subsection, clause, or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional.

That nothing in this legislation or in the Existing Building Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired, or affected by this legislation.

Sec. 9.200.080 Amendments, additions, and deletions to the 2015 International Existing Building Code.

9.200.080.1 Amendments. The following sections of the 2015 International Existing Building Code are omitted and not hereby incorporated as the following identically numbered sections area adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *Existing Building Code* of City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

1401.2 Applicability. Structures existing prior to the adoption of the 2015 International Building Codes by the City of Gladstone, Clay County, Missouri, in which there is work involving *additions, alteration, or changes of occupancy* shall be made to conform to the requirements of this chapter or the provisions of Chapters 5 through 13. The provisions of Sections 1401.2.1 through 1401.2.5 shall apply to existing occupancies that will continue

to be or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3 or I-4.

9.200.080.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Existing Building Code:

No sections added.

9.200.080.3 Deletions. The following sections of the 2015 International Existing Building Code are omitted and not hereby incorporated:

No sections deleted.

9.200.090.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.200.090.2 Violation; penalties. Any person, who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 400. ELECTRICAL REGULATIONS

ARTICLE 1. ELECTRICAL CODE

Sec. 9.400.010 Adoption of the 2014 National Electrical Code Administrative Provisions.

That a certain document, one (1) copies of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *National Electrical Code*, 2014 edition, as published by the National Fire Protection Association, be and is hereby adopted as the Electric Code of the City of Gladstone, Clay County, Missouri for regulating and governing the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of electrical systems and equipment as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Electrical Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made part hereof, as if fully set out in this legislation, with amendments, additions, and deletions, if any, prescribed in Section 9.400.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation or in the *National Electric Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Sec. 9.400.020 Amendments, additions, and deletions to NFPA 70, National Electrical Code, 2014 edition.

9.400.020.1 Amendments. The following section(s) of the NFPA 70, National Electric Code, 2014 edition, are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

210.8(A)(10) Laundry areas
Exception to (10): Receptacles for the sole use of the washer and/or dryer.

9.400.020.2 Additions. The following section(s) are hereby incorporated and adopted in the NFPA 70, National Electric Code, 2014 edition:

334.12(A)(11) In all division of classification groups A, B, E, F, H, I, M, and S as set for in the 2015 International Building Code.

9.400.020.3 Deletions. The following section(s) of the NFPA 70, National Electric Code, 2014 edition are omitted and hereby not incorporated:

210.8(D) Kitchen Dishwasher Branch Circuit.
210.12 Arc-Fault Circuit-Interrupter Protection.
210.12(A) Dwelling Units.
210.12(B) Branch Circuit Extensions or Modifications – Dwelling Units.
210.12(C) Dormitory Units.
406.12(A) Dwelling Units.

Sec. 9.400.030. Permits issued.

Permits shall be issued only to persons holding a valid certificate and license issued pursuant to article 2 of this chapter.

Exception: A permit may be issued to any person to do work regulated by this chapter in a dwelling unit as defined in the 2015 *International Residential Code*, provided that the person is a bona fide owner of such dwelling unit and that the same is or will be occupied by such bona fide owner.

Sec. 9.400.040 Violations.

9.400.040.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any provisions of this chapter.

9.400.040.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided in section 1.100.140 of the City of Gladstone, Clay County, Missouri, Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

ARTICLE 2. ELECTRICIANS AND ELECTRICAL CONTRACTORS

Sec. 9.400.050 Definitions.

9.400.050.1 Scope. Unless otherwise expressly stated, the following terms shall, for the purpose of this chapter, have the meaning shown in this section.

9.400.050.2 Interchangeability. Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

9.400.050.3 Terms defined in other codes. Where terms are not defined in this article and are defined in the *2015 International Codes*, as adopted by the City of Gladstone, Clay County, Missouri, such terms shall have the meanings ascribed to them as in those codes.

9.400.050.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

Approved. Acceptable to the building official or other authority having jurisdiction.

Approved agency. An established and recognized agency approved by the building official and that is regularly engaged in conducting test or furnishing inspection services.

Bona fide owner. The person or persons having legal ownership.

Building official. The officer or other designated authority charged with the administration and enforcement of this article, or duly authorized representative.

Electrical Contractor. A person engaged in the business of installing or repairing electrical wiring, fixtures and equipment, who is or employs a licensed master electrician in a managerial capacity.

Electrical Wiring. The installation, construction, alteration, replacement, removal, connection, disconnection, distribution or repair of wiring, fixtures, equipment and apparatus for the use of electrical current for electrical fixtures, appliances, motors or other apparatus.

Electrician. A person who installs, maintains, operates, or repairs electrical wiring, fixtures and equipment.

Master Electrician. A person licensed by the city under this article as a master electrician who possesses the ability to direct other persons in the installation of electrical equipment, is skilled in planning, designing and installing electrical wiring and has a thorough knowledge of the accepted standards, principles and art of electrical wiring to safeguard life or limb, health, property and public welfare.

Owner. Any person, agent, firm or corporation having a legal or equitable interest in the property.

Sec. 9.400.060 Certificate and license required; exceptions.

It is unlawful for any person to conduct, carry on or engage in the business of an electrical contractor, electrical wiring or electrician without having first been issued a valid master electrician's and certification of qualifications by the board of electrical examiners of the City.

Exceptions:

1. Work done under the employment and supervision of a master electrician.
2. Work done under the employment of an electrical contractor which is owned by a master electrician.
3. Work done under the employment of an electrical contractor, which employs a master electrician in a managerial capacity.
4. Work is done in compliance with section 9.400.030.

Sec. 9.400.070 Application for certificate and license issuance.

9.400.070.1 Application. Application for a master electrician's certificate and license shall be made in writing on forms provided by the city to the board of electrical examiners. The application shall state the applicant's name, mailing address, general qualifications and other data pertinent to the issuance of such certificate and license.

9.400.070.2 Eligibility. A master electrician's certificate and license may be issued to:

1. A person who has taken and passed an approved examination pursuant to section 9.400.100 and who has been certified by the board of electrical examiners as a qualified master electrician.
2. A person currently holding a valid master electrician's license issued by a county or city whose requirements relating to the issuance of such certificates and licenses of qualifications are equivalent to the provisions of this article, as determined by the board of plumbing examiners; provided that no waiver of examination shall be made to any person certified and licensed by a county or city which does not have in force the current addition of the ICC Electrical Code – Administrative Provisions and/or NFPA 70, National Electrical Code.

9.400.070.3 Duration. All certificates and licenses shall be valid for a period of one (1) year starting at the beginning of the city's fiscal year (July 1), except that the first certificate and license granted shall extend from the date issued to the end of the city's fiscal year (June 30).

9.400.070.4 Renewal. Certificates and licenses currently issued may be renewed on or before July 1, next following expiration, upon payment of a renewal fee, in accordance with the city "Schedule of Fees and Charges," as amended, without further examination, unless request for examination is made by the board of electrical examiners, in which case the applicant must take and pass an approved examination pursuant to section 9.400.090. If any certificate and license is not renewed on or before the renewal day (July 1), the applicant may be required to meet the requirements as set forth in subsections (a) and (b) of this section.

9.400.070.5 Transferability. Certificates and licenses are not transferable from one person to another person.

Sec. 9.400.080 Examination of applicant.

Applicants applying for a master electrician's certificate and license who shall show proof to the board of electrical examiners that they have passed an approved examination for master electrician, or have passed an equivalent or more stringent test as determined by the board of electrical examiners, shall be eligible for a master electrician's certificate and license.

Sec. 9.400.090 Occupational license.

The certificate and license provided for in this article shall in no way affect the duty to obtain any and all occupational licenses required by other laws or ordinances of the city. A separate occupational license shall not be required if the master electrician is not the owner of an electrical contracting firm. However, every electrical contractor shall have a valid occupational license before performing electrical work within the city.

Sec. 9.400.100 Board of electrical examiners.

9.400.100.1 Creation of board. The board of electrical examiners is hereby created and the official in charge thereof shall be the city manager.

9.400.100.2 Membership of board. The board of electrical examiners shall consist of three persons as follows:

1. The city manager or the city manager's designee;
2. The building official; and
3. The deputy of the building official.

9.400.100.3 Approval. All votes of business of the board shall require a concurring vote of two-thirds of its members. A vote equal to a quorum is required to pass or deny any request. A quorum shall consist of a simple majority of board members.

9.400.100.4 Rules and procedures. The board is authorized to establish polices and procedures necessary to carry out its duties.

9.400.100.5 Revocation or suspension of certificate and license. If it is determined that a person who has been issued a certificate and license of qualification under this article is incompetent or lacks knowledge on matters relevant to such certificate, or it is determined that the certificate and/or license was obtained by fraud or based on inaccurate or incomplete information, the board, after hearing thereon, may cancel, suspend, or revoke the certificate and license of qualification issued to such person; provided that such person shall be given ten (10) days written notice thereof prior to the time fixed for the hearing, so that such person may have any opportunity to have counsel present and produce witnesses in their behalf. A person who has such person's own certificate and license of qualification canceled, suspended, or revoked shall have the right to appeal the board's decision to the city council within seven business days of the board's decision by filing a written protest with the city clerk. If the certificate and

license of qualification of any person is so canceled, suspended, or revoked, another certificate shall not be granted until the board reinstates such person.

Sec. 9.400.110 Violations.

9.400.110.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any provisions of this chapter.

9.400.110.2 Violation penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate of permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 500. ENERGY CONSERVATION REGULATIONS

Section 9.500.010 Adoption of the 2015 International Energy Conservation Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Energy Conservation Code*, 2015 edition, as published by the International Code Council, be and is hereby adopted as the Energy Conservation Code of the City of Gladstone, Clay County, Missouri, for regulating and governing energy efficient building envelopes and installation of energy efficient mechanical, lighting and power systems as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all regulations, provisions, penalties, conditions and terms of said Energy Conservation Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.700.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed the law, and each section, subsection, clause or phrase thereof; irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation on in the Energy Conservation Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Section 9.500.020 Amendments, additions, and deletions to the "Commercial Provisions" of the 2015 International Energy Conservation Code.

9.500.020.1 Amendments. The following sections of the 2015 International Energy Conservation Code are omitted and not hereby incorporated and the following identically numbered sections are adopted in lieu thereof:

C101.1 Title. This code shall be known as the *International Energy Conservation Code* of the City of Gladstone, Clay County, Missouri, and shall be cited as such. It is referred to herein as "this code."

C108.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances.

SECTION C109 MEANS OF APPEAL

C109.1 Application for appeal. A person shall have the right to appeal a decision of the *code official* to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The application shall be filed on a form obtained by the *code official* within twenty (20) days after the notice was served.

C402.4.1 Maximum area. The vertical fenestration area (not including opaque doors and opaque spandrel panels) shall not exceed 40 percent of the gross above-grade wall area. The skylight area shall not exceed 3 percent of the gross roof area.

TABLE C402.1.3
OPAQUE THERMAL ENVELOPE REQUIREMENTS[a]

Climate Zone	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Roofs																
Insulation entirely above deck	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-20ci	R-25ci	R-25ci	R-30ci	R-30ci	R-35ci	R-35ci	R-35ci	R-35ci
Metal buildings (with R-5 thermal blocks)[a, b]	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-19 + R-11 LS	R-25 + R-11 LS	R-25 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS	R-30 + R-11 LS
Attic and other	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-38	R-49	R-49	R-49	R-49	R-49	R-49	R-49
Walls, Above Grade																
Mass	R-5.7ci	R-5.7ci	R-5.7ci	R-7.6ci	R-7.6ci	R-9.5ci	R-9.5ci	R-11.4ci	R-11.4ci	R-13.3ci	R-13.3ci	R-15.2ci	R-15.2ci	R-15.2ci	R-25ci	R-25ci
Metal building	R-13+ R-6.5ci	R-13+ R-6.5ci	R-13+ R-6.5ci	R-13+ R-13ci	R-13+ R-6.5ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-13ci	R-13+ R-19.5ci	R-13+ R-13ci	R-13+ R-19.5ci
Metal frame	R-13+ R-5ci	R-13+ R-5ci	R-13+ R-5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci	R-13+ R-7.5ci
Wood framed and other	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20	R-13	R-13	R-13+ R-3.8ci or R-20	R-13+ R-3.8ci or R-20 + R-3.8ci	R-13+ R-3.8ci or R-20 + R-3.8ci	R-13+ R-3.8ci or R-20 + R-3.8ci	R-13+ R-3.8ci or R-20 + R-3.8ci	R-13+ R-3.8ci or R-20 + R-3.8ci	R-13+ R-3.8ci or R-20 + R-10ci	R-13+ R-3.8ci or R-20 + R-10ci
Walls, Below Grade																
Below-grade wall[d]	NR	NR	NR	NR	NR	NR	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-7.5ci	R-10ci	R-10ci	R-10ci	R-12.5ci
Floors																
Mass	NR	NR	R-6.3ci	R-8.3ci	R-10ci	R-10ci	R-10ci	R-10.4ci	R-10ci	R-12.5ci	R-12.5ci	R-12.5ci	R-15ci	R-16.7ci	R-15ci	R-16.7ci
Joist/framing	NR	NR	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30	R-30[e]	R-30[e]	R-30[e]	R-30[e]	R-30[e]
Slab-on Grade Floors																
Unheated slabs	NR	NR	NR	NR	NR	NR	R-10 for 24"below	R-10 for 24"below	R-10 for 24"below	R-10 for 24"below	R-10 for 24"below	R-15 for 24"below	R-15 for 24"below	R-15 for 24"below	R-15 for 24"below	R-20 for 24"below
Heated slabs[d]	R-7.5 for 12"below	R-7.5 for 12"below	R-7.5 for 12"below	R-7.5 for 12"below	R-10 for 12"below	R-10 for 12"below	R-15 for 12"below	R-15 for 12"below	R-15 for 36"below	R-15 for 36"below	R-15 for 36"below	R-20 for 48"below	R-20 for 24"below	R-20 for 48"below	R-20 for 48"below	R-20 for 48"below
Opaque Doors																
Swinging	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.61	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37	U-0.37
Roll-up or sliding	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75	R-4.75

For SI: 1 inch = 2504 mm. ci = Continuous insulation. NR = No Requirement

LS = Liner System – A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a. Assembly descriptions can be found in ANSI/ASHRAE/IESNA Appendix A.

b. Where using *R*-value compliance method, a thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.

c. R-5.7ci is allowed to be substituted with concrete block walls complying with ASTM C 90, ungrouted or partially grouted at 32 inches or less on center vertically and 48 inches or less on center horizontally, with ungrouted cores filled with materials having a maximum thermal conductivity of 0.44 Btu-in/h-f ^{2} °F.

d. Where labeled slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e. Steel floor joist systems shall be insulted to R-38.

TABLE C402.1.4
OPAQUE THERMAL ENVELOPE ASSEMBLY REQUIREMENTS[a]

Climate Zone	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Roofs																
Insulation entirely above deck	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.048	U-0.039	U-0.039	U-0.032	U-0.032	U-0.028	U-0.028	U-0.028	U-0.028
Metal buildings	U-0.044	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.035	U-0.031	U-0.031	U-0.029	U-0.029	U-0.029	U-0.029
Attic and other	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.027	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021	U-0.021
Walls, Above Grade																
Mass	U-0.142	U-0.142	U-0.142	U-0.123	U-0.110	U-0.104	U-0.104	U-0.090	U-0.078	U-0.078	U-0.078	U-0.071	U-0.061	U-0.061	U-0.061	U-0.061
Metal building	U-0.079	U-0.079	U-0.079	U-0.079	U-0.079	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.052	U-0.039	U-0.052	U-0.039
Metal frame	U-0.077	U-0.077	U-0.077	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.057	U-0.064	U-0.052	U-0.045	U-0.045
Wood framed and other	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.064	U-0.082	U-0.082	U-0.064	U-0.064	U-0.051	U-0.051	U-0.051	U-0.051	U-0.036	U-0.036
Walls, Below Grade																
Below-grade wall[b]	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.119	C-1.119	C-1.119	C-1.119	C-1.119	C-1.119	C-0.092	C-0.092	C-0.092	C-0.092
Floors																
Mass	U-0.322	U-0.322	U-0.107	U-0.087	U-0.076	U-0.076	U-0.076	U-0.074	U-0.074	U-0.064	U-0.064	U-0.057	U-0.055	U-0.051	U-0.055	U-0.051
Joist/framing	U-0.066	U-0.066	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033	U-0.033
Slab-on Grade Floors																
Unheated slabs	F-0.73	F-0.73	F-0.73	F-0.73	F-0.73	F-0.73	F-0.54	F-0.54	F-0.54	F-0.54	F-0.54	F-0.52	F-0.40	F-0.40	F-0.40	F-0.40
Heated slabs	F-0.70	F-0.70	F-0.70	F-0.70	F-0.70	F-0.70	F-0.65	F-0.65	F-0.58	F-0.58	F-0.58	F-0.58	F-0.55	F-0.55	F-0.55	F-0.55

a. Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from ANSI/ASHRAE/IESNA 90.1 Appendix A shall be permitted, provided the construction complies with the applicable construction details from ANSI/ASHRAE/IESNA 90.1 Appendix A.

b. Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.

9.500.020.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Energy Conservation Code:

C109.1.1 Limitation of authority. The board of appeals shall have no authority relative to interpretation of the administration of this code nor shall such board be empowered to waive requirements of this code.

9.500.020.3 Deletions. The following sections of the 2015 International Energy Conservation Code are omitted and not hereby incorporated.

C109.2 Limitations on authority.

C109.3 Qualifications.

C402.4.1.1 Increased vertical fenestration area with daylighting controls.

C402.4.1.2 Increased skylight area with daylighting controls.

SECTION C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

SECTION C408 SYSTEM COMMISSIONING

Section 9.500.030 Amendments, additions, and deletions to the "Residential Provisions" of the 2015 International Energy Conservation Code.

9.500.030.1 Amendments. The following sections of the 2015 International Energy Conservation Code are omitted and not hereby incorporated and the following identically numbered sections are adopted in lieu thereof:

R101.1 Title. This code shall be known as the *International Energy Conservation Code* of the City of Gladstone, Clay County, Missouri, and shall be cited as such. It is referred to herein as "this code."

R101.2 Scope. This code applies to *residential buildings* and the building sites and associated systems and equipment.

Exception: One- And Two-Family Dwellings

R108.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances.

SECTION R109 MEANS OF APPEAL

R109.1 Application for appeal. A person shall have the right to appeal a decision of the *code official* to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been

incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The application shall be filed on a form obtained by the *code official* within twenty (20) days after the notice was served.

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b, e]	CEILING *R*-VALUE	WOOD FRAME WALL *R*-VALUE	MASS WALL *R*-VALUE[i]	FLOOR *R*-VALUE	BASEMENT[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL SPACE[c] WALL *R*-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5[h]	8/13	19	5/13[f]	0	5/13
4 except Marine	0.35	0.55	0.40	38	13	8/13	19	10/13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5[h]	13/17	30[g]	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10[h]	15/20	30[g]	15/19	10, 4 ft	15/19
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

For SI: 1 foot = 304.8 mm.

a. *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity, which is less than the label of design thickness or the insulation, the installed *R*-value of the insulation shall not be less than the *R*-value specified in the table.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

c. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.

d. R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zones 1 through 3 for heated slabs.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.

g. Or insulation sufficient to fill the framing cavity, R-19 minimum.

h. First value is cavity insulation, second is continuous insulation or insulated siding, so "13+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing cover 40 percent or less of the exterior, continuous insulation *R*-values shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used – to maintain a consistent total sheathing thickness.

i. The second R-value applies when more than half the insulation is on the interior of the mass wall.

TABLE R402.1.4
EQUIVALENT *U*-FACTORS[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR	SKYLIGHT *U*-FACTOR	CEILING *U*-FACTOR	FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	BASEMENT WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR
1	0.50	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.082	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.057	0.098	0.047	0.091[c]	0.136
4 except Marine	0.35	0.55	0.030	0.082	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.057	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.048	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.048	0.057	0.028	0.050	0.055

a. Nonfenestration *U*-factors shall be obtained from measurement, calculations, or an approved source.

b. When more than half the insulation is on the interior, the mass wall *U*-factor shall be a minimum of 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

c. Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Figure R301.1 and Table R301.1.

TABLE R402.4.1.1
AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
General requirements	A continuous air barrier shall be installed in the building envelope. Exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier sealed. Access opening, drop down stairs, or knee wall doors to unconditioned attic space shall be sealed.	The Insulation in any dropped ceiling/soffit shall be aligned with the air barrier.
Walls	The junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of R-3 per inch minimum. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.
Windows, skylights, and doors	The space between window/door jambs and framing and skylights and framing shall be sealed.	
Rim joists	Rim joists shall include the air barrier.	Rim joists shall be insulated.
Floors (including above-garage and cantilevered floors)	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking, or floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing, or continuous insulation extends from the bottom to the top of all perimeter floor framing members.
Crawl space walls	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.	Where provided in lieu of floor insulation, insulation shall be permanently attached to the crawlspace walls.
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.	
Narrow cavities		Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditions space.	
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be sealed to the drywall.	Recessed light fixtures installed in the building thermal envelope shall be air tight and IC rated.
Plumbing and wiring		Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate them from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.	
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the subfloor or drywall.	
Concealed sprinklers	When required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacture. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.	

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

R403.1.1 Programmable thermostat. The thermostat controlling the primary heating or cooling system of the dwelling unit shall be capable of controlling the heating and cooling on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain *zone* temperatures down to 55°F (13°C) or up to 85°F (29°C).

R403.3.5 Building cavities (Mandatory). Building framing cavities shall not be used as supply ducts or supply plenums.

R403.5.3 Hot water pipe insulation (Prescriptive) Insulation for hot water pipe with a minimum thermal resistance (*R*-value) of R-3 shall be applied to the following:

1. Piping serving more than one dwelling unit.
2. Piping located outside the conditioned space.
   Exception: Basements
3. Piping located under a floor slab.
4. Buried piping.
5. Supply and return piping in recirculation systems other than demand recirculation systems.

9.500.030.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Energy Conservation Code:

R109.1.1 Limitation of authority. The board of appeals shall have no authority relative to interpretation of the administration of this code nor shall such board be empowered to waive requirements of this code.

9.500.030.3 Deletions. The following sections of the 2015 International Energy Conservation Code are omitted and not hereby incorporated.

R109.2 Limitations on authority.

R109.3 Qualifications.

R401.3 Certificate (Mandatory).

R402.2.9 Basement walls.

R402.2.10 Slab-on-grade floors.

R402.4.1.2 Testing.

R403.2 Hot water boiler outdoor temperature setback.

R403.3.3 Duct testing (Mandatory).

R403.10.4 Covers.

R404.1 Lighting equipment (Mandatory).

R406 Energy Rating Index Compliance Alternative

9.500.040 Violations.

9.500.040.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.500.040.2 Violation; penalties. Any person, who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 600. FIRE PREVENTION REGULATIONS

Section 9.600.010 Adoption of the 2015 International Fire Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Fire Code*, 2015 edition, including Appendix Chapters:

Appendix B, Fire-Flow Requirements for Buildings,
Appendix C, Fire Hydrant Locations and Distribution,
Appendix D, Fire Apparatus Access Roads,
Appendix E, Hazard Categories,
Appendix F, Hazard Ranking,
Appendix G, Cryogenic Fluids – Weight and Volume Equivalents,
Appendix H, Hazard Materials Management Plan (HMMP) and Hazardous Materials Inventor Statement (HMIS) Instructions, and
Appendix I, Fire Protection Systems – Noncompliant Conditions.

as published by the International Code Council, be and is hereby adopted as the Fire Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the safeguard of life and property from fire and explosion hazards arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Fire Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.600.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof; irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislative or in the Fire Code hereby adopted shall be construed to affect any suit or proceeding impending in any court, or right acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Section 9.600.020 Amendments, additions, and deletions to the 2015 International Fire Code.

9.600.020.1 Amendments. The following sections of the 2015 International Fire Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *Fire Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

[A] 109.4 Violation penalties. Any person who shall violate a provision of this code, fail to comply with any of the requirements thereof or erect, install, alter or repair or do work in violations of the *approved construction documents* or directive of the *fire code official*, or of a permit or certificate used under provisions of this code, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances. The imposition of one (1) penalty shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

SECTION 108 MEANS OF APPEAL

[A] 108.1 Application for appeal. A person shall have the right to appeal a decision of the *fire code official* to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent method of protection or safety is proposed. The application shall be filed on a form obtained from the *fire code official* within twenty (20) days after the notice was served.

[A] [A] 111.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances.

5601.2.2 Sale and retail display. No person shall construct a retail display nor offer for sale *explosives, explosive materials* or fireworks within the city limits of the City of Gladstone, Clay County, Missouri.

5704.2.9.6.1 Locations where above-ground tanks are prohibited. Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited, provided that an application for a permit may be filed for a tank with a capacity of up to 1,000 gallons if such tank will be located on any property zoned for commercial or industrial use; or property used for industrial purposes, regardless of the property's zoning. Not more than 1,000 gallons of combustible or flammable liquid shall be stored on any one lot, tract, parcel or premises.

5706.2.4.4 Locations where above-ground tanks are prohibited. Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited, provided that an application for a permit may be filed for a tank with a capacity of up to 1,000 gallons if

such tank will be located on any property zoned for commercial or industrial use; or property used for industrial purposes, regardless of the property's zoning. Not more than 1,000 gallons of combustible or flammable liquid shall be stored on any one lot, tract, parcel or premises.

5806.2 Limitations. Storage of flammable *cryogenic fluids* in stationary containers outside of buildings is prohibited, provided that an application for a permit may be filed for a tank with a capacity of up to 1,000 gallons if such tank will be located on any property zoned for commercial or industrial use; or property used for industrial purposes, regardless of the property's zoning. Not more than 1,000 gallons of combustible or flammable liquid shall be stored on any one lot, tract, parcel or premises.

6104.2 Maximum capacity within established limits. Storage of liquefied petroleum gas is prohibited, provided that an applications for a permit may be filed for a tank with a water capacity of 2,000 gallons if such tank will be located on any property zoned M-1. Not more than 2,000 gallons, water capacity, of liquefied petroleum gas shall be stored on any lot, tract, parcel or premises.

9.600.020.2 Additions. The following sections are hereby incorporated and adopted in the 2015 International Fire Code:

[A] 108.1.1 Limitation of authority. The board of appeals shall have no authority relative to interpretation of the administration of this code nor shall such board be empowered to waive requirements of this code.

5608.2.3 Bond required. Prior to issuing any permit for a fireworks display, the applicant shall file with the jurisdiction a surety bond or a public liability policy in the amount requested by the jurisdiction having authority, for the purpose of the payment for injuries or death of one person and a surety bond or a public liability policy in the amount requested by the jurisdiction having authority, for the purpose of the payment of damages to property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The surety bond or public liability policy shall list the jurisdiction having authority as additionally insured.

9.600.020.3 Deletions. The following sections of the 2015 International Fire Code are omitted and not hereby incorporated:

[A] 108.2 Limitations on authority.

[A] 108.3 Qualifications.

9.600.030 Violations.

9.600.030.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.600.030.2 Violation; penalties. Any person, who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued

thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 700. FUEL GAS REGULATIONS

Section 9.700.010 Adoption of the 2015 International Fuel Gas Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Fuel Gas Code*, 2015 edition, as published by the International Code Council, be and is hereby adopted as the Fuel Gas Code of the City of Gladstone, Clay County, Missouri, for regulating and governing fuel gas systems and gas-fired appliances as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all regulations, provisions, penalties, conditions and terms of said Fuel Gas Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.700.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation or in the *International Fuel Gas Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Section 9.700.020 Amendments, additions, and deletions to the 2015 International Fuel Gas Code.

9.700.020.1 Amendments. The following section(s) of the 2015 International Fuel Gas Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *Fuel Gas Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

[A] 106.6.2 Fee schedule. The fees for work shall be in accordance with the schedule established by the applicable governing body.

[A] 106.6.3 Fee refunds. The code official shall authorize the refunding of fees as follows.

1. The full amount of any fee paid hereunder which was erroneously paid or collected.

2. Not more than eighty percent (80%) of the permit fee paid when no work has been done under a permit issued in accordance with this code.
3. Not more than eighty percent (80%) of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The code official shall not authorize the refunding of any fee paid, except upon written application filed by the original permittee not later than 180 days after the date of fee payment.

[A] 108.4 Violation penalties. Any person who shall violate a provision of this code, fail to comply with any of the requirements thereof or erect, install, alter or repair work in violation of the *approved construction documents* or directive of the code official, or of a permit or certificate issued under provisions of this code, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances. The imposition of one (1) penalty shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

[A] 108.5 Stop work orders. Upon notice from the code official that work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, the owner's agent or the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances.

403.4.3 Copper and brass. Copper, Copper alloy pipe, brass, threaded copper and threaded brass shall not be used. Threaded aluminum-alloy shall not be used with gases corrosive to such materials.

403.5 Metallic tubing. Seamless copper shall not be used. Seamless aluminum-alloy and steel tubing shall not be used with gases corrosive to such materials.

403.5.2 Copper and copper alloy tubing. Copper tubing shall comply with Standard Type K or L of ASTM B 88 or ASTM B 280.

Copper, copper alloy tubing, brass and brass tubing shall not be used.

9.700.020.2 Additions. The following section(s) are hereby incorporated and adopted in the 2015 International Fuel Gas Code:

No sections added.

9.700.020.3 Deletions. The following section(s) of the 2015 International Fuel Gas Code are omitted and not hereby incorporated:

109.2 Membership of board.
109.2.1 Qualifications.
109.2.2 Alternate members.
109.2.3 Chairman.
109.2.4 Disqualification of member.
109.2.5 Secretary.
109.2.6 Compensation of members.
109.3 Notice of meeting.
109.4 Open hearing.
109.4.1 Procedure.
109.5 Postponed hearing.
109.6 Board decision.
109.6.1 Resolution.
109.6.2 Administration.
109.7 Court review.

9.700.030 Violations.

9.700.030.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violations of any of the provisions of this chapter.

9.700.030.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 800. MECHANICAL REGULATIONS

Section 9.800.010 Adoption of the 2015 International Mechanical Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Mechanical Code*, 2015 edition, as published by the International Code Council, be and is hereby adopted as the Mechanical Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of mechanical systems as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Mechanical Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.800.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation or in the *International Mechanical Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Section 9.800.020 Amendments, additions, and deletions to the 2015 International Mechanical Code.

9.800.020.1 Amendments. The following section(s) of the 2015 International Mechanical Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *Mechanical Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

[A] 106.5.2 Fee schedule. The fees for mechanical work shall be in accordance with the schedule of fees and charges as established by the jurisdiction having authority.

[A] 106.5.3 Fee refunds. The code official shall authorize the refunding of fees as follows.

1. The full amount of any fee paid hereunder which was erroneously paid or collected.
2. Not more than eighty percent (80%) of the permit fee paid when no work has been done under a permit issued in accordance with this code.
3. Not more than eighty percent (80%) of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The code official shall not authorize the refunding of any fee paid, except upon written application filed by the original permittee not later than 180 days after the date of fee payment.

[A] 108.4 Violation penalties. Any person who shall violate a provision of this code, fail to comply with any of the requirements thereof or erect, install, alter or repair mechanical work in violation of the *approved construction documents* or directive of the code official, or of a permit or certificate issued under provisions of this code, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances. The imposition of one (1) penalty shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

[A] 108.5 Stop work orders. Upon notice from the code official that work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances.

9.800.020.2 Additions. The following section(s) are hereby incorporated and adopted in the 2015 International Mechanical Code:

No sections added.

9.800.020.3 Deletions. The following section(s) of the 2015 International Mechanical Code are omitted and not hereby incorporated:

109.2 Membership of board.

109.2.1 Qualifications.

109.2.2 Alternate members.

109.2.3 Chairman.

109.2.4 Disqualification of member.

109.2.5 Secretary.

109.2.6 Compensation of members.

109.3 Notice of meeting.

109.4 Open hearing.

109.4.1 Procedure.

109.5 Postponed hearing.

109.6 Board decision.

109.6.1 Resolution.

109.6.2 Administration.

109.7 Court review.

9.800.030 Violations.

9.800.030.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violations of any of the provisions of this chapter.

9.800.030.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 900. PLUMBING REGULATIONS

ARTICLE 1. PLUMBING CODE

Sec. 9.900.010 Adoption of the 2015 International Plumbing Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Plumbing Code*, 2015 edition, including Appendix Chapters:

Appendix B, Rates of Rainfall for Various Cities,

Appendix C, Structural Safety,

Appendix D, Degree Day and Design Temperatures, and

Appendix E, Sizing of Water Piping System.

as published by the International Code Council, be and is hereby adopted as the Plumbing Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of Plumbing systems as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Plumbing Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.900.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation or in the *International Plumbing Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Sec. 9.900.020 Amendments, additions, and deletions to the 2015 International Plumbing Code.

9.900.020.1 Amendments. The following section(s) of the 2015 International Plumbing Code are omitted and not hereby incorporated and the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *International Plumbing Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code".

[A] 106.6.2 Fee schedule. The fees for work shall be in accordance with the schedule established by the applicable governing body.

[A] 106.6.3 Fee refunds. The code official shall authorize the refunding of fees as follows:

1. The full amount of any fee paid hereunder which was erroneously paid or collected.
2. Not more than eighty percent (80%) of the permit fee when no work has been done under a permit issued in accordance with this code.
3. Not more than eighty percent (80%) of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The code official shall not authorize the refunding of any fee paid, except upon written application filed by the original permittee not later than 180 days after the date of the fee payment.

[A] 108.4 Violation penalties. Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, or repair plumbing work in violation of the *approved construction documents* or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances. The imposition of one (1) penalty shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violations or defects within reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

[A] 108.5 Stop work orders. Upon notice from the code official that plumbing work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's agent or to the person doing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided in Section 1.100.140 of this Gladstone Code of Ordinances.

305.4.1 Sewer depth. Building sewers shall connect to the City sewage disposal system and shall be installed not less than 36 inches (914 mm) below finished grade.

605.3 Water service pipe. Water service pipe shall be Type K copper and conform to NSF 61 and the standards listed for Type K copper in Table 605.3. Water service pipe or tubing, installed underground and outside of the structure, shall have a working pressure

rating of not less than 160 psi (1100 kPa) at 73.4°F (23°C). Where the water pressure exceeds 160 psi (1100 kPa), piping material shall have a working pressure rating not less than the highest available pressure. Water service piping materials not third-party certified for water distribution shall terminate at or before the full open valve located at the entrance to the structure. All ductile iron water service piping shall be cement mortar lined in accordance with AWWA C104.

TABLE 608.1
APPLICATION OF BACKFLOW PREVENTERS

DEVICE	DEGREE OF HAZARD[a]	APPLICATION[B]	APPLICABLE STANDARDS
Backflow prevention assemblies:			
Double check backflow prevention assembly and double check fire protection backflow prevention assembly	Low hazard	Backpressure or backsiphonage Sizes 3/8"-16"	ASSE 1015, AWWA C510, CSA B64.5, CSA B64.5.1
Double check detector fire protection backflow prevention assemblies	Low hazard	Backpressure or backsiphonage Sizes 2"-16"	ASSE 1048
Double check detector backflow prevention assembly	Low hazard	Back pressure or backsiphonage Sizes "any"	ASSE 1015, AWWA C510, CSA B64.5, CSA B64.5.1
Reduced pressure principle backflow prevention assembly and reduced pressure principle fire protection backflow assembly	High or low hazard	Backpressure or backsiphonage Sizes 3/8"-16"	ASSE 1013, AWWA C511, CSA B64.4, CSA B64.4.1
Reduced pressure detector fire protection backflow prevention assembly	High or low hazard	Backpressure or backsiphonage (Fire sprinkler systems)	ASSE 1047
Reduced pressure principle backflow prevention assembly for carbonated beverage machines	High or low hazard	Backpressure or backsiphonage Sizes 1/4"-3/4"	ASSE 1015, AWWA C510, CSA B64.5, CSA B64.5.1
Reduced pressure principle backflow prevention assembly	High or low hazard	Backpressure or backsiphonage Sizes "any"	ASSE 1013, AWWA C511, CSA B64.4, CSA B64.4.1
Backflow preventer plumbing devices:			
Antisiphon-type fill valves for gravity water closet flush tanks	High hazard	Backsiphonage only	ASSE 1002, CSA B125.3
Hose connection backflow preventer	High or low hazard	Low head backpressure, rated working pressure, backpressure or backsiphonage Sizes 1/2"-1"	ASME A112.21.3, ASSE 1052, CSA B64.2.1.1
Hose connection vacuum breaker	High or low hazard	Low head backpressure or backsiphonage Sizes 1/2", 3/4", 1"	ASME A112.21.3 ASSE 1011, CSA B64.2, CSA B64.2.1
Laboratory faucet backflow preventer	High or low hazard	Low head backpressure and backsiphonage	ASSE 1035, CSA B64.7
Pipe-applied atmospheric-type vacuum breaker	High or low hazard	Backsiphonage only Sizes 1/4"-4"	ASSE 1001, CSA B64.1.1
Vacuum breaker wall hydrants, frost-resistant, automatic-draining-type	High or low hazard	Low head backpressure or backsiphonage Sizes 3/4"-1"	ASME A112.21.3, ASSE 1019, CSA B64.2.2
Other means or methods:			
Air gap	High or low hazard	Backpressure or backsiphonage	ASME A112.1.2
Air gap fittings for us with plumbing fixtures, appliances and appurtenances	High or low hazard	Back pressure or backsiphonage	ASME A112.1.3
Barometric loop	High or low hazard	Backsiphonage only	(See Section 608.13.4)

For SI: 1 inch = 25.4 mm.

a. Low hazard-See Pollution (Section 202).
High hazard-See Pollution (Section 202).

b. See Backpressure, low head (Section 202).
See Backsiphonage (Section 202).

903.1 Roof extension. All open vent pipes that extend through a roof shall be terminated at least 6 inches (152 mm) above the roof. Where a roof is to be used for assembly or as a promenade, observation deck, sunbathing deck or similar purposes, open vent pipes shall terminate not less than 7 feet (2134 mm) above the roof.

9.900.020.2 Additions. The following section(s) are hereby incorporated and adopted in the 2015 International Plumbing Code:

702.3.1 Building sewer pipe for motor fuel-dispensing facilities. *Building sewer* for commercial establishments, which dispense gasoline or similar facilities that have fuel tanks above or below ground, for other than private use, shall use ductile iron pipe Class 50 minimum from the exterior of any structure on the premises to the city sanitary sewer main. The connection at the city sanitary sewer main and at the exterior of the structure on the premises shall be encased in concrete. The pipe shall have standard asphaltic coating on the exterior and shall also have a cement mortar lining on the interior in accordance to the latest revision of ANSI/AWWA C104/A21.4.

The rubber gasket to be used with ductile iron pipe shall be fluorocarbon rubber (FPM) and shall comply with the requirements of ANSI/AWWA C111/A21.11-90.

703.6 Minimum size of building sewer. The building sewer shall not be less than 4 inches (102 mm) in size. In all commercial applications, the building sewer from the exterior of the building to the city sanitary sewer main shall not be less than 6 inches (152 mm) in size.

9.900.020.3 Deletions. The following section(s) of the 2015 International Plumbing Code are omitted and not hereby incorporated.

109.2 Membership of board.
109.2.1 Qualifications.
109.2.2 Alternate members.
109.2.3 Chairman.
109.2.4 Disqualification of member.
109.2.5 Secretary.
109.2.6 Compensation of members.
109.3 Notice of meeting.
109.4 Open hearing.
109.4.1 Procedures.
109.5 Postponed hearing.
109.6 Board decision.
109.6.1 Resolution.
109.6.2 Administration.
109.7 Court review.

Sec. 9.900.030 Permits.

9.900.030. Permits issued. Permits shall be issued only to persons holding a valid certificate and license issued pursuant to article 2 of this chapter.

Exception: A permit may be issued to any person to do work regulated by this chapter in a dwelling unit as defined in the 2015 *International Residential Code*, provided that the person is a bona fide owner of such dwelling unit and that the same is or will be occupied by such bona fide owner.

Sec. 9.900.040 Violations.

9.900.040.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any provisions of this chapter.

9.900.040.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of the City of Gladstone, Clay County, Missouri, Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

ARTICLE 2. PLUMBERS AND PLUMBING CONTRACTORS

Sec. 9.900.050 Definitions.

9.900.050.1 Scope. Unless otherwise expressly stated, the following terms shall, for the purpose of this chapter, have the meaning shown in this section.

9.900.050.2 Interchangeability. Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

9.900.050.3 Terms defined in other codes. Where terms are not defined in this article and are defined in the *2015 International Codes*, as adopted by the City of Gladstone, Clay County, Missouri, such terms shall have the meanings ascribed to them as in those codes.

9.900.050.4 Term not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

APPROVED. Acceptable to the building official or other authority having jurisdiction.

APPROVED AGENCY. An established and recognized agency approved by the building official and that is regularly engaged in conducting test or furnishing inspection services.

BONA FIDE OWNER. The person or persons having legal ownership.

BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this article, or a duly authorized representative.

MASTER PLUMBER. A person licensed by the city under this article as a master plumber, who possesses the ability to direct other persons in the installation of plumbing equipment, is skilled in planning, designing and installing plumbing materials and has thorough knowledge of the accepted standards, principles and art of plumbing materials to safeguard life or limb, health, property and public welfare.

OWNER. Any person, co-partnership, agent, operator, firm, association, corporation or fiduciary having a legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding title to the property; or otherwise having control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

PLUMBER. A person who installs and repairs piping, fixtures, appliances, and appurtenances in connection with the water supply, drainage systems, etc., both in and out of buildings.

PLUMBING CONTRACTOR. A person or firm, engaged in the business of installing or repairing piping, fixtures, appliances, and appurtenances in connection with the water supply, drainage systems, etc., both in and out of buildings; and who is or employs a licensed master plumber in a managerial capacity.

Sec. 9.900.060 Certification and license required; exceptions.

It is unlawful for any person to conduct, carry on or engage in the business as a plumber or plumbing contractor without having first been issued a valid master plumber license and certification of qualifications by the building official.

Exceptions:

1. Work done under the employment and supervision of a master plumber.
2. Work done under the employment of a plumbing contractor which is owned by a master plumber.
3. Work done under the employment of a plumbing contractor which employs a master plumber in a managerial capacity.
4. Work is done in compliance with section 9.900.030.

Sec. 9.900.070 Application for certificate and license; issuance.

9.900.070.1 Application. Application for a master plumber's certificate and license shall be made in writing on forms provided by the city to the board of plumbing examiners. The application shall state the applicant's name, mailing address, general qualifications and other data pertinent to the issuance of such certificate and license.

9.900.070.2 Eligibility. A master plumber's certificate and license may be issued to:

1. A person who has taken and passed an approved examination pursuant to section 9.900.090 and who has been certified by the board of plumbing examiners as a qualified master plumber.
2. A person currently holding a valid master plumber's license issued by a county or city whose requirements relating to the issuance of such certificates and license of qualifications are equivalent to the provisions of this article, as determined by the board of plumbing examiners; provided that no waiver of examination shall be made to any person certified and licensed by a county or city which does not have in force the current addition of the *International Plumbing Code.*

9.900.070.3 Duration. All certificates and licenses shall be valid for a period of one (1) year starting at the beginning of the city's fiscal year (July 1), except that the first certificate and license granted shall extend from the date issued to the end of the city's fiscal year (June 30).

9.900.070.4 Renewal. Certificates and licenses currently issued may be renewed on or before July 1, next following expiration, upon payment of a renewal fee, in accordance with the city "Schedule of Fees and Charges", as amended, without further examination, unless request for examination is made by the board of plumbing examiners, in which case the applicant must take and pass an approved examination pursuant to section 9.900.090. If any certificate and license is not renewed on or before the renewal day (July 1), the applicant may be required to meet the requirements as set forth in section 9.900.070.1 and 9.900.070.2.

9.900.070.5 Transferability. Certificates and licenses are not transferable from one person to another person.

Sec. 9.900.080 Examination of applicant.

Applicants applying for a master plumber's certificate and license who shall show proof to the board of plumbing examiners that they have passed an approved examination for master plumber, or have passed an equivalent or more stringent test as determined by the board of plumbing examiners, shall be eligible for a master plumber's certificate and license.

Sec. 9.900.090 Occupational license.

The certificate and license provided for in this article shall in no way affect the duty to obtain any and all occupational licenses required by other laws or ordinances of the city. A separate occupational license shall not be required if the master plumber is not the owner of a plumbing contracting firm. However, every plumbing contractor shall have a valid occupational license before performing plumbing work within the city.

Sec. 9.900.100 Board of plumbing examiners.

9.900.100.01 Creation of board. The board of plumbing examiners is hereby created and the official in charge thereof shall be the city manager.

9.900.100.02 Membership of board. The board of plumbing examiners shall consist of three persons as follows:

1. The city manager or the city manager's designee;
2. The building official; and
3. The deputy of the building official.

9.900.100.3 Approval. All votes of business of the board shall require a concurring vote of two-thirds of its members. A vote equal to a quorum is required to pass or deny any request. A quorum shall consist of a simple majority of board members.

9.900.100.4 Rules and procedures. The board is authorized to establish policies and procedures necessary to carry out its duties.

9.900.100.5 Revocation or suspension of certificate and license. If it is determined that a person who has been issued a certificate and license of qualification under this article is incompetent or lacks knowledge on matters relevant to such certificate, or it is determined that the certificate and/or license was obtained by fraud or based on inaccurate or incomplete information, the board, after hearing thereon, may cancel, suspend, or revoke the certificate and license of qualification issued to such person; provided that such person shall be given ten (10) days written notice thereof prior to the time fixed for the hearing, which notice shall specify the time, place, purpose and grounds for such hearing, so that such person may have any opportunity to have counsel present and produce witnesses in their behalf. A person who has such person's own certificate and license of qualification canceled, suspended, or revoked shall have the

right to appeal the board's decision to the city council within seven business days of the board's decision by filing a written protest with the city clerk. If the certificate and license of qualification of any person is so canceled, suspended, or revoked, another certificate shall not be granted until the board reinstates such person.

Sec. 9.900.110 Violations.

9.900.110.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any provisions of this chapter.

9.900.110.2 Violation penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate of permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of the City of Gladstone, Clay County, Missouri Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 1000. PROPERTY MAINTENANCE REGULATIONS

Section 9.1000.010 Adoption of the 2015 International Property Maintenance Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Property Maintenance Code,* 2015 edition including Appendix Chapters:

Appendix A, Boarding Standard.

as published by the International Code Council, be and is hereby adopted as the Property Maintenance Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the conditions and maintenance of all property, buildings and *structures*; by providing the standards for supplied utilities and facilities and other physical things and conditions essential to ensure that *structures* are safe, sanitary and fit for occupation and use; and the condemnation of buildings and *structures* unfit for human occupancy and use, and the demolition of such existing *structures* as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Property Maintenance Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in the legislation, with the amendments, additions, and deletions, if any, prescribed in Section 9.1000.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason, held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

That nothing in this legislation or in the *International Property Maintenance Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this legislation.

Section 9.1000.020 Amendments, additions, and deletions to the 2015 International Property Maintenance Code.

9.1000.020.1 Amendments. The following section(s) of the 2015 International Property Maintenance Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

[A] 101.1 Title. These regulations shall be known as the *International Property Maintenance Code* of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

[A] 103.5 Fees. The fees for activities and services performed by the department in carrying out its responsibilities under this code shall be in accordance with the schedule of fees and charges as adopted by the City of Gladstone, Clay County, Missouri.

[A] 111.1 Application for appeal. Any *person* directly affected by a decision of the *code official* or a notice or order issued under this code shall have the right to appeal to the Board of Zoning and Adjustments (BZA), provided that a written application for appeal is filed within the time frame given to abate the violation(s) or twenty (20) days, whichever comes due first. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or the requirements of this code are adequately satisfied by other means.

[A] 112.4 Failure to comply. Any *person* who shall continue any work after having been served with a stop work order, except such work as the *person* is directed to perform to remove a violation or unsafe condition, shall be liable to a fine of not less than fifty ($50.00) dollars or more than five-hundred ($500.00) dollars.

SECTION 202
GENERAL DEFINITIONS

ACCESSORY LIVING QUARTERS. An accessory building used solely as the temporary *dwelling* of guests of the *occupant*(s) of the *premises*; such *dwelling* having no *kitchen* facilities and not rented or otherwise used as a separate *sleeping unit*.

ACCESSORY USE. A use conducted on the same lot as the primary use of the structure to which it is related; a use that is clearly incidental to, and customarily found in connection with, such primary use.

ADDITION. An extension or increase in floor area or height of a building or structure.

ALLEY. Any *public way* or thoroughfare more than 10 feet (3048 mm), but less than 16 feet (4877 mm) in width, which has been dedicated to the public for public use.

ALTERATION. Any construction or renovation to an existing structure other than repair or addition that requires a *permit*. Also, a change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a *permit*.

ANCHORED. Secured in a manner that provides positive connection.

APPROVED. Acceptable to the *building official* or authority having jurisdiction.

ATTIC. The unfinished space between the ceiling assembly of the top *story* and roof assembly.

ATTIC, HABITABLE. A finished or unfinished area, not considered a *story*, complying with all of the following requirements.

1. The occupiable floor area is at least 70 square feet (17 m^2), in accordance with Section R304 of the 2015 International Residential Code.
2. The occupiable floor area has a ceiling height in accordance with Section R305 of the 2015 International Residential Code.
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.

BASEMENT. That portion of a building which is partly or completely below grade.

BATHROOM. A room containing plumbing fixtures including a bathtub or shower.

BEDROOM. Any room or space used or intended to be used for sleeping purposes in either a *dwelling* or *sleeping unit*.

BLIGHTED. Any *structure* or *premises*, which by reason of dilapidation, overcrowding, lack of ventilation, light or sanitary facilities, or any combination of these factors are detrimental to safety, health and morals.

BOARD, THE. The Board of Zoning Adjustments (BZA) of the City of Gladstone, Clay County, Missouri.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING, MAIN. A building in which the principal use of the site is conducted.

BUILDING HEIGHT. The vertical distance above the average existing *grade* measured to the highest point of the building. The height of a stepped or terraced building shall be the maximum height of any segment of the building.

BUILDING LINE. The line established by law, beyond which a *building* shall not extend, except as specifically provided by law.

BUILDING OFFICIAL. The official or other designated authority who is charged with the administration and enforcement of this code, or any duly authorized representative.

CANOPY. A roofed structure constructed of fabric or other material supported by the *building* or by support extending to the ground directly under the *canopy* placed so as to extend outward from the building providing a protective shield for doors, windows and other openings.

CITY. The City of Gladstone, Clay County, Missouri.

CODE OFFICIAL. See definition for "*Building Official*."

COMPOST. A mixture consisting usually of decayed organic matter and used for fertilization and conditioning land, especially such mixture produced by decomposition in a *compost pile*.

COMPOST BIN. A *structure* specifically built to store *compost*.

COMPOST PILE. A stack of alternating layers of organic matter arranged so as to encourage conversion of the constituents into *compost*.

CONDEMN. To adjudge unfit for *occupancy*.

CONDOMINIUM. A single-dwelling unit in a multiunit dwelling or structure, that is separately owned and may be combined with an undivided interest in the common areas and facilities of the property.

CONGREGATE RESIDENCE. Any building or portion thereof containing facilities for living, sleeping and sanitation as required by this code, and may include facilities for eating and cooking for occupancy by other that a family. A *congregate residence* shall be permitted to be shelter, convent, monastery, dormitory, fraternity or sorority house, but does not include jails, hospitals, nursing homes, hotels or lodging houses.

COST OF SUCH DEMOLITION OR EMERGENCY. The costs shall include the actual costs of the demolition or repair of the structure less revenues obtained if salvage was conducted prior to demolition or repair. Costs shall include, but not be limited to, expenses incurred or necessitated related to demolition or emergency repairs, such as asbestos survey and abatement if necessary; costs of inspectors, testing agencies or experts retained relative to the demolition or emergency repairs; costs of testing; surveys for other materials that are controlled or regulated from being dumped in a landfill; title searches; mailing(s); postings; recording; and attorney fees expanded for recovering of the cost of emergency repairs or to obtain or enforce an order of demolition made by a *code official*, the governing body or board of appeals.

COURT. A space, open and unobstructed to the sky, located at or above *grade* level on a lot and bounded on three or more sides by walls of a building.

DEBRIS. The remains of something broken down or destroyed; and/or discarded *garbage* or *rubbish*.

DETACHED. When a structural element is physically disconnected from another and that connection is necessary to provide a positive connection.

DETERIORATION. To weaken, disintegrate, corrode, rust or decay and lose effectiveness.

DRIVEWAY. A private access road, the use of which is limited to persons residing, employed, or otherwise using or visiting the *premises* in which it is located.

DRIVEWAY APPROACH. That portion of the *driveway* that is located in the *city right-of-way*.

DWELLING. Any building that contains one or two *dwelling units* used, intended, or designed to be built, used, rented, leased, *let* or hired out to be occupied, or that are occupied for living purposes.

DWELLING, MULTIPLE UNIT. A building or portion thereof designed for occupancy by three or more families living independently in which they may or may not share common entrances and/or other spaces. Individual dwelling units may be owned as condominiums, or offered for rent.

DWELLING, SINGLE FAMILY. A detached *dwelling unit* with *kitchen* and sleeping facilities, designed for occupancy by one family.

DWELLING, TWO FAMILY. A building designed or arranged to be occupied by two families living independently, with the structure having only two dwelling units.

[B] DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

DWELLING UNIT OR SLEEPING UNIT, MULTI-STORY. See definition for "*Multistory Unit*."

[Z] EASEMENT. That portion of land or property reserved for present or future use by a person or agency other than the legal fee *owner*(s) of the property. The *easement* shall be permitted to be for use under, on or above a said lot or lots.

EMERGENCY ESCAPE AND RESCUE OPENING. An operable exterior window, door or similar device that provides for a means of escape and access for rescue in the event of an emergency.

EQUIPMENT SUPPORT. Those structural members or assemblies of members or manufactured elements, including brace, frames, lugs, snuggers, hangers saddles, that transmit gravity load, lateral load and operating load between the equipment and the structure.

EXTERIOR PROPERTY. The open space on the *premises* and on adjoining property under the control of *owners* or *operators* of such *premises*.

EXTERIOR WALL. An above-*grade* wall that defines the exterior boundaries of a building. Includes between-floor spandrels, peripheral edges of floors, roof and *basement*

knee walls, dormer walls, gable and end walls, walls enclosing a mansard roof and *basement walls* with an average below-*grade* wall area that is less than 50 percent of the total opaque and nonopaque area of that enclosing side.

EXTERMINATION. The control and elimination of insects, rats or other pests by eliminating their harborage places; by removing or making inaccessible materials that serve as their food; by poison spraying, fumigating, trapping or by any other approved pest elimination methods.

FACE OF BUILDING, PRIMARY. The wall of a building fronting on a street or right-of-way, excluding any appurtenances such as projecting fins, columns, pilasters, canopies, marquees, showcases or decorations.

FLIGHT. A continuous run of rectangular treads or *winders* or combination thereof from one landing to another.

FRONTAGE. The width of a lot or parcel abutting a public right-of-way measured at the front property line.

GARAGE, PRIVATE. A building or a portion of a building, in which only private or pleasure-type *motor vehicles* used by the tenants of the building or buildings on the premises are stored or kept.

GARBAGE. The animal or vegetable waste resulting from the handling, preparation, cooking and consumption of food.

GRADE. The finished ground level adjoining the building at all *exterior walls*.

GROSS COMBINATION WEIGHT RATING (GCWR). The value specified by the manufacturer as the loaded weight of a combination (articulated) motor vehicle. In the absence of a value specified by the manufacturer, GCWR will be determined by adding the GVWR of the power unit and the total weight of the towed unit and any load thereon.

GROSS VEHICLE WEIGHT RATING (GVWR). The value specified by the manufacturer as the loaded weight of a single motor vehicle.

[B] GUARD. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimize the possibility of a fall from the walking surface to a lower level.

[B] HABITABLE SPACE. Space in a structure for living, sleeping, eating or cooking. *Bathrooms, toilet rooms*, closets, halls, storage or utility spaces, and similar areas are not considered *habitable spaces*.

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

HISTORIC BUILDING. Any building or structure that is one or more of the following:

1. Listed or certified as eligible for listing, by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register or state or local designated historic district.

HOME OCCUPATION. The partial use of a home for commercial or nonresidential uses by a resident thereof, which is subordinate and incidental to the use of the dwelling for residential purposes.

HOT TUB. See definition for "*Swimming Pool.*"

HOUSEKEEPING UNIT. A room or group of rooms forming a single *habitable space* equipped and intended to be used for living, sleeping, cooking and eating which does not contain, within such a unit, a toilet, lavatory and bathtub or shower.

IMMINENT DANGER. A condition which could cause serious or lift-threatening injury or death at any time.

INCLINED WALKING SURFACE. A walking surface that has a running slope not steeper than 1 unit vertical in 20 units horizontal and is not parallel to adjacent grade.

INFESTATION. The presence, within or contiguous to, a structure or *premises* of insects, rats, vermin or other pests.

JURISDICTION. The governmental unit that has adopted this code under due legislative authority.

KITCHEN. Any room or portion of a room within a building used, or designed and intended to be used, for the cooking or preparation of food.

[A] LABELED. Equipment, materials or products to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-*labeled* items and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

LANDSCAPING. The finishing and adornment of unpaved *yard* areas. Materials and treatment generally include naturally growing elements such as grass, trees, shrubs and flowers. This treatment shall be permitted also to include the use of logs, rocks, fountains, water features and contouring of the earth.

LET FOR OCCUPANCY or LET. To permit, provide or offer possession or *occupancy* of a *dwelling unit*, *rooming unit*, building, premise or structure by a person who is or is not the legal *owner* of record thereof, pursuant to a written or unwritten lease, agreement, or license, or pursuant to a recorded or unrecorded agreement of contract for the sale of land.

LIVING SPACE. Space within a *dwelling unit* utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

LODGING HOUSE. A one-family dwelling where one or more occupants are primarily permanent in nature, and rent is paid for guestrooms.

LOT. A portion or parcel of land considered as a unit.

LOT LINE. A line dividing one *lot* from another, or from a street or any public place.

MEDIA, SOCIAL. Forms of electronic, digital, computerized or networked information and communication technologies through which users create online communities to share information, ideas, personal messages and other content. These can take many different forms, including internet forums, blogs, wikis, podcasts, and picture-, music- and video-sharing. Examples of social media applications are Google Groups, Wikipedia, My Space, Facebook, Craigslist, YouTube, Second Life, Flickr and Twitter.

MEDIA, TRADITIONAL. Communications that existed before *social media* such as television, radio, newspapers, magazines, newsletters, tax press and other print publications.

MOTOR VEHICLE. Any vehicle, automobile, automobile truck, automobile wagon, motorcycle, machine, tractor, trailer or semi-trailer propelled or drawn by mechanical power and used upon public streets in the transportation of passengers or property, or any combination thereof, but does not include any vehicle, locomotive, or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

MOTOR VEHICLE, BUS. Any *motor vehicle* designed, constructed and/or used for the transportation of passengers, including taxicabs.

MOTOR VEHICLE, COMMERCIAL. Any self-propelled or towed *motor vehicle* for use or used upon streets, highways, road, etc. in interstate and local commerce to transport passengers or property when the vehicle–

1. Has a *gross vehicle weight rating*, *gross combination weight rating*, gross vehicle weight or gross combination weight of 10,001 pounds (4,536 kg) or more, whichever is greater; or
2. Is designed or used to transport more than 8 passengers, including the driver, for compensation; or

3. Is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation; or
4. Is used in transporting material found by the Secretary of Transportation to be hazardous under 49 U.S.C. 5103 and transported in a quantity requiring placarding under regulations prescribed by the Secretary of Transportation under 49 CFR, subtitle B, Chapter 1, subchapter C.

MOTOR VEHICLE, INOPERABLE. A *motor vehicle*, which cannot be driven upon the public streets for reason including but not limited to being unlicensed, wrecked, abandoned, in a state of disrepair, a flat tire or incapable of being moved under its own power.

MOTOR VEHICLE, SCHOOL BUS. A passenger *motor vehicle* which is designed or used to carry more than 10 passengers in addition to the driver, and which the Secretary of Transportation determines is likely to be significantly used for the purpose of transporting preprimary, primary, or secondary school students to such schools from home and from such schools to home.

MOTOR VEHICLE, TRUCK. Any self-propelled *commercial motor vehicle* except a *truck tractor motor vehicle*, designed and/or used for the transportation of property

MOTOR VEHICLE, TRUCK TRACTOR. A self-propelled *commercial motor vehicle* designed and/or used primarily for drawing other vehicles.

MOTOR VEHICLE, UNLICENSED. A motor vehicle that is not validly registered under the laws of the State of Missouri, other jurisdictions or does not display valid license plates.

MULTISTORY UNIT. A *dwelling unit* or *sleeping unit* with *habitable space* located on more than one story.

NEGLECT. The lack of proper maintenance for a building or *structure*.

[A] OCCUPANCY. The purpose for which a building or portion thereof is utilized or occupied.

OCCUPANT. Any individual living or sleeping in a building, or having possession of a space within a building.

OPEN SPACE. Land areas that are not occupied by buildings, structures, parking areas, streets, alleys or required yards. *Open space* shall be permitted to be devoted to *landscaping*, preservation of natural features, patios and recreational areas and facilities.

OPENABLE AREA. That part of a window, skylight or door which is available for unobstructed *ventilation* and which opens directly to the outdoors.

OPERATOR. Any person who has charge, care or control of a structure or *premises* which is let or offered for *occupancy*.

[A] OWNER. Any person, agent, *operator*, firm or corporation having a legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding title to the property; or otherwise having control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

PARK. A public or private area of land, with or without buildings, intended for outdoor active or passive recreational uses.

PARKING AREA. See definition for "*Paved Area.*"

PARKING LOT. An open area, other than a street, used for the parking of *motor vehicles*.

PARKING SPACE, MOTOR VEHICLE. A space within a building or private or public parking lot, exclusive of driveways, ramps, columns, office and work areas, for the parking of a *motor vehicle*.

PAVED AREA. A hard surfaced area consisting of concrete, asphalt or other *approved* materials.

PERMIT. An official document or certificate issued by the authority having *jurisdiction* that authorizes performance of a specified activity.

PERSON. An individual, corporation, partnership or any other group acting as a unit.

PERSONAL PROPERTY. Property other than real property consisting of things temporary or movable.

PEST ELIMINATION. The control and elimination of insects, rodents or other pests by eliminating their harborage places; by removing or making inaccessible materials that serve as their food or water; or by other *approved pest elimination* methods.

[A] PREMISES. A lot, plot or parcel of land, *easement* or *public way*, including any structures thereon.

[A] PUBLIC WAY. Any street, alley or similar parcel of land essentially unobstructed from the ground to the sky, which is deeded, dedicated or otherwise permanently appropriated to the public for public use.

RAMP. A walking surface that has a running slope steeper than 1 unit vertical in 20 units horizontal (5-percent slope).

RIGHTS-OF-WAY. The area on, below or above a public roadway, streets, alleys, bridges, bikeways, parkways and sidewalks in which the city has an ownership interest but not including; (a) the airways above a public rights-of-way with regards to cellular or other non-wire telecommunications or broadcast service; (b) easements obtained by utilities or private easements in platted subdivisions or tracts; or (c) poles, pipes, cables, conduits, wires, optical cables or other means of transmission, collection or exchange of communications, information, substances, data or electronic or electrical current or impulses utilized by a municipally owned or operated utility pursuant to Chapter 91, RSMo, or pursuant to a charter form of government.

RISER. The vertical component of a step or *stair*.

ROOMING HOUSE. A building arranged or occupied for lodging, with or without meals, for compensation and not occupied as a one- or two-family dwelling.

ROOMING UNIT. Any room or group of rooms forming a single habitable unit occupied or intended to be occupied for sleeping or living, but not for cooking purposes.

RUBBISH. Combustible and noncombustible waste materials, except garbage; the term shall include the residue from the burning of wood, coal, coke and other combustible materials, paper, rags, cartons, boxes, wood, excelsior, rubber, leather, tree branches, *yard* trimmings, tin cans, metal, mineral matter, glass, crockery and dust and other similar materials.

[B] SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating and either sanitation or kitchen facilities, but not both. Such rooms and spaces that are also part of a *dwelling unit* and not *sleeping unit*.

SOCIAL NETWORKING. See definition for "*Media, Social.*"

SPA. See definition for "*Swimming Pool.*"

STAIR. A change in elevation, consisting of one or more *risers*.

STAIRWAY. One or more *flights* of *stairs*, either interior or exterior, with the necessary landings and platforms connecting them to form a continuous and uninterrupted passage from one level to another within or attached to a building, porch or deck.

STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above.

STREET. Any thoroughfare or *public way* not less than 16 feet (4877 mm) in width which has been dedicated.

STREET, PRIVATE. A right-of-way or *easement* in private ownership, not dedicated or maintained as a public street, which affords the principal means of access to two or more sites.

STREET, PUBLIC. Any street, road or way dedicated to public use.

STRICT LIABILITY OFFENSE. An offense in which the prosecution in a legal proceeding is not required to prove criminal intent as a part of its case. It is enough to prove that the defendant either did an act, which was prohibited, or failed to do an act, which the defendant was legally required to do.

[A] STRUCTURE. That which is built or constructed or a portion thereof.

SWIMMING POOL. Any structure that contains water over 24 inches (610 mm) in depth and which is used, or intended to be used for swimming or recreational bathing. This includes in-ground, above-ground, and on-ground swimming pools, hot tubs and spas.

SWIMMING POOL, ABOVE-GROUND/ON-GROUND. See definition for "*Swimming Pool.*"

SWIMMING POOL, IN-GROUND. See definition for "*Swimming Pool.*"

SWIMMING POOL, PRIVATE. Any *swimming pool* used in connection with an occupancy in Use Group R-3 and which is available only to the family and guests of the householder.

SWIMMING POOL, PRIVATE INDOOR. Any *private swimming pool* that is totally contained within a private structure and surrounded on all four sides by walls of said structure.

SWIMMING POOL, PRIVATE OUTDOOR. Any *private swimming pool* that is not an indoor pool.

SWIMMING POOL, PUBLIC. Any *swimming pool* other than a *private swimming pool.*

TENANT. A person, corporation, partnership or group, whether or not the legal *owner* of record, occupying a building or portion thereof as a unit.

TOILET ROOM. A room containing a water closet or urinal but not a bathtub or shower.

TOWNHOUSE. A single-family *dwelling unit* constructed in a group of three or more attached units in which each unit extends from foundation to roof and with a *yard* or public way on a least two sides.

TRAILER. A unit attached to a *motor vehicle* designed to carry property and/or passengers. A trailer cannot be motorized or self-operated. A trailer may include, but is not limited to the following; homemade, kit, farm wagon, boat, utility, flat bed, semi, livestock and camping.

ULTIMATE DEFORMATION. The deformation at which failure occurs and which shall be deemed to occur if the sustainable load reduces to 80 percent or less of the maximum strength.

UNSHELTERED STORAGE. Any *personal property* not stored in or under a structure such as a shed, carport, garage or deck that is permanent in nature.

[M] VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

WEEDS. All grasses, annual plants and vegetation, other than trees or shrubs provided; however, this term shall not include cultivated flowers and gardens.

WEEDS, NOXIOUS. A noxious weed is an invasive species of a plant that has been designated by the country, state or national agricultural authorities as one that is injurious to agricultural and/or horticultural crops, natural habitats and/or ecosystems, and/or humans or livestock.

WINDER. A tread with nonparallel edges.

WORKMANLIKE. Executed in a skilled manner; e.g., generally plumb, level, square, in line, undamaged and without marring adjacent work.

[Z] YARD. An open space on the same lot with a structure.

302.4 Weeds. All *premises* and *exterior property* shall be maintained free from *weeds* or plant growth in excess of ten (10) inches. On undeveloped property, *weeds* or plant growth shall be maintained a minimum of one hundred (100) feet from all adjacent lot lines. All *noxious weeds* shall be prohibited.

Upon failure of the *owner* or agent having charge of a property to cut and destroy weeds after the service of a notice of violation, they may be subject to prosecution in accordance with Section 106.3 and as prescribed by the authority having jurisdiction. Upon failure to comply with the notice of violation, any duly authorized employee of the jurisdiction or contractor hired by the jurisdiction shall be authorized to enter upon the property in violation and cut and destroy the weeds growing thereon, and the cost of such removal and administration fees shall be paid by the *owner* or agent responsible for the property. If not paid by *owner* or agent responsible for the property, the cost of such abatement and other associated costs shall be assessed on the *owner's* property tax notice.

Exception: Premises adjacent to a stream may allow weeds or plant growth to grow beyond the height of ten (10) inches within ten (10) feet of the edge of the stream.

302.7 Accessory *structure*. All accessory structures, including but not limited to, *detached* garages, carports, gazebos, decks, platforms, sheds, lean-tos, retaining walls, fences and walls, shall be maintained structurally sound and in good repair.

302.8 Motor vehicles. Except as provided for in other regulations, no motor vehicle that is inoperative, unlicensed or has expired registration tags shall be parked, kept or stored on any *premises*, and no vehicle shall be at any time in a state of major disassembly, disrepair, or in the process of being stripped or dismantled. Painting of vehicles is prohibited unless conducted inside an *approved* spray booth.

Exception: A vehicle of any type is permitted to undergo major overhaul, including bodywork, provided that such work is performed inside a structure or similarly enclosed area designed and *approved* for such purpose.

[F] 304.3 Premises identification. Buildings shall have *approved* address numbers placed on the primary structure and in a position to be plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (102 mm) in height with a minimum stroke width of 0.5 inch (12.7 mm).

304.14 Insect screens. Every door, window and other outside opening required for *ventilation* of habitable rooms, food preparation areas, food service areas or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged or stored shall be supplied with *approved* tightly fitting screens of minimum 16 mesh per inch (16 mesh per 25 mm), and every screen door used for insect control shall have a self-closing device in good working condition.

Exception: Screens shall not be required where other *approved* means, such as air curtains or insect repellent fans, are employed.

308.2.1 Rubbish storage facilities. The *owner*, *tenant* and/or *occupant* of every occupied *premises* shall supply *approved* covered containers for *rubbish*, and the *owner*, *tenant* and/or *occupant* of the *premises* shall be responsible for the removal of *rubbish*.

308.3.1 Garbage facilities. The *owner* of every dwelling shall supply one of the following: an *approved* mechanical food waste grinder in each *dwelling unit*; an *approved* incinerator unit in the structure available to the *occupants* in each *dwelling unit*; or the *owner*, *tenant* and/or *occupant* shall supply *approved* leakproof, covered, outside garbage container; and the *owner*, *tenant* and/or *occupant* of the dwelling shall be responsible for the removal of *garbage*.

602.3 Heat supply. Every *owner* and *operator* of any building who rents, leases or lets one or more *dwelling units* or *sleeping units* on terms, either expressed or implied, to

furnish heat to the *occupants* thereof shall supply heat to maintain a minimum temperature of 68°F (20°C) in all habitable rooms, *bathrooms* and *toilet rooms*.

Exceptions:

1. When the outdoor temperature is below the winter outdoor design temperature for the locality, maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity. The winter outdoor design temperature for the locality shall be as indicated in Appendix D of the *International Plumbing Code*.
2. In areas where the average monthly temperature is above 30°F (-1°C) a minimum temperature of 65°F (18°C) shall be maintained.

602.4 Occupiable work spaces. Indoor occupiable work spaces shall be supplied with heat to maintain a minimum temperature of 65°F (18°C) during the period the space is occupied.

Exceptions:

1. Processing, storage and operation areas that require cooling or special temperature conditions.
2. Areas in which persons are primarily engaged in vigorous physical activities.

9.1000.020.2 Additions. The following section(s) are hereby incorporated and adopted in the 2015 International Property Maintenance Code:

302.4.1 Weeds in public rights-of-way. All *premises* and *exterior property* adjacent to the City of Gladstone, Clay County, Missouri or the State of Missouri's public rights-of-way along improved and/or unimproved streets shall comply with the requirements of Section 302.4, and adjacent property *owner* shall be responsible for seeding, sodding and plantings.

Exception: Any property along a public rights-of-way that contains a drainage ditch or incline, which cannot be mowed or maintained by normal residential mower or weed removal tool(s) as determined by the *building official*.

302.8.1 Parking on paved area. All motor vehicles shall be parked on an *approved driveway*, *parking area* or *paved area* that has a minimum thickness of 4 inches (101 mm) of either concrete, asphalt or other similar *approved* materials. Such parking or paved area shall be at least as long and wide and encompass the entire area beneath any and all vehicles that are parked on said parking or paved area.

Exception: Existing gravel *driveways* classified as an *approved* existing non-conforming *driveway*.

302.8.2 Commercial vehicle. No *person* shall park or allow to be parked a commercial vehicle upon any residential lot or premises, improved or unimproved, in the city.

Exceptions:

1. City-owned and –operated vehicles; services vehicles owned by utility companies while in the process of services or maintenance; construction vehicles while being used in conjunction with construction or maintenance authorized by the jurisdiction having authority.
2. For the purpose of making delivery or pickup provided such vehicles are not left continuously parked between the hours of 9:00pm and 7:00am local time.
3. Pickup trucks rated at 1-ton (907 kg) or more that are owned and operated for the personal use, non-business related, of the individual who owns said pickup truck.

302.8.3 Motor vehicles for sale. Except as provided for herein no one shall park or allow to be parked a *motor vehicle* on private or public property zoned residential, commercial or manufacturing within view of a public street for the purpose of selling or advertising for sale, said *motor vehicle*.

Exceptions:

1. In residential zoned properties, one (1) *motor vehicle* shall be allowed to be placed on an approved paved area for the purpose of offering said *motor vehicle* for sale. No residential property shall be allowed more than four (4) *motor vehicles* for sale in a calendar year.
2. In commercial and manufacturing zoned properties, if a *person* with an ownership interest in said *motor vehicle* is an employee of a business within said property and has written permission from the property *owner* to use the property for the purpose of selling, or has a valid occupational license from the City of Gladstone, Clay County, Missouri for the sale of *motor vehicles* and said occupational license designating the *premises* involved as the business location.

   Whether or not permission has been given to park on the property is an affirmation defense, and the showing of written permission and proof of employment meet the burden of proof.

302.8.3.1 Prima facie evidence. The fact that a "For Sale" sign, telephone number(s), or other advertising appears on the *motor vehicle* or the motor vehicle is advertised in any *traditional media* or *social media* shall be prima facie evidence that the *motor vehicle* is parked for the purpose of being offered for sale.

302.8.4 Motor vehicle encroachment. No *motor vehicle* shall block or partially block any portion of the public sidewalk, or access pathway for public sidewalks at driveway approaches within the City of Gladstone, Clay County, Missouri rights-of-ways.

302.10 Open storage. All *exterior property* and *premises*, open bed pickup trucks and open trailers located on any *premises*, *private street* or *public street* shall be free of *unsheltered storage* of any kind.

Exception: Useable BBQ grills as long as there is not a collection thereof, lawn furniture maintained in useable condition, bicycles maintained in operational use as long as there is not a collection thereof, firewood neatly stacked in the rear yard, and the temporary storage of landscape and building materials to be used on the *premises* for a current project under construction so long as the materials are neatly stacked in the rear yard and are not stored leaning against the side of a structure.

308.2.3 Burning. No *person* shall burn or allow to be burned any *rubbish* within city limits.

308.2.4 Streets. No *person* shall cart, place, sweep, throw, deposit or dispose in such a manner that it may be carried or deposited by the elements any *rubbish* upon streets, sidewalks, alleys, storm sewers, parkways, or other public place or upon any occupied *premises* with city limits.

308.2.5 Stream. No *person* shall cart, place, sweep, throw, deposit or dispose in such a manner that it may be carried or deposited by the elements any *rubbish* upon streams, lakes, bodies of water or ravines within city limits.

308.3.3 Burning. No *person* shall burn or allow to be burned any *garbage* within city limits.

308.3.4 Streets. No *person* shall cart, place, sweep, throw, deposit or dispose in such a manner that it may be carried or deposited by the elements any *garbage* upon streets, sidewalks, alleys, storm sewers, parkways, or other public place or upon any occupied premises with city limits.

308.3.5 Stream. No *person* shall cart, place, sweep, throw, deposit or dispose in such a manner that it may be carried or deposited by the elements any *garbage* upon streams, lakes, bodies of water or ravines within city limits.

308.4 Disposal of contagious disease and inflammable or explosive rubbish and garbage. Removal of wearing apparel, bedding or other *rubbish* or *garbage* from homes or other places where highly infectious or contagious diseases prevail shall be performed under the supervision and direction of the county health office. Such *rubbish* and *garbage* shall not be placed in containers used for regular collections or disposal.

Highly inflammable or explosive materials shall not be placed in containers for collection but shall be disposed of as directed by the Director of Public Safety at the expense of the *owner* or possessor thereof.

308.5 Storage and screening of trash containers. All containers and bags used for the purpose of disposing *rubbish* and *garbage* shall be stored no closer to the public streets than the front building line; for corner lots all containers shall be stored no closer to the public streets than the front building line and side building line adjacent to the street of any premises. In either case, no container or bag shall be stored in front of the main

building and/or attached garage; in addition corner lots shall not have containers stored on the side of the main building and/or attached garage adjacent to the street.

Exception: On the day of scheduled pickup, during which contained *rubbish* and *garbage* may be temporarily placed near the public street for the purpose of pickup.

308.6 Storage and screening of dumpsters. All *rubbish* and *garbage* dumpsters must be screened by a four (4) –sided enclosure, three sides of which will be composed of the same material and color of the main building, with a chain link or wooden gate for access being the fourth side. The gate access must screen the dumpster and be of the same color as the main building. Screening inserts that are the color of the main building are required for chain link access gates. Access gates must be kept closed.

Exception: Dumpsters complying with the requirement of Title IX, Chapter 2100.

SECTION 310
COMPOSTING

310.1 General. No *person* shall place or allow the accumulation of *rubbish* or *garbage* on their *premises* unless used specifically for composting as set forth in this section.

310.2 Composting permitted. Composting shall be permitted when located on a one- and two-family residential *premises*, contained within an *approved compost bin* and shall comply with the provision of this section.

310.3 Construction of compost bin. A *compost bin* may contain more than one contiguous compartment and may be constructed of a commercially available unit or a *structure* made of woven wire (such as hog wire, chicken wire or chainlink), wood slat fencing (such as snow fencing), cement blocks, bricks or similar material.

310.4 Compost bin required. Only one (1) *compost bin* is permitted on any residential *premises* up to 1-acre (4046.82 m^2). On residential *premises* more than 1-acre (4046.82 m^2), no more than two (2) *compost bins* are permitted. *Compost bins* shall comply with the following provisions.

1. A *compost bin* shall be no larger than 600 cubic feet (16.99 m^3) and shall not exceed 4 feet (1219 mm) in height.
2. A *compost bin* shall be so constructed as not to allow the material within to be blown from the *compost bin* by wind.

310.5 Location on premises. *Compost bins* shall be located as follows:

1. A *compost bin* shall be located in the rear *yard*.
2. A *compost bin* shall not be located within 5 feet (1524 mm) of any property line and shall be at least 60 feet (18 288 mm) from the center of a roadway. A *compost bin* shall be no less than 5 feet (1524 mm) from any structure on the *premises*.
3. A *compost bin* shall be placed in a well-drained area with no standing water.

310.6 Maintenance. *Compost bins* shall be maintained in accordance with the following provisions:

1. All *compost bins* shall be maintained in good repair and be structurally sound.
2. No odor emitted from a *compost bin* shall be detected more than 5 feet (1524 mm) in any direction from the *compost bin.*

   2.1 If odors are omitted and detectable greater than 5 feet (1524 mm) in any direction, then action shall be taken by the *owner*, *tenant* and/or *occupant* to eliminate such odor. Such action may include, but not limited to:

   a. Adding lime to the *compost pile*,
   b. Mixing or turning the *compost pile*, and/or
   c. Regulating the moisture content of the *compost pile*.

310.7 Contents of compost pile. *Compost piles* may contain any or all of the following:

1. Grass clippings,
2. Leaves,
3. Dead limbs,
4. Brush,
5. Logs,
6. Wood chips,
7. Foliage,
8. Vegetation from gardens,
9. Shrub cuttings,
10. Sod,
11. Soil,
12. Hay,
13. Straw,
14. Weeds, and/or
15. Sawdust.

9.1000.020.3 Deletions. The following section(s) of the 2015 International Property Maintenance Code are omitted and not hereby incorporated:

[A] 111.2 Membership of board.

[A] 111.2.1 Alternate members.

[A] 111.2.2 Chairman.

[A] 111.2.3 Disqualification of member.

[A] 111.2.4 Secretary.

[A] 111.2.5 Compensation of members.

[A] 111.3 Notice of meeting.

[A] 111.4 Open hearing.

[A] 111.4.1 Procedure.

[A] 111.5 Postponed hearing.

[A] 111.6 Board decision.

[A] 111.6.1 Records and copies.

[A] 111.6.2 Administration.

[A] 111.7 Court review.

[A] 111.8 Stays of enforcement.

Section 9.1000.030 Violations.

9.1000.030.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any of the provisions of this chapter.

9.1000.030.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of zoning and adjustments, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the City of Gladstone, Clay County, Missouri, Code of Ordinances. The imposition of one penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violations(s) or defects(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

CHAPTER 2000. SWIMMING POOL AND SPA REGULATIONS

ARTICLE 1. SWIMMING POOL AND SPA CODE

Section 9.2000.010 Adoption of the 2015 International Swimming Pool and Spa Code.

That a certain document, one (1) copy of which are on file in the office of the City Clerk of the City of Gladstone, Clay County, Missouri, in perpetuity, being marked and designated as the *International Swimming Pool and Spa Code*, 2015 edition, as published by the International Code Council, be and is hereby adopted as the Swimming Pool and Spa Code of the City of Gladstone, Clay County, Missouri, for regulating and governing the design, construction, alteration, movement, renovation, replacement, repair and maintenance of swimming pools, spas, hot tubs, aquatic facilities and related equipment as herein provided; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said Pool and Spa Code on file in the office of the City of Gladstone, Clay County, Missouri are hereby referred to, adopted, and made a part hereof, as if fully set out in this legislation, and amendments, additions, and deletions, if any, prescribed in Section 9.2000.020 of this chapter.

That if any section, subsection, sentence, clause or phrase of this legislation is, for any reason, held to be unconstitutional; such decision shall not affect the validity of the remaining portions of this chapter. The City Council hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases by declared unconstitutional.

That nothing in this legislation or in the *International Pool and Spa Code* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed; nor shall any just or legal right to remedy of any character be lost, impaired or affected by this legislation.

Section 9.2000.020 Amendments, additions, and deletions of the 2015 International Swimming Pool and Spa Code.

9.2000.020.1 Amendments. The following section(s) of the 2015 International Swimming Pool and Spa Code are omitted and not hereby incorporated as the following identically numbered sections are adopted in lieu thereof:

101.1 Title. These regulations shall be known as the International Swimming Pool and Spa Code of the City of Gladstone, Clay County, Missouri, hereinafter referred to as "this code."

105.6.2 Fee schedule. The fees for work shall be in accordance with the schedule established by the applicable governing body.

105.6.3 Fee refunds. The *code official* shall authorize the refunding of fees as follows:

1. The full amount of any fee paid hereunder which was erroneously paid or collected.
2. Not more than eighty percent (80%) of the permit fee when no work has been done under a permit issued in accordance with this code.
3. Not more that eighty percent (80%) of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended.

The *code official* shall not authorize the refunding of any fee except upon written application filed by the original permittee not later than 180 days after the date of fee payment.

107.4 Violation penalties. Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter, or repair a pool or spa in violation of the *approved* construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor, punishable as provided for in Section 1.100.140 of the Gladstone Code of Ordinances. The imposition of one (1) penalty shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violations or defects within reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

107.5 Stop work orders. Upon notice from the *code official*, work on any system that is being done contrary to the provisions of this code or in a dangerous or unsafe manner shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's authorized agent, or the person performing the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of this Gladstone Code of Ordinances.

320.1 Backwash water or draining water. Backwash water and draining water shall be discharged to the storm sewer or into an *approved* disposal system on the premise, or shall be disposed of by other means *approved* by the authority having jurisdiction. Direct connections shall not be made between the end of the backwash line and the disposal system. Drains shall discharge through an air gap.

9.2000.020.2 Additions. The following section(s) are hereby incorporated and adopted in the 2015 International Swimming Pool and Spa Code.

320.1.1 Prohibited means. No backwash water or draining water shall be discharged, disposed or allowed to be directed onto or across an adjacent property.

9.2000.020.3 Deletions. The following section(s) of the 2015 International Swimming Pool and Spa Code are omitted and not hereby incorporated.

108.2 Membership of board.
108.2.1 Qualifications.
108.2.2 Alternate members.
108.2.3 Chairman.
108.2.4 Disqualification of member.
108.2.5 Secretary.
108.2.6 Compensation of members.
108.3 Notice of meeting.
108.4 Open hearing.
108.4.1 Procedure.
108.5 Postponed hearing.
108.6 Board decision.
108.6.1 Resolution.
108.6.2 Administration.
108.7 Court review.

305.4 Structure wall as barrier.

9.2000.030 Swimming pools and spas, intended for residential use.

9.2000.030.1 General. In addition to the requirements of the 2015 International Swimming Pool and Spa Code, swimming pools and spas shall conform to sections 9.2000.030.1.1 through 9.2000.030.1.4.

9.2000.030.1.1 Front yard setback. Swimming pools and spas shall not be installed forward of the established front building line and in no case be installed in the front yard.

9.2000.030.1.2 Rear and side yard setbacks. Swimming pools and spas shall not be located within ten (10) feet of the rear or side yard property line, in the case of corner lots, not less than fifteen (15) feet from the side property line adjacent to the street; and a minimum of twenty (20) feet from the principal building on an adjoining property.

9.2000.030.1.3 Side yard installation. Swimming pools and spas installed in the side yard shall be a minimum of sixty (60) feet from the front property line.

9.2000.030.1.4 Easements. In no case shall a swimming pool or spa be installed within an easement.

9.2000.040 Violations.

9.2000.040.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to be in conflict with or in violation of any provisions of this chapter.

9.2000.040.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of the City of Gladstone, Clay County, Missouri, Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.

ARTICLE 2. PUBLIC AND SEMI-PUBLIC SWIMMING POOLS AND SPAS; ADDITIONAL REQUIREMENTS

9.2000.050 Scope. The provisions of this article shall apply to public and semi-public swimming pools and spas, in addition to the 2015 International Swimming Pool and Spa Code.

9.2000.060 Permit to operate. Any person, firm or corporation operating or maintaining a public or semi-public swimming pool or spa shall apply for and obtain a permit to operate such swimming pool or spa from the Clay County Public Health Center. The permit shall be valid for the period stated by the Clay County Public Health Center and shall be conspicuously posted on the pool premises.

9.2000.070 Inspection prior to operation. The Clay County Public Health Center may inspect a public or semi-public swimming pool and spa prior to opening for operation and/or issuance of a permit to operate.

9.2000.080 Authority to deny, suspend or revoke permit to operate. In the event of a failure to comply with the rules and regulations of the Clay County Public Health Center, the Clay County Public Health Center shall have the power to deny, suspend or revoke any permit to operate and/or prohibit the use of the swimming pool or spa until such time as the swimming pool or spa, in the opinion of the Clay County Public Health Center, is in compliance with the rules and regulations set forth.

9.2000.090 Violations.

9.2000.090.1 Unlawful acts. It shall be unlawful for any person, firm or corporation to be in conflict with or in violations of any provisions of this chapter.

9.2000.090.2 Violation; penalties. Any person who violates a provision of this chapter or fails to comply with any order made thereunder, or any certificate or permit issued thereunder, and from which no appeal has been taken, or who shall fail to comply with such order as affirmed or modified by the board of appeals, or by a court of competent jurisdiction, within the time fixed herein, shall severally, for each and every such violation and noncompliance respectively, be guilty of a misdemeanor, punishable as provided for in section 1.100.140 of the City of Gladstone, Clay County, Missouri, Code of Ordinances. The imposition of one (1) penalty for any violation shall not excuse the violation, or permit it to continue; and all such persons shall be required to correct or remedy such violation(s) or defect(s) within a reasonable time; and, when not otherwise specified, each day that a violation continues after due notice has been served shall be deemed a separate offense.