

Residential Code of Ohio – Deck and Porch Construction Pertinent Code Sections

324.4.1 Uplift protection. Posts shall have uplift protection by one of the following methods:

1. Two 2 H 6 H 12 inch post uplift protection blocks attached to each side of the base of the post. The post uplift blocks shall be placed horizontally, attached per Table 324.7 and comply with Section 317;
2. 12 inch high, concrete collar poured on top of footing around the post, with 2-#5 H 9 inch rebar placed through the post at 3 inches and 9 inches from bottom of post in opposite directions. The rebar ends must be 1½ inches from the soil. See Figure 324.1.

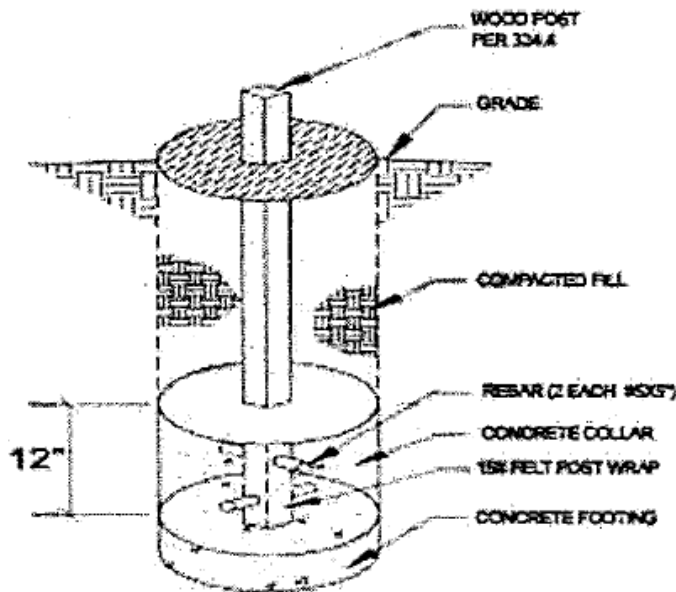


FIGURE 324.1
POST UPLIFT PROTECTION EXCEPTION
(NO SCALE)

401.4.1 Geotechnical evaluation. In lieu of a complete geotechnical evaluation, the load-bearing values in Table 401.4.1 shall be assumed.

TABLE 401.4.1
PRESUMPTIVE LOAD-BEARING
VALUES OF FOUNDATION MATERIALS^a

CLASS OF MATERIAL	LOAD-BEARING PRESSURE (pounds per square foot)
Crystalline bedrock	12,000
Sedimentary and foliated rock	4,000
Sandy gravel and/or gravel (GW and GP)	3,000
Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000
Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH)	1,500 ^b

For SI: 1 pound per square foot = 0.0479 kPa.

a. When soil tests are required by Section 401.4, the allowable bearing capacities of the soil shall be part of the recommendations.

b. Where the building official determines that in-place soils with an allowable bearing capacity of less than 1,500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.

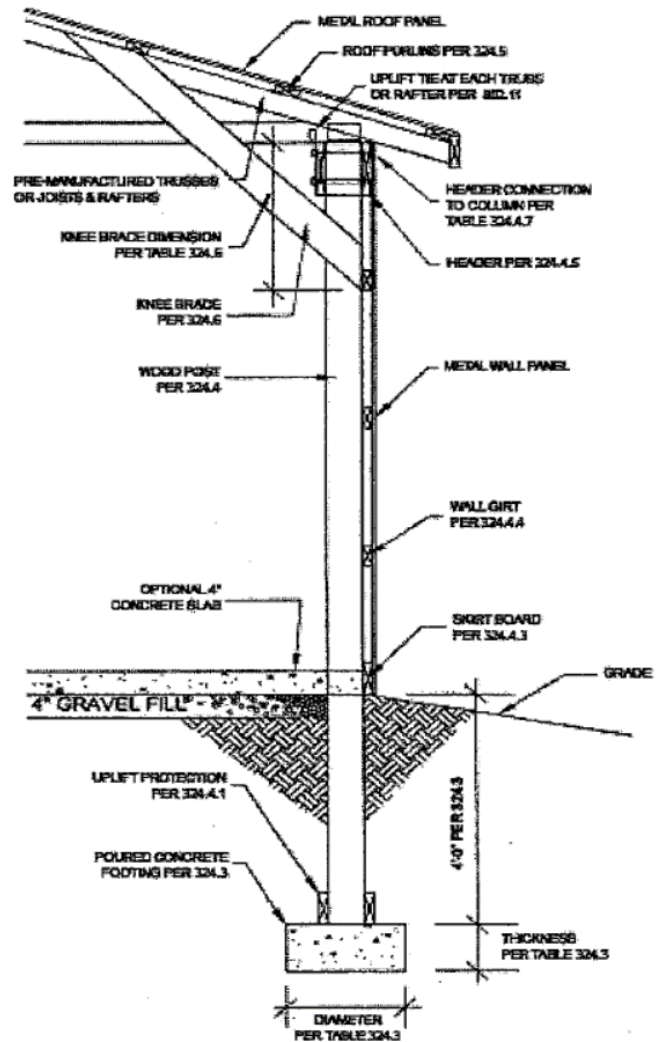


FIGURE 324
POST AND FRAME WALL SECTION (NO SCALE)

402.1.1 Fasteners. Fasteners used below grade to attach plywood to the exterior side of exterior basement or crawlspace wall studs, or fasteners used in knee wall construction, shall be of Type 304 or 316 stainless steel. Fasteners used above grade to attach plywood and all lumber-to-lumber fasteners except those used in knee wall construction shall be of Type 304 or 316 stainless steel, silicon bronze, copper, hot-dipped galvanized (zinc coated) steel nails, or hot-tumbled galvanized (zinc coated) steel nails. Electro-galvanized steel nails and galvanized (zinc coated) steel staples shall not be permitted.

403.1 General. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, crushed stone footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads according to Section 301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils, *controlled low-strength material (CLSM)*, or engineered fill. Concrete footings shall be designed and constructed in accordance with the provisions of Section 403 or in accordance with ACI 332.

TABLE 402.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE

TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH ^a (f' _c)		
	Weathering Potential ^b		
	Negligible	Moderate	Severe
Basement walls, foundations and other concrete not exposed to the weather	2,500	2,500	2,500 ^c
Basement slabs and interior slabs on grade, except garage floor slabs	2,500	2,500	2,500 ^c
Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather	2,500	3,000 ^d	3,000 ^d
Porches, carport slabs and steps exposed to the weather, and garage floor slabs	2,500	3,000 ^{d, e, f}	3,500 ^{d, e, f}

For SI: 1 pound per square inch = 6.895 kPa.

a. Strength at 28 days psi.

b. See Table 301.2(1) for weathering potential.

c. Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.

d. Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.

e. See Section 402.2 for maximum cementitious materials content.

f. For garage floors with a steel troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.

403.1.1 Minimum size. Minimum sizes for concrete and masonry footings shall be as set forth in Table 403.1 and Figure 403.1(1). The footing width, W, shall be based on the load-bearing value of the soil in accordance with Table 401.4.1. Spread footings shall be at least 6 inches (152 mm) in thickness, T. Footing projections, P, shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table 401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section 403.2, and Figures 403.1(2) and 403.1(3).

TABLE 403.1
MINIMUM WIDTH OF CONCRETE,
PRECAST OR MASONRY FOOTINGS (Inches)^a

	LOAD-BEARING VALUE OF SOIL (psf)			
	1,500	2,000	3,000	≥ 4,000
Conventional light-frame construction				
1-story	12	12	12	12
2-story	15	12	12	12
3-story	23	17	12	12
4-inch brick veneer over light frame or 8-inch hollow concrete masonry				
1-story	12	12	12	12
2-story	21	16	12	12
3-story	32	24	16	12
8-inch solid or fully grouted masonry				
1-story	16	12	12	12
2-story	29	21	14	12
3-story	42	32	21	16

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

a. Where minimum footing width is 12 inches, use of a single wythe of solid or fully grouted 12-inch nominal concrete masonry units is permitted.

403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extended below the frost line specified in Table 301.2.(1);
2. Constructing in accordance with Section 403.3;
3. Constructing in accordance with ASCE 32; or
4. Erected on solid rock.

Exceptions:

1. Protection of freestanding accessory structures with an area of 600 square feet (56 m²) or less, of light-frame construction, with an eave height of 10 feet (3048 mm) or less shall not be required.
2. Protection of freestanding accessory structures with an area of 400 square feet (37 m²) or less, of other than light-frame construction, with an eave height of 10 feet (3048 mm) or less shall not be required.
3. Decks not supported by a dwelling need not be provided with footings that extend below the frost line.

Footings shall not bear on frozen soil unless the frozen condition is permanent.

502.2.2 Decks. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load specified in Table 301.5 acting on the cantilevered portion of the deck.

502.2.2.1 Deck ledger connection to band joist. For decks supporting a total design load of 50 pounds per square foot (2394 Pa) [40 pounds per square foot (1915 Pa) live load plus 10 pounds per square foot (479 Pa) dead load], the connection between a deck ledger of pressure-preservative-treated Southern Pine, incised pressure-preservative-treated Hem-Fir or approved decay-resistant species, and a 2-inch (51 mm) nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with $\frac{1}{2}$ -inch (12.7 mm) lag screws or bolts with washers in accordance with Table 502.2.2.1. Lag screws, bolts and washers shall be hot-dipped galvanized or stainless steel.

502.2.2.1.1 Placement of lag screws or bolts in deck ledgers. The lag screws or bolts shall be placed 2 inches (51 mm) in from the bottom or top of the deck ledgers and between 2 and 5 inches (51 and 127 mm) in from the ends. The lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.

502.2.2.2 Alternate deck ledger connections. Deck ledger connections not conforming to Table 502.2.2.1 shall be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.

502.1.7 Exterior wood/plastic composite deck boards. Wood/plastic composites used in exterior deck boards shall comply with the provisions of Section 317.4.

502.2.2.4 Exterior wood/plastic composite deck boards. Wood/plastic composite deck boards shall be installed in accordance with the manufacturer's instructions.

502.3 Allowable joist spans. Spans for floor joists shall be in accordance with Tables 502.3.1(1) and 502.3.1(2). For other grades and species and for other loading conditions, refer to the AF&PA Span Tables for Joists and Rafters.

TABLE 502.2.2.1
FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER
AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, f, g}
(Deck live load = 40 psf, deck dead load = 10 psf)

JOIST SPAN	6 and less	6 1 to 8	8 1 to 10	10 1 to 12	12 1 to 14	14 1 to 16	16 1 to 18
Connection details	On-center spacing of fasteners ^{d, e}						
$\frac{1}{2}$ inch diameter lag screw with $\frac{15}{32}$ inch maximum sheathing ^a	30	23	18	15	13	11	10
$\frac{1}{2}$ inch diameter bolt with $\frac{15}{32}$ inch maximum sheathing	36	36	34	29	24	21	19
$\frac{1}{2}$ inch diameter bolt with $\frac{15}{32}$ inch maximum sheathing and $\frac{1}{2}$ inch stacked washers ^{b, h}	36	36	29	24	21	18	16

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

a. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

b. The maximum gap between the face of the ledger board and face of the wall sheathing shall be $\frac{1}{2}$ ".

c. Ledgers shall be flashed to prevent water from contacting the house band joist.

d. Lag screws and bolts shall be staggered in accordance with Section 502.2.2.1.1.

e. Deck ledger shall be minimum 2 × 8 pressure-preservative-treated No.2 grade lumber, or other approved materials as established by standard engineering practice.

f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1 inch thick engineered wood product (structural composite lumber, laminated veneer lumber or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.

g. A minimum 1 × 9 $\frac{1}{2}$ Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.

h. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.

TABLE 502.3.1(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	23-0	11-6	14-7	17-9	20-7
	Douglas fir-larch #3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	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
	Hem-fir #3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
	Southern pine SS	12-3	16-2	20-8	25-1	12-3	16-2	20-8	25-1
	Southern pine #1	12-0	15-10	20-3	24-8	12-0	15-10	20-3	24-8
	Southern pine #2	11-10	15-7	19-10	24-2	11-10	15-7	18-7	21-9
	Southern pine #3	10-5	13-3	15-8	18-8	9-4	11-11	14-0	16-8
	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
	Spruce-pine-fir #3	9-8	12-4	15-0	17-5	8-8	11-0	13-5	15-7
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
	Douglas fir-larch #3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	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
	Hem-fir #3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
	Southern pine SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine #1	10-11	14-5	18-5	22-5	10-11	14-5	17-11	21-4
	Southern pine #2	10-9	14-2	18-0	21-1	10-5	13-6	16-1	18-10
	Southern pine #3	9-0	11-6	13-7	16-2	8-1	10-3	12-2	14-6
	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
	Spruce-pine-fir #3	8-5	10-8	13-0	15-1	7-6	9-6	11-8	13-6
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
	Douglas fir-larch #3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
	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
	Hem-fir #3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
	Southern pine SS	10-6	13-10	17-8	21-6	10-6	13-10	17-8	21-6
	Southern pine #1	10-4	13-7	17-4	21-1	10-4	13-7	16-4	19-6
	Southern pine #2	10-1	13-4	16-5	19-3	9-6	12-4	14-8	17-2
	Southern pine #3	8-3	10-6	12-5	14-9	7-4	9-5	11-1	13-2
	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
	Spruce-pine-fir #3	7-8	9-9	11-10	13-9	6-10	8-8	10-7	12-4
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
	Douglas fir-larch #3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0
	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
	Hem-fir #3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0
	Southern pine SS	9-9	12-10	16-5	19-11	9-9	12-10	16-5	19-11
	Southern pine #1	9-7	12-7	16-1	19-6	9-7	12-4	14-7	17-5
	Southern pine #2	9-4	12-4	14-8	17-2	8-6	11-0	13-1	15-5
	Southern pine #3	7-4	9-5	11-1	13-2	6-7	8-5	9-11	11-10
	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
	Spruce-pine-fir #3	6-10	8-8	10-7	12-4	6-2	7-9	9-6	11-0

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 D₀, D₁ and D₂ shall be determined in accordance with Section 301.2.2.2.1.

TABLE 502.3.1(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	17-9	20-7	10-6	13-3	16-3	18-10
	Douglas fir-larch	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	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
	Hem-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
	Southern pine	SS	11-2	14-8	18-9	22-10	11-2	14-8	18-9	22-10
	Southern pine	#1	10-11	14-5	18-5	22-5	10-11	14-5	18-5	22-5
	Southern pine	#2	10-9	14-2	18-0	21-9	10-9	14-2	16-11	19-10
	Southern pine	#3	9-4	11-11	14-0	16-8	8-6	10-10	12-10	15-3
	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
	Spruce-pine-fir	#3	8-8	11-0	13-5	15-7	7-11	10-0	12-3	14-3
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
	Douglas fir-larch	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
	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
	Hem-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
	Southern pine	SS	10-2	13-4	17-0	20-9	10-2	13-4	17-0	20-9
	Southern pine	#1	9-11	13-1	16-9	20-4	9-11	13-1	16-4	19-6
	Southern pine	#2	9-9	12-10	16-1	18-10	9-6	12-4	14-8	17-2
	Southern pine	#3	8-1	10-3	12-2	14-6	7-4	9-5	11-1	13-2
	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
	Spruce-pine-fir	#3	7-6	9-6	11-8	13-6	6-10	8-8	10-7	12-4
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
	Douglas fir-larch	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
	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
	Hem-fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
	Southern pine	SS	9-6	12-7	16-0	19-6	9-6	12-7	16-0	19-6
	Southern pine	#1	9-4	12-4	15-9	19-2	9-4	12-4	14-11	17-9
	Southern pine	#2	9-2	12-1	14-8	17-2	8-8	11-3	13-5	15-8
	Southern pine	#3	7-4	9-5	11-1	13-2	6-9	8-7	10-1	12-1
	Spruce-pine-fir	SS	9-0	11-10	15-1	18-4	9-0	11-10	15-1	17-9
	Spruce-pine-fir	#	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
	Spruce-pine-fir	#3	6-10	8-8	10-7	12-4	6-3	7-11	9-8	11-3
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
	Douglas fir-larch	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
	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
	Hem-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1
	Southern pine	SS	8-10	11-8	14-11	18-1	8-10	11-8	14-11	18-1
	Southern pine	#1	8-8	11-5	14-7	17-5	8-8	11-3	13-4	15-11
	Southern pine	#2	8-6	11-0	13-1	15-5	7-9	10-0	12-0	14-0
	Southern pine	#3	6-7	8-5	9-11	11-10	6-0	7-8	9-1	10-9
	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
	Spruce-pine-fir	#3	6-2	7-9	9-6	11-0	5-7	7-1	8-8	10-1

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 D₀, D₁, and D₂ shall be determined in accordance with Section 301.2.2.2.1.

TABLE 502.3.3(2)
CANTILEVER SPANS FOR FLOOR JOISTS SUPPORTING EXTERIOR BALCONY^{a, b, e, f}

Member Size	Spacing	Maximum Cantilever Span (Uplift Force at Backspan Support in lb) ^{c, d}		
		Ground Snow Load		
		≤ 30 psf	50 psf	70 psf
2 × 8	12"	42" (139)	39" (156)	34" (165)
2 × 8	16"	36" (151)	34" (171)	29" (180)
2 × 10	12"	61" (164)	57" (189)	49" (201)
2 × 10	16"	53" (180)	49" (208)	42" (220)
2 × 10	24"	43" (212)	40" (241)	34" (255)
2 × 12	16"	72" (228)	67" (260)	57" (268)
2 × 12	24"	58" (279)	54" (319)	47" (330)

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

- Spans are based on No. 2 Grade lumber of Douglas fir-larch, hem-fir, southern pine, and spruce-pine-fir for repetitive (3 or more) members.
- Ratio of backspan to cantilever span shall be at least 2:1.
- Connections capable of resisting the indicated uplift force shall be provided at the backspan support.
- Uplift force is for a backspan to cantilever span ratio of 2:1. Tabulated uplift values are permitted to be reduced by multiplying by a factor equal to 2 divided by the actual backspan ratio provided (2/backspan ratio).
- A full-depth rim joist shall be provided at the unsupported end of the cantilever joists. Solid blocking shall be provided at the supported end.
- Linear interpolation shall be permitted for ground snow loads other than shown.

TABLE 802.11
REQUIRED STRENGTH OF TRUSS OR RAFTER CONNECTIONS TO RESIST WIND UPLIFT FORCES^{a, b, c, e, f}
(Pounds per connection)

BASIC WIND SPEED (mph) (3-second gust)	ROOF SPAN (feet)							OVERHANGS ^d (pounds/foot)
	12	20	24	28	32	36	40	
85	-72	-120	-145	-169	-193	-217	-241	-38.55
90	-91	-151	-181	-212	-242	-272	-302	-43.22
100	-131	-218	-262	-305	-349	-393	-436	-53.36
110	-175	-292	-351	-409	-467	-526	-584	-64.56

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 mph = 0.447 m/s, 1 pound/foot = 14.5939 N/m, 1 pound = 0.454 kg.

- The uplift connection requirements are based on a 30 foot mean roof height located in Exposure B. For Exposures C and D and for other mean roof heights, multiply the above loads by the Adjustment Coefficients in Table 301.2(3).
- The uplift connection requirements are based on the framing being spaced 24 inches on center. Multiply by 0.67 for framing spaced 16 inches on center and multiply by 0.5 for framing spaced 12 inches on center.
- The uplift connection requirements include an allowance for 10 pounds of dead load.
- The uplift connection requirements do not account for the effects of overhangs. The magnitude of the above loads shall be increased by adding the overhang loads found in the table. The overhang loads are also based on framing spaced 24 inches on center. The overhang loads given shall be multiplied by the overhang projection and added to the roof uplift value in the table.
- The uplift connection requirements are based on wind loading on end zones as defined in Figure 6-2 of ASCE 7. Connection loads for connections located a distance of 20% of the least horizontal dimension of the building from the corner of the building are permitted to be reduced by multiplying the table connection value by 0.7 and multiplying the overhang load by 0.8.
- For wall-to-wall and wall-to-foundation connections, the capacity of the uplift connector is permitted to be reduced by 100 pounds for each full wall above. (For example, if a 600-pound rated connector is used on the roof framing, a 500-pound rated connector is permitted at the next floor level down).

Plans or specifications must show and/or specify to show compliance to code, the following list is most common:

- Presumptive load-bearing values of soil.
- Concrete minimum specified compressive strength of concrete.
- Size of footer or pads (width & thickness).
- Depth of footer to comply with frost protection.
- Post uplift protection method.
- If not free standing. Ledger connection method to existing structure. Spacing, type material, brand & number.

- Flashing of ledger board.
- Sizes & spacing of rim joists, beams, floor joists, posts & deck boards.
- List all connectors, joist hangers, hurricane straps, etc...
- Specify the spans of all joists and beams.
- Show post connections to existing beams, to show compliance with uplift forces.
- Specify deck board type & brand if composite material.