



TOWN OF HUDSON

FIRE DEPARTMENT

INSPECTIONAL SERVICES DIVISION



12 School Street • Hudson, New Hampshire 03051 • Tel: 603-886-6005 • Fax: 603-594-1142

DECK INFORMATION

All information in this handout pertains to 1 and 2 family residential decks. The Town of Hudson is offering this informational handout as representative of typical issues/questions that may arise on a typical job. The Town assumes no responsibility for any errors, omissions and installer is required to follow applicable codes. No handout could possibly cover all situations, nor is it intended to.

IMPORTANT NOTES:

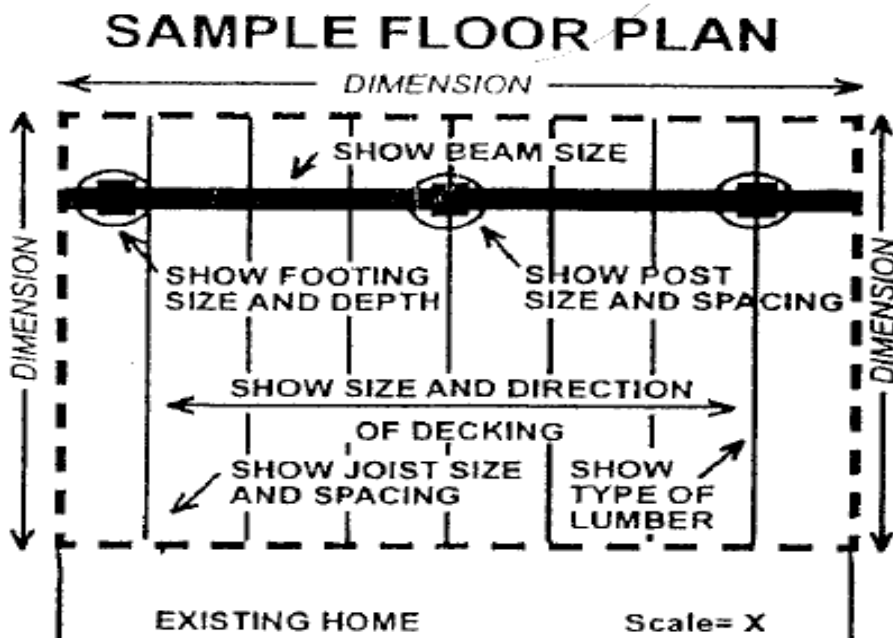
1. If you plan to install a hot tub, spa, pool, screen room, sunroom or future addition on proposed deck, this handout does not apply.
2. If proposed deck is in area of electric or gas service, oil fill and vent or other utilities additional requirements apply and are outside the scope of this handout. Contact Inspectional Services for additional information as needed.
3. If any direct vent exhaust is located in area of proposed deck, then additional requirements apply. Refer to manufacturers installation instructions of equipment for required clearances.

The Town of Hudson Inspectional Services Department is offering this handout as service to our customers. The town assumes no responsibility for any errors or omissions. The installer is required to follow all applicable codes. Please refer to the 2009 International Residential Code (IRC).

PERMIT APPLICATION:

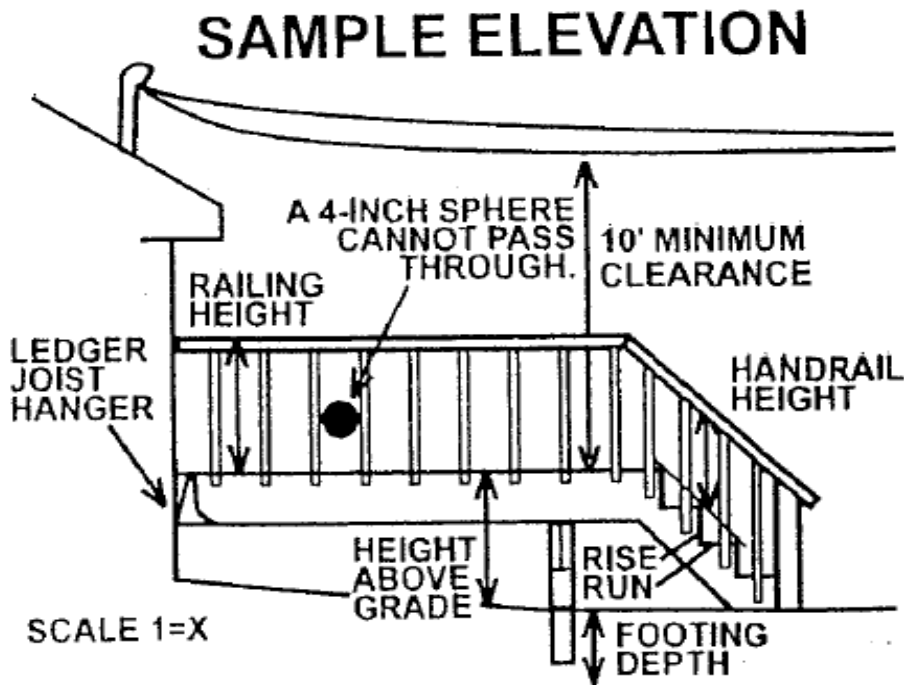
Please submit the following information.

1. Location plan (such as GIS) with proposed deck drawn on with the distance to the lot lines; Zoning approval will be required.
2. Floor plan:
 - a) Show deck size (length, width, height);
 - b) Size and spacing of floor joists (e.g. 2 x 12, 16" oc);
 - c) Size and type of decking material;
 - d) Size, type, locations and spacing of posts;
 - e) Size and type of beams and spans between posts.



3. Elevation plan:

- a) Show height of structure from grade.
- b) Size and depth of footings.
- c) Guard and handrail height and spacing (if any).
- d) Stairwell rise/run and guard and handrail height (if any).
- e) Show any utilities (i.e.: overhead wires).
- f) Note attachment detail for ledger and also, include type of flashing to be used on ledger.



STRUCTURAL NOTES:

Proper ledger attachment is crucial to structural safety of deck. If structure you are attaching deck onto has any of the following conditions then deck should be independently supported:

1. Cantilevered. (Table R502.2.2)
2. Brick or other soft masonry.
3. Supported on piers/posts.

If structure is typical wood frame on continuous foundation without any cantilever proper ledger attachment spacing is required (Table R502.2.2.1).

- Wood must be pressure treated or naturally decay resistant.
- Fasteners must be compatible with wood used.
- Piers are required to be 48" deep for frost protection. Piers should be minimum 8" round and depending on size of deck possibly larger.
- Beams must be positively attached to posts with gussets or hardware designed for this purpose.
- All splices in beams must be supported by posts. No mid-span splices. Beams required to have minimum 1 ½" bearing on wood and 3" on concrete.
- Joists shall be supported by properly sized hanger.

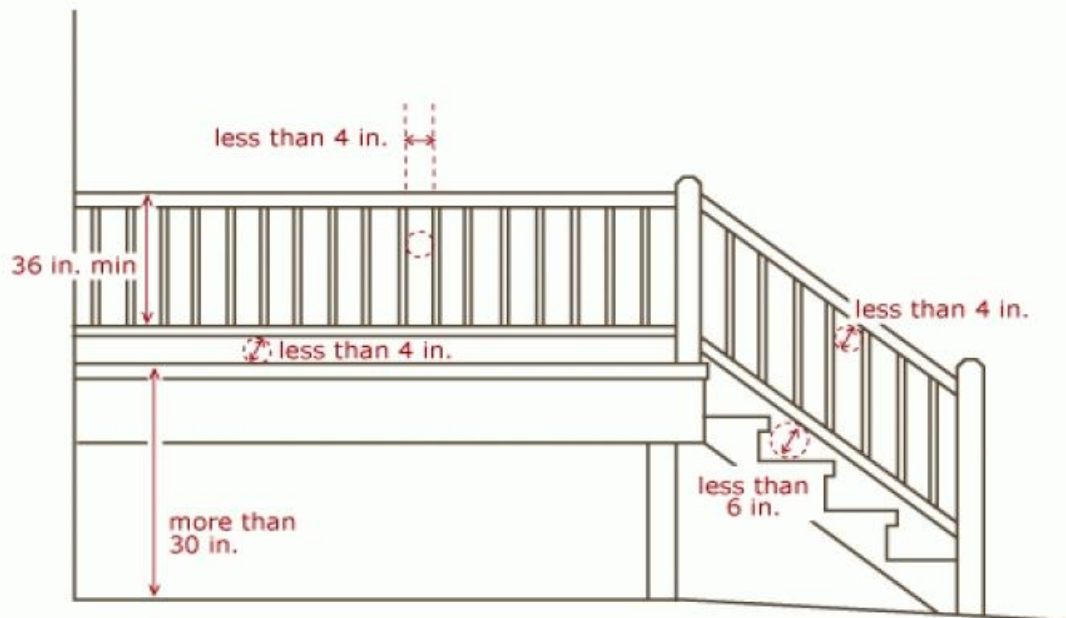
Decks not supported by dwelling need not have frost protection footings.
(Section R403.1.4.1 Frost Protection (Exception 2))

GUARDS (Section R312)

When guards are required. Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height measured vertically from the nosing of the treads. Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30 inches above the floor or grade below. R312.3 Guard opening limitations. Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4 inches or more in diameter.

Exceptions:

1. The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches cannot pass through.
2. Openings for required guards on the sides of stair treads shall not allow a sphere $4 \frac{3}{8}$ inches to pass through.



Handrails for stairways shall be continuous for the full length of each flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inch between the wall and the handrails (R311.7.7.2).

TABLE 2 FLOOR JOISTS – 40 PSF LIVE LOAD, 10 PSF DEAD LOAD, 360 DEFLECTION

Size inches	Spacing inches on center	Grade									
		Visually Graded				Machine Stress Rated (MSR)			Machine Evaluated Lumber (MEL)		
		DSS	No.1	No.2	No.3	2400F - 2.0E	1850F - 1.5E	1500F - 1.6E	M-14 (1800-1.7)	M-21 (1550-1.7)	M-12 (1800-1.6)
2x6	12.0	11-4	10-9	10-3	8-2	11-7	10-6	10-9	10-11	10-11	10-9
	16.0	10-4	9-9	9-4	7-1	10-6	9-6	9-9	9-11	9-11	9-9
	19.2	9-8	9-2	8-6	6-5	9-10	9-0	9-2	9-4	9-4	9-2
	24.0	9-0	8-6	7-7	5-9	9-2	8-4	8-6	8-8	8-8	8-6
2x8	12.0	15-0	14-2	13-6	10-3	15-3	13-10	14-2	14-5	14-5	14-2
	16.0	13-7	12-10	11-10	8-11	13-10	12-7	12-10	13-1	13-1	12-10
	19.2	12-10	12-1	10-10	8-2	13-0	11-10	12-1	12-4	12-4	12-1
	24.0	11-11	11-3	9-8	7-3	12-1	11-0	11-3	11-5	11-5	11-3
2x10	12.0	19-1	18-0	16-2	12-6	19-5	17-8	18-0	18-5	18-5	18-0
	16.0	17-4	16-1	14-0	10-10	17-8	16-0	16-5	16-9	16-9	16-5
	19.2	16-4	14-8	12-10	9-10	16-7	15-1	15-5	15-9	15-9	15-5
	24.0	15-2	13-1	11-5	8-10	15-5	14-0	14-4	14-7	14-7	14-4
2x12	12.0	23-3	21-11	19-1	14-9	23-7	21-6	21-11	22-5	22-5	21-11
	16.0	21-1	19-1	16-6	12-10	21-6	19-6	19-11	20-4	20-4	19-11
	19.2	19-10	17-5	15-1	11-8	20-2	18-4	18-9	19-2	19-2	18-9
	24.0	18-5	15-7	13-6	10-5	18-9	17-0	17-5	17-9	17-9	17-5

The spans in these tables were determined on the same basis as the code-recognized Span Tables for Joists & Rafter and Wood Structural Design Data, both published by the American Wood Council, concentrated loads and uplift loads caused by wind were not considered. See Using These Tables and Design Assumptions for additional information. Applied loads are given in pounds per square foot (psf). Deflection is limited to the span in inches divided by 360, 240 or 180 and is based on live load only. The load duration factor, C_D, is 1.0 unless shown as 1.15 for snow or 1.25 for construction loads. Listed spans are for dry-service conditions unless the table is labeled as Wet-Service. Check sources of supply for available grades and sizes, and for lumber longer than 20 feet; an asterisk (*) indicates the listed span has been limited to 26'-0" based on availability.

Table 3. Deck Beam Spans (L_B)¹

Species	Size	Joist Spans (L _J) Less Than or Equal to:						
		6'	8'	10'	12'	14'	16'	18'
Southern Pine	2-2x6	7' - 1"	6' - 2"	5' - 6"	5' - 0"	4' - 8"	4' - 4"	4' - 1"
	2-2x8	9' - 2"	7' - 11"	7' - 1"	6' - 6"	6' - 0"	5' - 7"	5' - 3"
	2-2x10	11' - 10"	10' - 3"	9' - 2"	8' - 5"	7' - 9"	7' - 3"	6' - 10"
	2-2x12	13' - 11"	12' - 0"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 0"
	3-2x6	8' - 7"	7' - 8"	6' - 11"	6' - 3"	5' - 10"	5' - 5"	5' - 2"
	3-2x8	11' - 4"	9' - 11"	8' - 11"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
	3-2x10	14' - 5"	12' - 10"	11' - 6"	10' - 6"	9' - 9"	9' - 1"	8' - 7"
	3-2x12	17' - 5"	15' - 1"	13' - 6"	12' - 4"	11' - 5"	10' - 8"	10' - 1"
Douglas Fir- Larch ² , Hem-Fir ² , SPF ² , Redwood, Western Cedars, Ponderosa Pine ³ , Red Pine ³	3x6 or 2-2x6	5' - 5"	4' - 8"	4' - 2"	3' - 10"	3' - 6"	3' - 1"	2' - 9"
	3x8 or 2-2x8	6' - 10"	5' - 11"	5' - 4"	4' - 10"	4' - 6"	4' - 1"	3' - 8"
	3x10 or 2-2x10	8' - 4"	7' - 3"	6' - 6"	5' - 11"	5' - 6"	5' - 1"	4' - 8"
	3x12 or 2-2x12	9' - 8"	8' - 5"	7' - 6"	6' - 10"	6' - 4"	5' - 11"	5' - 7"
	4x6	6' - 5"	5' - 6"	4' - 11"	4' - 6"	4' - 2"	3' - 11"	3' - 8"
	4x8	8' - 5"	7' - 3"	6' - 6"	5' - 11"	5' - 6"	5' - 2"	4' - 10"
	4x10	9' - 11"	8' - 7"	7' - 8"	7' - 0"	6' - 6"	6' - 1"	5' - 8"
	4x12	11' - 5"	9' - 11"	8' - 10"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
Ponderosa Pine ³ , Red Pine ³	3-2x6	7' - 4"	6' - 8"	6' - 0"	5' - 6"	5' - 1"	4' - 9"	4' - 6"
	3-2x8	9' - 8"	8' - 6"	7' - 7"	6' - 11"	6' - 5"	6' - 0"	5' - 8"
	3-2x10	12' - 0"	10' - 5"	9' - 4"	8' - 6"	7' - 10"	7' - 4"	6' - 11"
	3-2x12	13' - 11"	12' - 1"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 1"

1. Assumes 40 psf live load, 10 psf dead load, L/360 simple span beam deflection limit, L/180 cantilever deflection limit, No. 2 grade, and wet service conditions.
2. Incising assumed for refractory species including Douglas fir-larch, hem-fir, and spruce-pine-fir.
3. Design values based on northern species with no incising assumed.