

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2009*

**CHAPTER 16: STRUCTURAL DESIGN**

**1603.1** Add a third sentence as follows:

When structural components, assemblies, or systems are designed by a *registered design professional* under the control of the contractor, and said designs are not included with the application for permit, said designs shall be submitted to the *building official* with an application for amendment to the permit.

**1603.1.7** Replace 'on the community's Flood Insurance Rate Map (FIRM)' with 'of the *base flood elevation*'.

Modify existing MA amendment 1604.11 as follows:

**1604.11** Add subsection:

**1604.11 Snow, Wind and Earthquake Design Factors.** Ground snow load,  $p_g$ , minimum design flat roof snow load,  $p_f$ , basic wind speed (three second gust speed),  $V$ , and earthquake response accelerations for the maximum considered earthquake,  $S_s$  and  $S_1$ , for each city and town in Massachusetts shall be as given in Table 1604.11.

**Exception.** For ground snow load and basic wind speeds for R-3 one- and two-family dwellings of three stories or less, see 780 CMR 51, Residential Volume.

**TABLE 1604.11 GROUND SNOW LOADS; BASIC WIND SPEEDS; EARTHQUAKE DESIGN FACTORS**

(For R-3 of three stories or less one- and two-family stand alone buildings, see 780 CMR 51.00, Residential Volume)

City/Town	$P_g$	$P_f$	$V$	$S_s$	$S_1$	City/Town	$P_g$	$P_f$	$V$	$S_s$	$S_1$
Abington	35	30	110	0.26	0.064	Medford	40	30	105	0.29	0.070
Acton	50	35	100	0.29	0.071	Medway	40	35	105	0.25	0.065
Acushnet	30	30	115	0.23	0.058	Melrose	40	30	105	0.30	0.070
Adams	60	40	90	0.22	0.068	Mendon	40	35	105	0.24	0.064
Agawam	35	35	95	0.23	0.065	Merrimac	50	30	100	0.35	0.077
Alford	40	40	90	0.22	0.066	Methuen	50	30	100	0.34	0.076
Amesbury	50	30	100	0.35	0.077	Middleborough	30	30	110	0.24	0.061
Amherst	40	35	95	0.23	0.067	Middlefield	60	40	90	0.22	0.066
Andover	50	30	100	0.32	0.075	Middleton	50	30	105	0.32	0.073
Aquinnah (see Gay Head)						Millis	40	35	105	0.24	0.065
Arlington	40	30	105	0.29	0.069	Millbury	50	35	100	0.24	0.065
Ashburnham	60	35	95	0.27	0.072	Millis	40	35	105	0.25	0.065
Ashby	60	35	95	0.28	0.072	Millville	40	35	105	0.24	0.064
Ashfield	50	40	90	0.22	0.068	Milton	40	30	105	0.27	0.066
Ashland	40	35	100	0.25	0.066	Monroe	60	40	90	0.22	0.069
Athol	60	35	95	0.25	0.070	Monson	40	35	95	0.23	0.065
Attleboro	35	30	105	0.24	0.062	Montague	50	35	90	0.23	0.068
Auburn	50	35	100	0.23	0.065	Montgomery	40	40	90	0.23	0.066
Avon	35	35	110	0.26	0.064	Monterey	50	40	90	0.22	0.066
Ayer	50	35	100	0.28	0.071	Montgomery	40	40	90	0.23	0.066
Barnstable	30	25	115	0.20	0.054	Mnt Washington	40	40	90	0.23	0.066
Barre	50	35	95	0.24	0.068	Nahant	40	30	110	0.30	0.070
Becket	60	40	90	0.22	0.066	Nantucket	25	25	120	0.15	0.047
Bedford	50	30	100	0.29	0.071	Natick	40	35	105	0.26	0.067
Belchertown	40	35	95	0.23	0.066	Needham	40	35	105	0.27	0.067
Bellingham	40	35	105	0.24	0.064	New Ashford	50	40	90	0.22	0.068
Belmont	40	30	105	0.28	0.069	New Bedford	30	30	115	0.23	0.058
Berkley	30	30	110	0.24	0.061	New Braintree	50	35	95	0.23	0.067
Berlin	50	35	100	0.26	0.068	New Marlborough	50	40	90	0.23	0.066
Bernardston	60	35	90	0.23	0.070	New Salem	50	35	95	0.24	0.068
Beverly	50	30	105	0.32	0.072	Newbury	50	30	105	0.35	0.076
Billerica	50	30	100	0.30	0.072	Newburyport	50	30	105	0.35	0.077
						Newton	40	30	105	0.27	0.068

<sup>1</sup>The design flat roof snow load shall be the larger of the calculated flat roof snow load using  $P_g$  or the value of  $P_f$  listed in this table.

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City/Town	P <sub>g</sub>	P <sub>r</sub> <sup>1</sup>	V	S <sub>s</sub>	S <sub>t</sub>	City/Town	P <sub>g</sub>	P <sub>r</sub>	V	S <sub>s</sub>	S <sub>t</sub>
Blackstone	40	35	105	0.24	0.064	Norfolk	40	35	105	0.25	0.065
Blandford	50	40	90	0.23	0.066	N. Adams	60	40	90	0.22	0.069
Bolton	50	35	100	0.26	0.069	N. Andover	50	30	100	0.33	0.075
Boston	40	30	105	0.29	0.068	N. Attleborough	35	30	105	0.24	0.063
Bourne	30	25	115	0.21	0.056	N. Brookfield	50	35	95	0.23	0.066
Boxborough	50	35	100	0.28	0.070	N. Reading	50	30	105	0.32	0.073
Boxford	50	30	105	0.33	0.075	Northampton	40	35	90	0.22	0.066
Boylston	50	35	100	0.25	0.067	Northborough	50	35	100	0.25	0.067
Braintree	35	30	110	0.27	0.066	Northbridge	40	35	100	0.24	0.065
Brewster	25	25	115	0.18	0.052	Northfield	60	35	90	0.24	0.070
Bridgewater	30	30	110	0.24	0.062	Norton	35	30	110	0.24	0.063
Brimfield	40	35	95	0.23	0.065	Norwell	35	30	110	0.26	0.064
Brockton	35	30	110	0.25	0.064	Norwood	40	35	105	0.26	0.065
Brookfield	50	35	95	0.23	0.065	Oak Bluffs	25	25	120	0.18	0.051
Brookline	40	30	105	0.28	0.068	Oakham	50	35	95	0.24	0.067
Buckland	60	40	90	0.22	0.068	Orange	60	35	90	0.24	0.070
Burlington	50	30	100	0.30	0.071	Orleans	25	25	115	0.18	0.051
Cambridge	40	30	105	0.28	0.068	Otis	50	40	90	0.23	0.066
Canton	40	35	105	0.26	0.066	Oxford	50	35	100	0.23	0.065
Carlisle	50	30	100	0.29	0.071	Palmer	40	35	95	0.23	0.066
Carver	30	30	115	0.24	0.060	Paxton	50	35	100	0.24	0.067
Charlemont	60	40	90	0.22	0.068	Peabody	50	30	105	0.31	0.072
Charlton	50	35	100	0.23	0.065	Pelham	40	35	95	0.23	0.067
Chatham	25	25	115	0.17	0.050	Pembroke	30	30	110	0.25	0.063
Chelmsford	50	30	100	0.30	0.073	Pepperell	60	35	95	0.30	0.073
Chelsea	40	30	105	0.29	0.069	Peru	60	40	90	0.22	0.067
Cheshire	60	40	90	0.22	0.068	Petersham	50	35	95	0.24	0.068
Chester	60	40	90	0.22	0.066	Phillipston	60	35	95	0.24	0.069
Chesterfield	50	40	90	0.22	0.067	Pittsfield	50	40	90	0.22	0.067
Chicopee	35	35	95	0.23	0.066	Plainfield	60	40	90	0.22	0.068
Chilmark	25	25	120	0.18	0.051	Plainville	40	35	105	0.24	0.063
Clarksburg	60	40	90	0.22	0.069	Plymouth	25	30	115	0.24	0.060
Clinton	50	35	100	0.26	0.068	Plympton	30	30	110	0.24	0.061
Cohasset	35	30	110	0.27	0.066	Princeton	50	35	95	0.25	0.069
Colrain	60	40	90	0.23	0.069	Provincetown	25	25	115	0.22	0.058
Concord	50	35	100	0.29	0.070	Quincy	40	30	110	0.27	0.067
Conway	50	40	90	0.22	0.068	Randolph	35	30	110	0.26	0.065
Cummington	60	40	90	0.22	0.067	Raynham	35	30	110	0.24	0.062
Dalton	60	40	90	0.22	0.067	Reading	50	30	105	0.31	0.072
Danvers	50	30	105	0.32	0.073	Rehoboth	35	30	110	0.24	0.062
Dartmouth	30	30	115	0.23	0.058	Revere	40	30	105	0.30	0.070
Dedham	40	35	105	0.26	0.066	Richmond	50	40	90	0.22	0.067
Deerfield	50	35	90	0.23	0.068	Rochester	30	30	115	0.23	0.059
Dennis	30	25	115	0.19	0.052	Rockland	35	30	110	0.26	0.064
Dighton	30	30	110	0.24	0.061	Rockport	50	30	110	0.33	0.073
Douglas	40	35	100	0.23	0.064	Rowe	60	40	90	0.22	0.069
Dover	40	35	105	0.26	0.066	Rowley	50	30	105	0.34	0.075
Dracut	50	30	100	0.33	0.075	Royalston	60	35	90	0.25	0.070
Dudley	50	35	100	0.23	0.064	Russell	40	40	90	0.23	0.066
Dunstable	50	35	100	0.31	0.074	Rutland	50	35	95	0.24	0.068
Duxbury	30	30	110	0.25	0.062	Salem	50	30	105	0.31	0.071
E. Bridgewater	35	30	110	0.25	0.063	Salisbury	50	30	105	0.35	0.077
E. Brookfield	50	35	100	0.23	0.066	Sandisfield	50	40	90	0.23	0.066
E. Longmeadow	35	35	95	0.23	0.065	Sandwich	30	25	115	0.22	0.058
Eastham	25	25	115	0.19	0.052	Saugus	40	30	105	0.30	0.070

<sup>1</sup>The design flat roof snow load shall be the larger of the calculated flat roof snow load using P<sub>g</sub> or the value of P<sub>r</sub> listed in this table.

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City/Town	$P_g$	$P_r$	V	$S_s$	$S_i$	City/Town	$P_g$	$P_r$	V	$S_s$	$S_i$
Hull	35	30	110	0.28	0.067	Wellfleet	25	25	115	0.20	0.054
Huntington	50	40	90	0.22	0.066	Wendell	50	35	90	0.23	0.069
Ipswich	50	30	105	0.34	0.074	Wenham	50	30	105	0.32	0.073
Kingston	30	30	110	0.24	0.061	W. Boylston	50	35	100	0.25	0.067
Lakeville	30	30	110	0.24	0.061	W. Bridgewater	35	30	110	0.25	0.063
Lancaster	50	35	100	0.27	0.070	W. Brookfield	40	35	95	0.23	0.066
Lanesborough	50	40	90	0.22	0.068	W. Newbury	50	30	100	0.35	0.077
Lawrence	50	30	100	0.33	0.075	W. Springfield	35	35	95	0.23	0.065
Lee	50	40	90	0.22	0.066	W. Stockbridge	40	40	90	0.22	0.066
Leicester	50	35	100	0.24	0.066	W. Tisbury	25	25	120	0.18	0.052
Lenox	50	40	90	0.22	0.067	Westborough	50	35	100	0.25	0.067
Leominster	60	35	95	0.26	0.070	Westfield	40	35	95	0.23	0.066
Leverett	40	35	90	0.23	0.068	Westford	50	35	100	0.30	0.073
Lexington	40	30	105	0.29	0.070	Westhampton	50	40	90	0.22	0.066
Leyden	60	40	90	0.23	0.069	Westminster	60	35	95	0.26	0.071
Lincoln	40	35	100	0.28	0.069	Weston	40	35	105	0.27	0.068
Littleton	50	35	100	0.29	0.071	Westport	30	30	115	0.23	0.058
Longmeadow	35	35	95	0.23	0.065	Westwood	40	35	105	0.26	0.066
Lowell	50	30	100	0.31	0.074	Weymouth	35	30	110	0.27	0.066
Ludlow	35	35	95	0.23	0.066	Whately	50	35	90	0.22	0.067
Lunenburg	60	35	95	0.28	0.071	Whitman	35	30	110	0.25	0.063
Lynn	40	30	105	0.31	0.071	Wilbraham	35	35	95	0.23	0.065
Lynnfield	50	30	105	0.31	0.072	Williamsburg	50	40	90	0.22	0.067
Malden	40	30	105	0.29	0.069	Williamstown	50	40	90	0.23	0.069
Manchester	50	30	110	0.32	0.072	Wilmington	50	30	100	0.31	0.073
Mansfield	35	30	105	0.25	0.063	Winchendon	60	35	95	0.26	0.071
Marblehead	40	30	110	0.31	0.071	Winchester	40	30	105	0.29	0.070
Marion	30	30	115	0.22	0.057	Windsor	60	40	90	0.22	0.067
Marlborough	50	35	100	0.26	0.068	Winthrop	40	30	105	0.29	0.068
Marshfield	35	30	110	0.26	0.064	Woburn	50	30	105	0.30	0.071
Mashpee	30	25	115	0.20	0.054	Worcester	50	35	100	0.24	0.067
Mattapoisett	30	30	115	0.22	0.057	Worthington	60	40	90	0.22	0.067
Maynard	50	35	100	0.27	0.069	Wrentham	40	35	105	0.24	0.064
Medfield	40	35	105	0.25	0.065	Yarmouth	30	25	115	0.19	0.052

<sup>1</sup>The design flat roof snow load shall be the larger of the calculated flat roof snow load using  $P_g$  or the value of  $P_r$  listed in this table.

1605.3.2 Delete.

Table 1607.1 Item 5. Revise to read as follows:

Balconies (exterior and interior) and decks<sup>h</sup>

1607.5 Add a last sentence as follows:

Partition loads are non-reducible live load.

1607.9.2 Delete.

1608.2 Replace as follows:

**1608.2 Ground Snow Loads.** The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with Table 1604.11.

1608.3 to 1608.11 Add subsections:

**1608.3 Concave Curved Roofs.** Section 7.4.3 of ASCE 7 applies to convex curved roofs only. The effective loaded area of a concave curved roof shall be that area of the surface of the roof where the tangents to the surface have a slope of 50 degrees or less. The total uniform snow load for concave curved roofs shall be  $P_f$  multiplied by the total horizontal projected area of the roof. This total load shall be applied uniformly over the effective loaded area of the roof.

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16.00: continued

City/Town	P <sub>g</sub>	P <sub>r</sub> <sup>1</sup>	V	S <sub>s</sub>	S <sub>i</sub>	City/Town	P <sub>g</sub>	P <sub>r</sub>	V	S <sub>s</sub>	S <sub>i</sub>
Easthampton	40	35	90	0.23	0.066	Savoy	60	40	90	0.22	0.068
Easton	35	30	110	0.25	0.064	Scituate	35	30	110	0.27	0.065
Edgartown	25	25	120	0.18	0.050	Seekonk	35	30	110	0.24	0.062
Egremont	40	40	90	0.23	0.066	Sharon	35	35	105	0.25	0.065
Erving	50	35	90	0.23	0.069	Sheffield	40	40	90	0.23	0.066
Essex	50	30	110	0.33	0.073	Shelburne	50	40	90	0.23	0.068
Everett	40	30	105	0.29	0.069	Sherborn	40	35	105	0.26	0.066
Fairhaven	30	30	115	0.22	0.057	Shirley	60	35	95	0.28	0.072
Fall River	30	30	110	0.23	0.059	Shrewsbury	50	35	100	0.25	0.067
Falmouth	30	25	115	0.20	0.054	Shutesbury	40	35	90	0.23	0.068
Fitchburg	60	35	95	0.27	0.071	Somerset	30	30	110	0.23	0.060
Florida	60	40	90	0.22	0.069	Somerville	40	30	105	0.28	0.069
Foxborough	35	35	105	0.25	0.064	South Hadley	35	35	95	0.23	0.066
Framingham	40	35	100	0.26	0.067	Southampton	40	35	90	0.23	0.066
Franklin	40	35	105	0.24	0.064	Southborough	40	35	100	0.26	0.067
Freetown	30	30	110	0.23	0.060	Southbridge	40	35	100	0.23	0.064
Gardner	60	35	95	0.26	0.070	Southwick	40	35	95	0.23	0.065
Gay Head (Aquinnah)	25	25	120	0.18	0.051	Spencer	50	35	100	0.23	0.066
Georgetown	50	30	105	0.34	0.075	Springfield	35	35	95	0.23	0.065
Gill	50	35	90	0.23	0.069	Sterling	50	35	100	0.26	0.069
Gloucester	50	30	110	0.33	0.073	Stockbridge	50	40	90	0.22	0.066
Goshen	50	40	90	0.22	0.067	Stoneham	40	30	105	0.30	0.071
Grafton	50	35	100	0.24	0.066	Stoughton	35	35	110	0.26	0.065
Gosnold	30	25	120	0.19	0.053	Stow	50	35	100	0.27	0.069
Granby	35	35	95	0.23	0.066	Sturbridge	40	35	100	0.23	0.065
Granville	50	40	95	0.23	0.066	Sudbury	40	35	100	0.27	0.069
Great Barrington	50	40	90	0.22	0.066	Sunderland	40	35	90	0.23	0.068
Greenfield	50	35	90	0.23	0.069	Sutton	50	35	100	0.24	0.065
Groton	60	35	100	0.30	0.073	Swampscott	40	30	105	0.30	0.070
Groveland	50	30	100	0.34	0.076	Swansea	30	30	110	0.24	0.061
Hadley	40	35	90	0.23	0.067	Taunton	35	30	110	0.24	0.062
Halifax	30	30	110	0.25	0.062	Templeton	60	35	95	0.25	0.070
Hamilton	50	30	105	0.33	0.074	Tewksbury	50	30	100	0.31	0.073
Hampden	35	35	95	0.23	0.065	Tisbury	25	25	120	0.18	0.052
Hancock	50	40	90	0.22	0.068	Tolland	50	40	90	0.23	0.066
Hanover	35	30	110	0.26	0.064	Topsfield	50	30	105	0.33	0.074
Hanson	35	30	110	0.25	0.063	Townsend	60	35	95	0.28	0.072
Hardwick	50	35	95	0.23	0.067	Truro	25	25	115	0.22	0.057
Harvard	50	35	100	0.28	0.070	Tyngsborough	50	30	100	0.31	0.074
Harwich	25	25	115	0.18	0.051	Tyringham	50	40	90	0.22	0.066
Hatfield	40	35	90	0.22	0.067	Upton	40	35	100	0.24	0.065
Haverhill	50	30	100	0.35	0.077	Uxbridge	40	35	105	0.24	0.064
Hawley	60	40	90	0.22	0.068	Wakefield	50	30	105	0.31	0.071
Heath	60	40	90	0.22	0.069	Wales	40	35	100	0.23	0.065
Hingham	35	30	110	0.27	0.066	Walpole	40	35	105	0.25	0.065
Hinsdale	60	40	90	0.22	0.067	Waltham	40	30	105	0.28	0.069
Holbrook	35	30	110	0.26	0.065	Ware	40	35	95	0.23	0.066
Holden	50	35	100	0.25	0.068	Wareham	25	30	115	0.23	0.058
Holland	40	35	100	0.23	0.064	Warren	40	35	95	0.23	0.066
Holliston	40	35	105	0.25	0.066	Warwick	60	35	90	0.24	0.070
Holyoke	35	35	95	0.23	0.066	Washington	60	40	90	0.22	0.067
Hopedale	40	35	105	0.24	0.065	Watertown	40	30	105	0.28	0.068
Hopkinton	40	35	100	0.25	0.066	Wayland	40	35	100	0.27	0.068
Hubbardston	50	35	95	0.25	0.069	Webster	50	35	100	0.23	0.064
Hudson	50	35	100	0.26	0.068	Wellesley	40	35	105	0.27	0.067

<sup>1</sup>The design flat roof snow load shall be the larger of the calculated flat roof snow load using P<sub>g</sub> or the value of P<sub>r</sub> listed in this table.