780 CMR 51.00: MASSACHUSETTS RESIDENTIAL CODE (Amendments to the 2021 International Residential Code)

CHAPTER R3 BUILDING PLANNING

Add the following subsection

R301.1.1 Alternative provisions.
4. American Forest and Paper Association ("AF&PA") *Prescriptive Residential Wood Deck Construction Guide* (DCA6). https://awc.org/pdf/codes-standards/publications/dca/AWC-DCA62015-DeckGuide-1804.pdf

Add the following subsection

R301.1.5 Townhouse Buildings Greater than 35,000 ft^3. Such buildings shall require registered design professional services in accordance with 780 CMR 107.6: *Construction Control.*

Replace **TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA with New Table R301.2(1)**

Table 301.2(1) Climatic and Geographic Design Criteria

GROUND SNOW LOAD		Table R301.2(2)
WIND DESIGN	Speed (mph)	Table R301.2(2)
	Topographical effects	NO
	Special wind region	Table R301.2(2), Note 2.
	Windborne debris zone	Any area within a windborne debris region as defined in Chapter 2 of 780 CMR 51.00.
SEISMIC DESIGN CATEGORY		YES
SUBJECT TO DAMAGE FROM	Weathering	Severe
	Frost line depth	48 inches. For frost protected shallow foundations, *see* R403.3.
	Termite	Moderate to heavy
ICE BARRIER UNDERLAYMENT REQUIRED		YES
FLOOD HAZARDS		*See* R322.

AIR FREEZING INDEX	By county	For frost protected shallow foundations, *see* R403.3 and Table R403.3(2).
	Berkshire, Franklin, Hampden and Worcester	2000
	All other counties	1500
MEAN ANNUAL TEMPERATURE		*See* Massachusetts values: https://www.ncdc.noaa.gov/sites/default/files/attachments/Air-Freezing-Index-Return-Periods-and-Associated-Probabilities.pdf
MANUAL J DESIGN CRITERIA **(*See* 2016** **ACCA Manual J** **Table 1a or 1b).**	Elevation	Altitude correction factor (see Table 10A), Coincident wet bulb, Indoor winter design dry-bulb temperature, Indoor winter design dry-bulb temperature, Outdoor winter design dry-bulb temperature, Heating temperature difference.
	Latitude	Daily Range, Indoor summer design relative humidity, Indoor summer design relative humidity, Indoor summer design dry-bulb temperature, Outdoor summer design dry-bulb temperature, Cooling temperature difference.

Add new Table 301.2(2)

Table 301.2(2) SNOW LOADS AND WIND SPEEDS

	SNOW LOADS		
City/Town	**Ground Snow Load, P_g (psf)**	**Minimum Flat Roof Snow Load, P_f[1] (psf)**	**Ultimate Wind Speed, V_{ult} (mph)**
Abington	35	30	123
Acton	50	35	117
Acushnet	30	30	129
Adams[2]	60	40	111
Agawam	35	35	115

Alford	40	40	112
Amesbury	50	30	116
Amherst	40	35	114
Andover	50	30	117
Aquinnah[3] (Gay Head)	25	25	134
Arlington	40	30	119
Ashburnham	60	35	114
Ashby	60	35	114
Ashfield	50	40	112
Ashland	40	35	119
Athol	60	35	113
Attleboro	35	30	124
Auburn	50	35	118
Avon	35	35	123
Ayer	50	35	116
Barnstable[3]	30	25	130
Barre	50	35	115
Becket	60	40	113
Bedford	50	30	118
Belchertown	40	35	115
Bellingham	40	35	121
Belmont	40	30	119
Berkley	30	30	126
Berlin	50	35	117
Bernardston	60	35	112
Beverly	50	30	119

Billerica	50	30	117
Blackstone	40	35	121
Blandford	50	40	114
Bolton	50	35	117
Boston	40	30	120
Bourne	30	25	129
Boxborough	50	35	117
Boxford	50	30	117
Boylston	50	35	117
Braintree	35	30	122
Brewster	25	25	130
Bridgewater	30	30	125
Brimfield	40	35	117
Brockton	35	30	123
Brookfield	50	35	117
Brookline	40	30	120
Buckland	60	40	112
Burlington	50	30	118
Cambridge	40	30	120
Canton	40	35	122
Carlisle	50	30	117
Carver	30	30	127
Charlemont	60	40	112
Charlton	50	35	118
Chatham[3]	25	25	132
Chelmsford	50	30	117

Chelsea	40	30	120
Cheshire	60	40	112
Chester	60	40	113
Chesterfield	50	40	113
Chicopee	35	35	115
Chilmark[3]	25	25	134
Clarksburg[2]	60	40	111
Clinton	50	35	117
Cohasset	35	30	122
Colrain[2]	60	40	112
Concord	50	35	118
Conway	50	40	113
Cummington	60	40	113
Dalton	60	40	112
Danvers	50	30	118
Dartmouth[3]	30	30	129
Dedham	40	35	120
Deerfield	50	35	113
Dennis[3]	30	25	130
Dighton	30	30	126
Douglas	40	35	120
Dover	40	35	120
Dracut	50	30	116
Dudley	50	35	119
Dunstable	50	35	115
Duxbury	30	30	125

E. Bridgewater	35	30	124
E. Brookfield	50	35	117
E. Longmeadow	35	35	116
Eastham	25	25	130
Easthampton	40	35	114
Easton	35	30	123
Edgartown[3]	25	25	134
Egremont	40	40	112
Erving	50	35	113
Essex	50	30	118
Everett	40	30	119
Fairhaven[3]	30	30	130
Fall River	30	30	128
Falmouth[3]	30	25	131
Fitchburg	60	35	115
Florida	60	40	111
Foxborough	35	35	122
Framingham	40	35	119
Franklin	40	35	121
Freetown	30	30	127
Gardner	60	35	114
Georgetown	50	30	117
Gill	50	35	113
Gloucester	50	30	119
Goshen	50	40	113
Gosnold[3]	30	25	132

Grafton	50	35	119
Granby	35	35	114
Granville	50	40	114
Great Barrington	50	40	113
Greenfield	50	35	113
Groton	60	35	116
Groveland	50	30	116
Hadley	40	35	114
Halifax	30	30	125
Hamilton	50	30	118
Hampden	35	35	116
Hancock[2]	50	40	111
Hanover	35	30	124
Hanson	35	30	124
Hardwick	50	35	115
Harvard	50	35	116
Harwich[3]	25	25	131
Hatfield	40	35	114
Haverhill	50	30	116
Hawley	60	40	112
Heath	60	40	112
Hingham	35	30	122
Hinsdale	60	40	112
Holbrook	35	30	123
Holden	50	35	116
Holland	40	35	117

Holliston	40	35	120
Holyoke	35	35	114
Hopedale	40	35	120
Hopkinton	40	35	119
Hubbardston	50	35	115
Hudson	50	35	117
Hull	35	30	122
Huntington	50	40	114
Ipswich	50	30	118
Kingston	30	30	126
Lakeville	30	30	127
Lancaster	50	35	116
Lanesborough[2]	50	40	111
Lawrence	50	30	116
Lee	50	40	112
Leicester	50	35	117
Lenox	50	40	112
Leominster	60	35	115
Leverett	40	35	114
Lexington	40	30	118
Leyden	60	40	112
Lincoln	40	35	118
Littleton	50	35	117
Longmeadow	35	35	116
Lowell	50	30	116
Ludlow	35	35	115

Lunenburg	60	35	115
Lynn	40	30	119
Lynnfield	50	30	118
Malden	40	30	119
Manchester	50	30	119
Mansfield	35	30	123
Marblehead	40	30	119
Marion	30	30	129
Marlborough	50	35	118
Marshfield	35	30	125
Mashpee[3]	30	25	130
Mattapoisett[3]	30	30	130
Maynard	50	35	118
Medfield	40	35	120
Medford	40	30	119
Medway	40	35	120
Melrose	40	30	119
Mendon	40	35	120
Merrimac	50	30	116
Methuen	50	30	116
Middleborough	30	30	126
Middlefield	60	40	113
Middleton	50	30	118
Milford	40	35	120
Millbury	50	35	118
Millis	40	35	120

Millville	40	35	121
Milton	40	30	121
Monroe	60	40	111
Monson	40	35	116
Montague	50	35	113
Monterey	50	40	113
Montgomery	40	40	114
Mount Washington	40	40	113
Nahant	40	30	120
Nantucket[3]	25	25	137
Natick	40	35	119
Needham	40	35	120
New Ashford[2]	50	40	111
New Bedford[3]	30	30	129
New Braintree	50	35	115
New Marlborough	50	40	113
New Salem	50	35	114
Newbury	50	30	116
Newburyport	50	30	116
Newton	40	30	119
Norfolk	40	35	121
North Adams[2]	60	40	111
North Andover	50	30	116
North Attleborough	35	30	123
North Brookfield	50	35	116
North Reading	50	30	118

Northampton	40	35	114
Northborough	50	35	118
Northbridge	40	35	119
Northfield	60	35	112
Norton	35	30	124
Norwell	35	30	123
Norwood	40	35	121
Oak Bluffs[3]	25	25	133
Oakham	50	35	116
Orange	60	35	113
Orleans[3]	25	25	130
Otis	50	40	113
Oxford	50	35	119
Palmer	40	35	116
Paxton	50	35	116
Peabody	50	30	119
Pelham	40	35	114
Pembroke	30	30	124
Pepperell	60	35	115
Peru	60	40	112
Petersham	50	35	114
Phillipston	60	35	114
Pittsfield[2]	50	40	112
Plainfield	60	40	112
Plainville	40	35	123
Plymouth	30	30	127

Plympton	30	30	126
Princeton	50	35	116
Provincetown	25	25	127
Quincy	40	30	121
Randolph	35	30	122
Raynham	35	30	125
Reading	50	30	118
Rehoboth	35	30	125
Revere	40	30	119
Richmond[2]	50	40	112
Rochester	30	30	129
Rockland	35	30	123
Rockport	50	30	119
Rowe	60	40	111
Rowley	50	30	117
Royalston	60	35	113
Russell	40	40	114
Rutland	50	35	116
Salem	50	30	119
Salisbury	50	30	116
Sandisfield	50	40	114
Sandwich	30	25	129
Saugus	40	30	119
Savoy	60	40	112
Scituate	35	30	123
Seekonk	35	30	125

Sharon	35	35	122
Sheffield	40	40	113
Shelburne	50	40	112
Sherborn	40	35	120
Shirley	60	35	116
Shrewsbury	50	35	118
Shutesbury	40	35	114
Somerset	30	30	127
Somerville	40	30	119
South Hadley	35	35	114
Southampton	40	35	114
Southborough	40	35	119
Southbridge	40	35	118
Southwick	40	35	115
Spencer	50	35	117
Springfield	35	35	115
Sterling	50	35	116
Stockbridge	50	40	112
Stoneham	40	30	119
Stoughton	35	35	122
Stow	50	35	117
Sturbridge	40	35	118
Sudbury	40	30	118
Sunderland	40	35	113
Sutton	50	35	119
Swampscott	40	30	119

Swansea	30	30	127
Taunton	35	30	125
Templeton	60	35	114
Tewksbury	50	30	117
Tisbury[3]	25	25	133
Tolland	50	40	114
Topsfield	50	30	118
Townsend	60	35	115
Truro	25	25	128
Tyngsborough	50	30	116
Tyringham	50	40	113
Upton	40	35	119
Uxbridge	40	35	120
Wakefield	50	30	118
Wales	40	35	117
Walpole	40	35	121
Waltham	40	30	119
Ware	40	35	115
Wareham	30	30	129
Warren	40	35	116
Warwick	60	35	113
Washington	60	40	112
Watertown	40	30	119
Wayland	40	35	119
Webster	50	35	119
Wellesley	40	35	119

Wellfleet	25	25	129
Wendell	50	35	113
Wenham	50	30	118
W. Boylston	50	35	117
W. Bridgewater	35	30	124
W. Brookfield	40	35	116
W. Newbury	50	30	116
W. Springfield	35	35	115
W. Stockbridge[2]	40	40	112
W. Tisbury[3]	25	25	133
Westborough	50	35	118
Westfield	40	35	114
Westford	50	35	116
Westhampton	50	40	114
Westminster	60	35	115
Weston	40	35	119
Westport[3]	30	30	128
Westwood	40	35	121
Weymouth	35	30	122
Whately	50	35	113
Whitman	35	30	124
Wilbraham	35	35	115
Williamsburg	50	40	113
Williamstown[2]	50	40	111
Wilmington	50	30	118
Winchendon	60	35	113

Winchester	40	30	119
Windsor	60	40	112
Winthrop	40	30	120
Woburn	50	30	118
Worcester	50	35	117
Worthington	60	40	113
Wrentham	40	35	122
Yarmouth[3]	30	25	131

Note 1: 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[1] listed in this table.

Note 2: Special Wind Region. Specific locations within these municipalities may have conditions that cause higher wind speeds than the tabulated values. See https://asce7hazardtool.online for location specific details for special wind regions in ASCE/SEI 7-16, Risk Category II.

Note 3: Windborne Debris Region. Specific locations within these municipalities may be within a Windborne Debris Region (with V_{ult} 130 mph or more) as defined in 780 CMR R202.0. See https://asce7hazardtool.online for location specific details for windborne debris regions in ASCE/SEI 7-16, Risk Category II.

Revise and replace the first sentence of R301.2.1 Wind design criteria. as follows

> **R301.2.1 Wind design criteria.**
> Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the ultimate design wind speed in Table R301.2(1) as determined from Table R301.2(2).

Revise and replace the last sentence of R301.2.1 Wind design criteria. as follows

> Where ultimate design wind speeds in Table R301.2(2) are less than the lowest wind speed indicated in the prescriptive provisions of this code, the lowest wind speed indicated in the prescriptive provisions of this code shall be used.

Revise and replace note "d" of FIGURE R301.2.1 COMPONENT AND CLADDING PRESSURE ZONES as follows.

> **d. See Table R301.2.1(1) for locations of termite infestation probability zones.**

Replace R301.2.1.1 Wind limitations and wind design required as follows.

> **R301.2.1.1 Wind limitations and wind design required.** The wind provision of 780 CMR 51.00 shall not apply to the design of buildings where the ultimate design wind speed, V_{ult} equals or exceeds 140 miles per hour (225 kph). See Table 301.2(2) for wind speeds by city or town.

Exceptions:

1. For concrete construction, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Sections R404 and R608.

2. For structural insulated panels, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Section 610.

3. For cold-formed steel *light-frame construction*, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Sections R505, R603 and R804.

In regions where wind design is required, the design of building for wind loads shall be in accordance with one or more of the following methods:

1. AWC *Wood Frame Construction Manual* (WFCM)

2. ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).

3. ASCE *Minimum Design Loads for Buildings and Other Structures* (ASCE 7).

4. AISI *Standard for Cold-Formed Steel Framing—Prescriptive Method for One-and-Two Family Dwellings* (AISI S230).

5. *International Building Code.*

The elements of design not addressed by the methods in items 1 through 5 shall be in accordance with 780 CMR.

Where ASCE 7 or the *International Building Code* is used for the design of the building, the wind speeds/map and exposure category requirements as specified in ASCE 7 and the *International Building Code* shall be used.

Delete all of section R301.2.1.5 Topographic wind effects.

Delete all of section R301.2.1.5.1 Simplified topographic wind speed-up method.

Delete TABLE R301.2.1.5.1 - ULTIMATE DESIGN WIND SPEED MODIFICATION FOR TOPOGRAPHIC WIND EFFECT

Replace section R301.2.4 Floodplain Construction as follows

R301.2.4 Floodplain Construction. Buildings and structures constructed in whole or in part in flood hazard areas (including A, Coastal A or V Zones) or coastal dunes as established in section R322.1.1, and substantial improvement and restoration of substantial damage of buildings and structures in flood hazard areas or coastal dunes, shall be designed and constructed in accordance with section R322. Buildings and structures that are located in more than one flood hazard area or coastal dune shall comply with the most restrictive provisions of all those flood hazard areas and coastal dunes. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

Revise section R302.1 Exterior walls by deleting "Section P2904" and replacing with "NFPA 13D".

Revise TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS WITH FIRE SPRINKLERS Note "a" by deleting "Section P2904" and replacing with "NFPA 13D".

Revise section R302.2.2 Common walls by deleting "Chapters 34 through 43" and replacing with "527 CMR 12:00"

Revise section R302.2.2 Common walls Item #1 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or NFPA 13D".

Revise section R302.2.2 Common walls Item #2 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or NFPA 13D".

Revise section R302.13 Fire protection of floors - Exceptions: #1 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or "

Revise section R302.14 Combustible insulation clearance – after "fan motors" – insert "knob and tube wiring"

Replace section R303.3 Bathrooms as follows

> **R303.3 Bathrooms. Mechanical ventilation in accordance with Section M1505 is required for all bathrooms, water closet compartments and similar rooms with a shower or bathtub and such rooms with a toilet. Exhaust air from the space shall be exhausted directly to the outdoors.**

Delete R303.3 Bathrooms. - Exception

Replace section R305.1 Minimum Height as follows

R305.1 Minimum Height. *Habitable* space and hallways shall have a ceiling height of not less than 7 feet (2134 mm). Bathrooms, toilet rooms, laundry rooms, hallways in *basements* and *habitable* space in *basements* shall have a ceiling height of not less than 6 feet, 8 inches (2032 mm).

Revise section R307.1 Space Required to read:

> **Fixtures shall be spaced in accordance with Figure R307.1, and in accordance with the requirements 248 CMR 10.00**

Add after the last sentence of R308.1 Identification – "*See* also M.G.L. c. 143, §§ 3T, 3U and 3V."

Delete R308.1 Identification - Exceptions #1 and #2.

Delete section "R309.3 Flood hazard areas" and replace as follows:

R309.3 Flood Hazard Areas. For buildings located in flood hazard areas, as established by section R322.1.1. garage floors shall be:

1. Elevated to or above the design flood elevation as determined in accordance with section R322.2; or

2. Located below the design flood elevation provided that the floors are at or above grade on not less than one side, are used solely for parking, building access or storage, meet the requirements of section R322.2 and are otherwise constructed in accordance with 780 CMR 51.00: *Massachusetts Residential Code*.

Revise section R309.5 Fire sprinklers by deleting "Section P2904" and adding "NFPA 13, NFPA 13R or NFPA 13D"

Revise section R310.1 Emergency escape and rescue opening required – Exception #2 by deleting "Section P2904" and adding "NFPA 13, NFPA 13R or NFPA 13D."

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Adding Exception #2 to R310.2.1 Minimum size as follows:

2. Single-hung and/or double-hung windows shall have a minimum net clear opening of 3.3 ft^2 (0.31 m^2).

Adding an Exception to R310.2.2 Minimum dimensions as follows:

Exception: Single-hung and/or double-hung windows shall have minimum net clear opening dimensions shall be 20 inches (508 mm) by 24 inches (610 mm) in either direction.

Adding an Exception to R310.7.1 Existing emergency escape and rescue openings Item #1 as follows:

Exception: An existing operable, single-hung or double-hung window shall provide a minimum net clear opening of 3.3 ft^2 (0.31 m^2) with minimum net clear opening dimensions of 20 inches (508 mm) by 24 inches (610 mm) in either direction.

Revise and replace section R311.1: Means of Egress as follows:

R311.1: Means of Egress: *Dwelling units* shall be provided with a primary and secondary means of egress in accordance with this section. Each means of egress shall provide a continuous and unobstructed path of vertical and horizontal travel from all portions of the *dwelling unit* to the egress doors. The primary means of egress shall not require travel through a garage but the secondary means of egress may. The required egress doors shall open directly into a *public way* or to a *yard* or court that opens to a *public way*.

Revise and replace section R311.2: Egress Doors as follows:

R311.2: Egress Doors: A primary and secondary egress door shall be provided for each dwelling unit and shall be as remote as possible from each other. The primary egress door shall be side-hinged and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The secondary egress door shall be side-hinged or sliding, and for side-hinged secondary egress doors shall provide a clear width of not less than 28 inches (711 mm) where measured between the face of the door and the stop with the door open 90 degrees (1.57 rad). Sliding secondary egress door clear width may be slightly less than 28 inches (711 mm) to conform to industry fabrication standards. The clear height of secondary egress door openings shall not be less than 78 inches (1,981 mm) in height measured from the top of the threshold to the bottom of the stop. Other exterior doors shall not be required to comply with these minimum dimensions. Egress doors shall be capable of being readily opened from the inside of the dwelling without the use of a key or special knowledge or effort.

Add section R311.2.1 as follows:

R311.2.1 Interior Doors. All doors providing access to habitable rooms shall have a minimum nominal width of 30 inches (762 mm) and a minimum nominal height of 78 inches (1,981 mm).

Exceptions:

1. **Doors providing access to bathrooms are permitted to be 28 inches (711 mm) in nominal width.**
2. **Doors providing access to bathrooms in existing buildings are permitted to be 24 inches (610 mm) in nominal width.**

Revise and replace section R311.3.1 Floor elevations at the required egress doors – Exception as follows:

Exception: The landing or floor on the exterior side shall be not more than 8 ¼ inches (210 mm) below the top of the threshold provided that the door does not swing over the landing or floor.

Revise and replace section R311.3.2 Floor elevations at other exterior doors as follows

R311.3.2 Floor elevations. Doors other than the required egress door shall be provided with landings or floors not more than 8 ¼ inches (210 mm) below the top of the threshold.

Revise and replace the first sentence in R311.7.5.1 Risers as follows:

R311.7.5.1 Risers. The *riser* height shall be not more than 8 ¼ inches (210 mm).

Revise and replace the first sentence in R311.7.5.2 Treads as follows:

R311.7.5.2 Treads. The tread depth shall not be less than 9 inches (229mm).

Revise and replace section R311.7.5.2.1 Winder treads as follows:

R311.7.5.2.1 Winder treads. *Winder* treads shall have a tread depth of not less than 9 inches (229 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. *Winder* treads shall have a tread depth of not less than 3 inches (76 mm) at any point within the clear width of the *stair*. Within any flight of stairs, the largest *winder* tread depth at the walkline shall not exceed the smallest *winder* tread by more than 3/8 inch (9.5 mm). Consistently shaped *winders* at the walkline shall be allowed within the same flight of stairs as rectangular treads and shall not be required to be within 3/8 inch (9.5 mm) of the rectangular tread depth.

Revise and replace section as follows:

R313.1 Townhouse automatic sprinkler systems. Automatic sprinkler systems for *townhouses* shall be designed and installed in accordance with NFPA 13, NFPA 13R or NFPA 13D, as applicable:

1. A *townhouse* with an aggregate area of 12,000 ft^2, or more, shall be provided with an NFPA 13 system.

2. A *townhouse* with an aggregate area of less than 12,000 ft^2 shall be permitted to use an NFPA 13R system.

   Exception: A *townhouse* consisting of only three *townhouse units* with an aggregate area of less than 12,000 ft^2 shall be permitted to use an NFPA 13D system.

For the purposes of this subsection, the aggregate area shall be the combined area of all stories of the *townhouse* and *firewalls* shall not be considered to create separate buildings. Aggregate area shall include garage areas, basement areas and finished *habitable attic* areas. Unfinished *habitable attic* areas, *attic* areas and *crawlspace* areas shall not be included in the aggregate area.

Exception: An automatic sprinkler system shall not be required where *additions* or *alterations* are made to existing *townhouses* that do not have an automatic sprinkler system installed.

Revise and replace section R313.2 One- and two-family dwellings automatic sprinkler systems as follows:

R313.2 One- and two-family dwellings automatic sprinkler systems. Primarily owner occupied one- and two-family *dwellings* and accessory spaces newly constructed as *short term rental lodging houses* and primarily owner occupied one- and two-family *dwellings* and accessory spaces which began being used as *short term rental lodging*

houses on or after October 17, 2017, shall be equipped with an automatic sprinkler system installed in accordance with NFPA 13D.

Note: Non-primarily owner occupied one and two-family *dwellings* shall meet the requirements of 780 CMR based on the use classification determined in accordance with 780 CMR Chapter 3.

Revise and replace section 313.2.1 Design and installation as follows:

313.2.1 One and two-family dwellings with an aggregate area greater than 14,400 ft^2, shall be equipped with an automatic sprinkler system installed in accordance with NFPA 13D. For the purposes of this section, aggregate area shall include the combined area of all stories of the building, basement areas and finished *habitable attic* areas. Garages, unfinished *habitable attic* areas*, attic* areas and *crawlspaces* shall not be included in the aggregate area.

Exception: An automatic sprinkler system shall not be required where *additions* or *alterations* are made to existing one- or two-family *dwellings* having an aggregate area greater than 14,400 ft^2 that are not already provided with an automatic sprinkler system. Aggregate area for the purposes of this exception shall be as described in R313.2 and shall include the addition or alteration area in the calculation.

Revise and replace section R314.1.1 Listings as follows:

R314.1.1 Listings. Smoke alarms shall be *listed* photoelectric type in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be *listed* in accordance with UL 217 and UL 2034 (smoke alarm shall be photoelectric type).

Revise and replace section R314.2.2 Alterations, repairs and additions as follows"

R314.2.2 Alterations, repairs and additions. See Appendix J.

Add Item # 6 and 7 to section R314.3 Location as follows:

6. Near the base of all stairs, but not within the stairway.

7. For each 1,000 ft of area or part thereof.

Revise and replace section R314.3.1 as follows:

R314.3.1 RESERVED

Revise and replace section R314.5 as follows:

R314.5 Combination Alarms. Combination smoke and carbon monoxide alarms shall be permitted to be used in *lieu* of smoke alarms and shall be interconnected such that fire alarms have precedence over carbon monoxide alarms in accordance with the requirements of NFPA 72.

Delete Exception #2 in section R314.6 Power source.

Revise and replace section R314.7.4 Combination detectors as follows:

R314.7.4 Combination detectors. Combination smoke and carbon monoxide detectors shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance

with UL 268 and UL 2075. The fire alarm control panel battery shall serve as the source of secondary power for wireless systems.

Add section R314.8 Heat detector as follows:

R314.8 Heat detector. A single heat detector listed for the ambient environment shall be installed in:

1. Any garage attached to or under the dwelling (detached garages do not require a heat detector).

2. A new garage attached to an existing dwelling. If the existing dwelling contains a fire detection system that is compatible with the garage heat detector, then the detector shall be interconnected to that system. Where the existing fire detection system is not compatible with the garage heat detector, the garage heat detector shall be connected to an alarm (audible occupant notification), or compatible heat detector with an alarm, located in the dwelling and within 20 feet (6096 mm) of the nearest door to the garage from the dwelling. An alarm is not required in the garage, either integral with or separate from the heat detector.

Add section R314.8.1 Heat Detector Placement as follows:

R314.8.1 Heat Detector Placement. For flat-finished ceilings, the heat detector shall be placed on or near the center of the garage ceiling. For sloped ceilings having a rise to run of greater than one foot in eight feet (305 mm in 2438 mm), the heat detector shall be placed in the approximate center of the vaulted ceiling but no closer than 4 inches (102 mm) to any wall. Heat detection shall be listed in accordance with UL 521 or UL 539.

Add section R314.9 Common Areas as follows:

R314.9 Common Areas. In all buildings that are not protected with sprinklers, each unit shall have additional interconnected smoke detectors on the stairway side of all doors leading to common interior stairways. If there is a common basement, a separate interconnected system of smoke detectors, including smoke detectors on the stairway side of all doors leading to interior stairways, shall be provided to the basement level only.

Revise and replace section R315.1 General as follows:

R315.1 General. Carbon monoxide alarms shall comply with Section R315, 248 CMR, NFPA 72 and the manufacturer's instructions.

Revise and replace section R315.1.1 Listings as follows:

R315.1.1 Listings. Carbon monoxide alarms shall be *listed* in accordance with UL 2034 and UL 2075. Combination carbon monoxide and smoke alarms shall be *listed* in accordance with UL 217 and UL 2034.

Revise and replace section R315.2.2 Alterations, Repairs and Additions as follows:

R315.2.2 Alterations, Repairs and Additions: *See* Appendix J**.**

Revise and replace section R315.3 Location as follows:

R315.3 Location. Carbon monoxide alarms in *dwelling units* shall be installed outside of each separate sleeping area within 10 feet of the bedrooms. Where a fuel-burning *appliance* is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. At least one carbon monoxide alarm shall be installed on each story of a dwelling unit, including basements and cellars but not crawl spaces and uninhabitable attics.

Revise and replace section 315.4 Combination alarms as follows:

315.4 Combination alarms. Combination carbon monoxide and smoke alarms (in compliance with Section 314) shall be permitted to be used in lieu of carbon monoxide alarms, located as in R315.3, provided they are compatible and the smoke alarms take precedence.

Delete the "Exception" to section R315.5 Interconnectivity.

Add a last sentence to section R315.6 Power source as follows:

> **Alarms may also be part of a low voltage or wireless system with standby power from monitored batteries in accordance with NFPA 72.**

Delete Exception #2 from section R315.6 Power source.

Revise and replace section R319.1 Address Identification as follows:

R319.1 Address Identification. *See* M.G.L. c. 148, § 59 and applicable provisions of 527 CMR: *Board of Fire Prevention Regulations.* Local ordinances or bylaws may also be applicable.

Revise and replace section R320.1 Scope For townhouses as follows"

R320.1 Scope. For townhouses, *see* 521 CMR: *Architectural Access Board.*

Revise and replace section R320.2 Live/work units as follows:

R320.2 Live/work units. In *live/work units*, the non-residential portion shall be subject to 521 CMR: *Architectural Access Board.*

Revise and replace section R321.1 Elevators as follows:

R321.1 Elevators. Where provided, passenger elevators, limited-use and limited-application elevators or private residence elevators shall comply with ASME A17.1/CSA B44 524 CMR: *Board of Elevator Regulations*.

Revise and replace section R321.2 Platform Lifts as follows:

R321.2 Platform lifts. Where provided, platform lifts shall comply with ASME A18.1 524 CMR: *Board of Elevator Regulations.*

Revise and replace section R321.3 Accessibly as follows:

R321.3 Accessibility. Elevators or platform lifts that are part of an accessible route required by Chapter 11 of the *International Building Code*, shall comply with ICC A117.1 780 CMR 11.00: *Accessibility* shall comply with 524 CMR: *Board of Elevator Regulations*.

SECTION R322 FLOOD-RESISTANT CONSTRUCTION

Revise and replace section R322 General as follows:

R322.1 General. Buildings and structures constructed in whole or in part in flood hazard areas and coastal dunes, and substantial improvement and restoration of substantial damage of buildings and structures in those areas shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures located in more than one flood hazard area and coastal dunes shall comply with the most restrictive

provisions. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24 as modified in this code. See section R105.3.1.1 for substantial improvements and damage and see section R309 for garage requirements. Flood hazard areas include the following:

1. AO zones, where shallow flooding exists without waves;
2. A zones;
3. Coastal A Zones and;
4. V zones, where high velocity wave action exists and wave heights are greater than or equal to three feet.

The construction documents shall include documentation that is prepared and sealed by a registered design professional that the design and methods of construction to be used meet the applicable criteria of this section.

Revise and replace section R322.1.1 as follows:

R322.1.1 Base Flood Elevation, Flood Maps, Delineations and Definitions. For base flood elevation and mapping resources see the following:

1. Flood hazard areas and base flood elevations are identified on a community's current effective Flood Insurance Rate Map ("FIRM") or Flood Hazard Boundary Map ("FHBM"), whichever is applicable, and further defined in the current effective Flood Insurance Study ("FIS") where applicable.
2. Floodways are delineated on a community's current effective FIRM or Flood Boundary & Floodway Map, whichever is applicable, and further defined in the current effective FIS.
3. If a community has received a preliminary FIRM and FIS from FEMA, and has been issued a Letter of Final Determination ("LFD") from FEMA, the community shall use the preliminary FIRM and FIS to determine applicable flood zones, base flood elevations and floodways as of the date of the LFD.
4. Coastal wetlands resource areas are defined on the "Map of Coastal Wetland Resources for Building Officials."

Revise section R322.1.1 Alternative provisions to read – "Reserved".

Revise and replace section as follows:

R322.1.4 Establishing the Design Flood Elevation. The design flood elevation in Massachusetts shall be as follows:

1. For AO Zones, the design flood elevation shall be the elevation of the highest adjacent grade plus the flood depth specified on the FIRM plus two feet or the elevation of the highest adjacent grade plus four feet if no flood depth is specified. See section R322.2 for requirements.
2. For A Zones, the design flood elevation shall be the base flood elevation plus two feet. See section R322.2 for requirements.

3. For V Zones and coastal A zones, the design flood elevation shall be the base flood elevation plus three feet. See section R322.3 for requirements.

4. For coastal dunes, see section R322.5 for requirements.

Revise and replace section R322.1.5 Lowest Floor as follows:

R322.1.5 Lowest Floor and Basement. The lowest floor shall be the lowest floor of the lowest enclosed area, including basement, and excluding any unfinished flood-resistant enclosure that is useable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the building or structure in violation of this section. A basement is the portion of a building, including crawl spaces, having its floor below exterior grade on all sides. This definition of "basement" is limited in application to the provisions of section R322.

Revise and replace section R322.1.6 as follows:

R322.1.6 Protection of Mechanical, Plumbing and Electrical Systems. Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in section R322.2, R322.3 or R322.4. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

EXCEPTION: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment only within flood hazard areas including A and AO Zones is permitted below the elevation required in section R322.2 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of 780 CMR 51.00: *Massachusetts Residential Code* for wet locations.

Revise and replace section R322.1.9 as follows:

R322.1.9 Manufactured Homes. The bottom of the frame of new and replacement manufactured homes on foundations that conform to the requirements of section R322.2 or R322.3 and R322.4, as applicable, shall be elevated to or above the elevations specified in section R322.2 (flood hazard areas including AO and A Zones) or R322.3 in coastal high-hazard areas (V Zones) and coastal A zones and R322.4 in coastal dunes. The anchor and tie-down requirements of the applicable state or federal requirements shall apply. The foundation and anchorage of manufactured homes to be located in identified floodways shall be designed and constructed in accordance with ASCE 24.

Revise and replace section R322.2.1 as follows:

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, not including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation 2 feet or the design flood elevation, whichever is higher.

2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.

3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation 2 feet or the design flood elevation, whichever is higher.

4. Garage and carport floors shall comply with one of the following:

4.1. They shall be elevated to or above the elevations required in Item 1 or Item 2, as applicable.

4.2. They shall be at or above grade on not less than one side. Where a garage or carport is enclosed by walls, the garage or carport shall be used solely for parking, building access or storage.

Exception: Enclosed areas below the elevation required in this section, including basements with floors that are not below grade on all sides, shall meet the requirements of Section R322.2.2.

Revise and replace section R322.2 as follows:

R322.2 Flood Hazard Areas (Including A and AO Zones). Buildings and structures constructed in whole or in part in A and AO Zones shall be designed and constructed in accordance with sections R322.2.1 through R322.2.3.

Revise and replace section R322.2.2 as follows:

R322.2.2 Enclosed Area Below Design Flood Elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation and are not basements shall:

1. Be used solely for parking of vehicles, building access or storage.

2. Be provided with flood openings that meet the following criteria and are installed in accordance with section R322.2.2.1:

2.1. The total net area of openings shall be not less than one in^2 (645 mm^2) for each ft^2 (0.093 m^2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in section 2.6.2.2 of ASCE 24.

2.2. Openings shall be not less than three inches (76 mm) in any direction in the plane of the wall.

2.3 The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.

Revise and replace section R322.3.2 as follows:

R322.3.2 Elevation Requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones shall be elevated so that the bottom of the lowest portion of horizontal structural members supporting the lowest floor, with the exception of pilings, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 3 foot or the design flood elevation, whichever is higher.

2. Basement floors that are below grade on all sides are prohibited.

3. The use of fill for structural support is prohibited.

4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways. Fill is prohibited unless such fill is constructed and/or placed to avoid diversion of water and waves toward any building or structure.

5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of sections R322.3.4 and R322.3.5.

6. For lateral additions in V Zones and coastal A zones that are not a substantial improvement, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings, pile caps, columns, grade beams and bracing, is located at an elevation that is at least the design flood elevation.

Revise and replace section R322.3.3 Foundations as follows:

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas and shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of section R322.3.5. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by 780 CMR 51.00: *Massachusetts Residential Code*. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with section R322.3.9. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of buildings and structures and their foundations to prevent transfer of flood loads to the buildings and structures during conditions of flooding, scour or erosion from wave-velocity flow conditions, unless the buildings and structures and their foundations are designed to resist the additional flood load.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided that the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

Revise and replace section R322.3.5 as follows:

R322.3.5 Walls Below Design Flood Elevation. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and

2. Are constructed with insect screening or open lattice; or

3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than ten lbs. per ft^2 (479 Pa) and not more than 20 lbs. per ft^2 (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of 780 CMR 51.00: *Massachusetts Residential Code* exceed 20 lbs. per ft^2 (958 Pa), the construction documents shall include documentation prepared and sealed by a registered design professional that:

   4.1 The walls and partitions below the design flood elevation have been designed to collapse from a water load less than that which would occur during the base flood.

   4.2 The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by 780 CMR 51.00: *Massachusetts Residential Code*; or

5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in section R322.2.2, Item 2.

Add section R322.4 Coastal Dunes as follows:

R322.4 Coastal Dunes. Buildings or structures constructed in whole or in part in coastal dunes shall be designed and constructed in accordance with sections R322.4.1 through R322.4.6.

Add section R322.4.1 Construction Documents as follows:

R322.4.1 Construction Documents. For buildings and structures, including new or replacement manufactured homes, lateral additions, foundations that are replaced in total or repaired so as to constitute substantial repair of a foundation, or substantial repair or improvement of a building or structure that has incurred substantial damage as a result of flooding and/or storms, proposed on a parcel of land that is located wholly or partially within a coastal wetland resource area shown on the map entitled "Map of Coastal Wetland Resources For Building Officials," the building official shall require submission of one of the construction documents specified in section R322.4.1 (a) through (d) along with a notarized statement by the applicant that the order, determination or notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building permit shall be issued unless and until a construction document that conforms to the requirements of this section is submitted. Note; Map of Coastal Wetland Resources For Building Officials are available through CZM or DCR Flood Hazard Management program.

a. An order of conditions establishing the boundaries of all coastal wetland resource areas in a plan referenced in and accompanying the order. The order shall determine whether the coastal wetland resource areas are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including

the interests of flood control and storm damage prevention. If the order indicates that the proposed construction work is located within a coastal dune that is significant to the interests of flood control and/or storm damage prevention, the order of conditions shall allow the proposed construction.

b. An order of resource area delineation stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the order.

c. A determination of applicability stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the determination or will not fill, dredge or alter a coastal wetland resource area.

d. A notice of non-significance evidencing that the proposed construction work is within a coastal wetland resource area as shown on a plan referenced in and accompanying the notice and stating that the coastal wetland resource area is not significant to any of the interests identified in M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering of Land Bordering Waters (the Wetlands Protection Act).

Add section R322.4.2 Structural Elevation as follows:

R322.4.2 Structural Elevation. The elevation of the bottom of the lowest horizontal structural member, as required by the lowest floor elevation inspection in subsection R110.3.3.1 shall be submitted.

Add section R322.4.3 Additional Documentation as follows:

R322.4.3 Additional Documentation. Documentation for buildings located in more than one zone shall meet the requirements of all zones.

Add section R322.4.4 as follows:

R322.4.4 Elevation Requirements. For new buildings and structures, new foundations, replacement or substantial repair of a foundation, or repair of a substantially damaged structure where damage is the result of a storm or flooding the entire structure shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps or lateral bracing elements is located above the Design Flood Elevation, or at the elevation required by the order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering Land Bordering Waters (the Wetland Protection Act) and Wetlands Protection Regulations, 310 CMR 10.21 through 10.35: *Additional Regulations for Coastal Wetlands,* but no less than two feet above the adjacent grade. For lateral additions that are not a substantial improvement, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps or lateral bracing elements is located above the Design Flood Elevation, or is located at the elevation required by the order of conditions of the local conservation commission in accordance with M.G.L. c. 131, § 40 and Wetlands Protection Regulations, 310 CMR 10.21 through 10.35 but no less than two feet above the adjacent grade. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

Add section R322.4.5 Foundations as follows:

R322.4.5 Foundations. Anchorage of buildings and structures shall be designed and connected to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the base flood. Foundations for work meeting the elevation requirements of section R322.4.4 shall consist of open pilings and lateral bracing elements, without at grade horizontal elements such as footings, grade beams or slabs that would otherwise impede to allow the movement of the dune.

Exception: Where surface or subsurface conditions consist of non-erodible soil that prevents the use of pile foundations, spread footings or mat foundations may be permitted. Such foundations shall be anchored to prevent sliding, uplift or overturning of the footing and the non-erodible soil it is attached to and be designed to withstand any combination of loads. No other use of alternate materials, design and methods of construction and equipment as described in R104.11 is permitted.

Add section R322.4.6 as follows:

R322.4.6 Enclosed Areas Below Design Flood Elevation. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

Revise and replace section R324.3 as follows:

R324.3 Photovoltaic systems. Photovoltaic (PV) systems shall be designed and installed in accordance with Sections R324.3.1 through R324.7.1 and the manufacturer's installation instructions. The electrical portion of solar PV systems shall be designed and installed in accordance with 527 CMR 12:00 *Massachusetts Electrical Code* .

Revise and replace section R324.6.2.1 as follows:

R324.6.2.1 Alternative setback at ridge. Where an automatic sprinkler system is installed within the dwelling in accordance with NFPA 13D, setbacks at ridges shall comply with one of the following:

Revise and replace section R326.3 Item 1.2 as follows:

Item #1.2 Not greater than one-half of the floor area of the story below where the habitable attic is located within a dwelling unit equipped with a fire sprinkler system in accordance with NFPA 13, 13R or 13D.

Revise and replace section R326.3 Item #4 as follows:

Item #4 Where a habitable attic is located above a third story, the dwelling unit or townhouse unit shall be equipped with a fire sprinkler system in accordance with NFPA 13, 13R or 13D.

Revise and replace section R327.1 General as follows:

R327.1 General. The design and construction of pools and spas shall comply with the *International Swimming Pool and Spa Code* and the following notes:

Notes:

1. Installation of electrical wiring and electrical devices shall be in accordance with 527 CMR 12:00 *Massachusetts Electrical Code, Board of Fire Prevention Regulations.*

2. Installation of gas-fired pool heaters shall be in accordance with 248 CMR: *Massachusetts Plumbing and Gas Code, Board of State Examiners of Plumbers and Gas Fitters.*

SECTION R328 ENERGY STORAGE SYSTEMS

Revise and replace the entirety of Section R328 as follows:

R328.1 General. Where a building will be constructed or modified for the installation of *energy storage systems (ESS)* the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other

codes and regulations on work governed by 780 CMR and within the jurisdiction of the building official, shall be subject to permitting, inspection and approval by the building official.

R328.2 Electrical installation. *ESS* shall be installed in accordance with 527 CMR 12.00.

R328.3 Fire detection. Where ESS is installed in *dwelling units*, basements and attached garages and structures, the *dwelling unit* and building shall be protected by smoke alarms, where required, in accordance with Section R314. Carbon monoxide protection, where required, shall be provided in accordance with R315.

> **R328.3.1** Where ESS is installed in an existing building, fire detection shall be provided throughout the building in accordance with AJ102.3.

R328.4 Ventilation. Indoor installations of *ESS* that produce hydrogen or other flammable gases during charging shall be provided with mechanical *ventilation* in accordance with 780 CMR 51.00 M1307.4.

Revise and replace section R329.2 Installation as follows:

R329.2 Installation. The installation of stationary engine generators shall be in an *approved* location and in accordance with the listing, the manufacturer's installation instructions and 527 CMR 12:00 *Massachusetts Electrical Code, Board of Fire Prevention Regulations.*

SECTION R330 STATIONARY FUEL CELL POWER SYSTEMS

Revise and replace section R330.1 General as follow:

R330.1 General. *Stationary fuel cell power systems* in new and existing buildings and structures shall comply with 527 CMR 12:00, *Massachusetts Electrical Code, Board of Fire Prevention Regulations,* 248 CMR: *Massachusetts Plumbing and Gas Code, Board of State Examiners of Plumbers and Gas Fitters and 527 CMR Massachusetts Fire Prevention Regulations, Board of Fire Prevention Regulations,* as applicable.