

Plan Review Checklist On-Line Submission

1 & 2 Family Residential

9th edition, Massachusetts State Building Code

The following symbols indicate in this plan review items have been satisfied for the purpose of plan review. **X** **✓**

If section states "complete" that indicates that section is satisfied move to next section.

If unchecked that item needs to be addressed.

Property Address: _____

Review by: _____

Review Date Started: _____ Completed Review Date _____

E-Mail Address _____ Phone Number _____

Permit Application Denied

Approved as submitted

Approved as noted

Resubmit with requested information for approval

Project Information:

- Type of Proposed Work
- Market or Affordable
- Is Owner doing the Work
- Property Type
- Total Number of Dwellings
- Brief Description of Proposed Work

Site Information:

- Lot Area
- Frontage
- Zoning Overlay District
- Flood Zone Designations
- Water Supply
- Sewage Disposal system
- Zoning District
- Flood Zone Information
- Construction Type

Conservation:

- Within 100ft of wetland
- Within 100ft of pond
- Within 200ft of a stream
- Within 100ft of brook
- Within 100ft of waterway

Structure Setbacks:

- Required Front Yard Setbacks
- Required Right Side Yard Setbacks
- Required Left Side Yard Setbacks
- Required Rear Yard Setbacks
- Provided Front Yard Setbacks
- Provided Right Side Yard Setbacks
- Provided Left Side Yard Setbacks
- Provided Rear Yard Setbacks

Construction Details:

- # Bedrooms
- # Garage
- Finished Basement s.f.
- Occupancy Load 3rd Floor
- Unfinished Bsmt s.f.
- 2nd floor s.f.
- Occupancy Load 2nd Floor
- Other Space s.f.
- Occupancy Load Other Space
- # Floor
- Total Decks & Porches s.f.
- 3rd Floor s.f.
- 1st Floor s.f.
- Occupancy Load 1st Floor
- Building Code Edition
- Garage s.f.
- Subdivision Name
- Sprinkler System

Estimated Construction Cost:

- Building
- Plumbing
- Fire Protection
- Electric
- Mechanical (HVAC)
- Total Estimated Cost

Registered Home Improvement Contractor:

- o Contractor's Name
- o Business Name
- o Registration #
- o Registration Expiration Date
- o Mailing Address
- o Preferred Telephone #
- o Email

License Construction Supervisor:

- o Name
- o Mailing Address
- o Phone #
- o Email
- o License #
- o Expiration Date

Homeowner License Exemption:

- o Name Homeowner
- o Phone #
- o Homeowner Signature

Required Information to be present on Certified Plot Plan

4. Plot Plan §R107.2 (separate from building plans) required for additions and accessory buildings and in-ground pools to include;

- o This plan shall be prepared by an Engineer or Registered Land Surveyor in accordance with the Massachusetts Registration Laws, and submitted to the Inspector of Buildings prior to framing
- o Location of existing and proposed construction with dimensioned setbacks including driveway set backs
- o Location of lot lines, dimensions of lot & frontage
- o Property address: map & lot number, zoning district & overlays
- o Statement that the lot and proposed building shown on this plan is located on the ground as shown and does, does not conform to the present zoning bylaws.
- o Statement that existing condition does / does not lie within a Flood Hazard Zone as shown on the F.E.M.A map of the Town of Grafton
- o Septic System location with reserve area
- o Well location if applicable
- o Wetland delineation if applicable
- o North Arrow
- o Drawing scale
- o Date of Document
- o Location & dimensions of public easements, public utility easements, railroad right-of-ways, and established zoning setback requirements.
- o Location & dimensions of primary & accessory buildings & structure also street access drives and walks or other conditions rendering the land surface impervious
- o Grading plan must include the existing grading of the lot (direction of water flow) and proposed grading after completion
- o §R403.1.7.2 Foundation Clearance from Slopes
- o New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 ft² (55.74 m²) of roof area oriented between 110° and 270° of true north must be labeled on plot plan as solar ready zone.

The Plan Submitted to Have

- Original Seal (wet seal)
- Original signature

5. Completed Energy Conservation Code Collection Checklist



Residential Data Collection Checklist
 2018 International Energy Conservation Code - Residential Provisions
 Climate Zone 5

Building ID: _____ Date: _____ Name of Evaluator(s): _____

Building Contact (optional): Name: _____ Phone: _____ Email: _____

Building Name: _____ Address: _____ Conditioned Floor Area: _____ ft²

Stretch code requirement for new construction please provide the projected HERS rating from the Accredited HERS Rater that you hire. Accredited HERS Rater

Compliance Approach (check all that apply): Prescriptive Trade-Off Performance

Compliance Software Used: _____ Above-Code Program: _____

Building Type: 1-and 2-Family, Detached: 1-and 2-Family Dwellings Modular Townhouse
 Multifamily: Apartment Condominium

Foundation Type: Basement Slab Conditioned Crawl Space Floor Over Unconditioned Space

Project Type: New Building Existing Building Addition Existing Building Renovation

2015 IECC Section #	Pre-Inspection/Plan Review	Prescriptive Code Value	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1] ¹	Construction drawings and documentation demonstrate energy code compliance for the building envelope.				<input type="checkbox"/> Complies <input type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
103.1, 103.2, 403.7 [PR3] ¹	Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.				<input type="checkbox"/> Complies <input type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
302.1, 403.6 [PR2] ²	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.		Heating: Btu/hr _____ Cooling: Btu/hr _____	Heating: Btu/hr _____ Cooling: Btu/hr _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not Comply <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the shower or tub.	Exterior walls adjacent to showers and tubs shall be insulated.
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6. Three sets of plans and specifications showing the proposed work

- o Temporary structures applications shall indicate begin and end time, and size of structure.
- Tents and similar structures must produce a Certificate of Flame Retardant

SEE TABLE §R301.2(1) FOR FOOTNOTES

Ground Snow Load	Wind Speed (mph)	Seismic Design	Weathering	Frost Line Depth	Termite	Decay	Winter Design Temp	Ice Shield Underlayment Required	Flood Hazard	Air Freezing Index	Mean Annual Temp
<i>Table 5301.2 (5)</i>	<i>Table 5301.2.(4)</i>	<i>N/A</i>	<i>Figure 5301.2 (3)</i>	<i>4ft. minimum unless engineered data shows otherwise</i>	<i>Figure 5301.2 (6)</i>	<i>Figure 5301.2 (7)</i>	<i>Appendix 780 CMR 120.J Table 120.J.3.2.1</i>	<i>As required by the exterior roof covering manufacturer; roof pitch and local climate must also be considered</i>	<i>Refer to applicable Flood Insurance Rate Map (FIRM)</i>	<i>Only utilized in the design and construction of frost protected shallow foundations</i>	<i>Only utilized in the design and construction of frost protected shallow foundations</i>
50 psf	126 mph	NA	Severe	§5403.1.4	<i>Moderate to Heavy</i>	<i>Slight to Moderate</i>	NA	§5905.0	FIRM MAPS	See note J Table 5301.2(1)	See note K Table 5301.2(1)

**PROCEDURE FOR OBTAINING A BUILDING PERMIT FOR 1 OR 2 FAMILY
NEW CONSTRUCTION FOR UNDEVELOPED LOT & ADDITIONS, ALTERATIONS,
ACCESSORY STRUCTURES
(In addition to the above requirements)**

7. Building Construction Documents

• General

- o Three complete sets of construction documents §R107.1
- o Construction documents for structures to be constructed in flood hazard areas are required to be prepared by a design professional pursuant to § R107.1.4
- o Also see Grafton Zoning Bylaws
- o Documentation concerning disturbed / fill soils that support foundations shall be in accordance with §R401.2

8. • Construction Drawings

Cover Sheet

- o Address with Assessor Map and Parcel
- o Date of latest revision
- o Tabulated Square Foot Area all levels (and spaces if applicable)
- o Design live load all spaces and levels
- o Building height above grade
- o Wind Exposure category each building side
- o Window, door, skylight and cladding schedule showing associated positive and negative design pressure and zone number including manufacturers specifications cut sheets on each type window, door, skylight and cladding being installed.
- o Identify class of material Table §R401.4.1 and Table §R405.1 **Construction documents** (1/4" scale minimum)
- o Floor Plan (all levels)
- o Building dimensions Space designation – (ie: living room, kitchen, bedroom, storage, etc.)
- o Demonstrate light and ventilation compliance §R303.1
- o Door and window location per schedule on cover sheet, identifying egress windows and safety glazing
- o Show attic access size and location
- o Location and type of smoke detectors and carbon monoxide detectors & completed install permit.
- o Emergency escape and rescue required. Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening.

9. Mechanical Plan Review

- o Identify the location and supply spec's of required mechanical ventilation of bathrooms at the ventilation rates noted in 780 CMR §R303.3
- o 2015 IECC R403.5 Mechanical ventilation (Mandatory). Location of unit must be marked on plans Specification along with installation manual must be submitted.
- o If utilizing existing equipment, you MUST submit a heat loss calculation showing existing loads and also proposed new loads (manual J)
- o Heating system location, size (BTU), location of fuel source and method of combustion air make-up (manual S)
- o Location of ductwork...if installed in exterior wall, the Energy Conservation Application Form noted above must reflect decreased R-value or indicate method of maintaining exterior wall integrity (manual D)
- o Completed Mechanical Permit application

10. Foundation Plan

- o Show dimensions and location of all footings, pads and columns
- o Footing sections and elevations where steps are intended
- o Show size and location of all steel reinforcement bars if applicable
- o Wall height and thickness with concrete PSI rating including garage slab PSI
- o Anchor bolt size, spacing and embedded depth
- o Show basement / crawl space ventilation method
- o Show basement / crawl space access size and location
- o Foundation hold down devices type and location when used with the alternative braced wall panels for braced wall requirements as allowed by FIGURE R602.10.3.2
- o Location and framing size of all cripple walls, with detail of walls less than 14 inch stud height
- o Passive Radon Control detail & shall indicate pathways for routing of conduit
- o Location of foundation drain exhaust or sump pit...drainage exclusion exception must be approved by building official §R405
- o Vapor Retarder detail as per §R405.2.2 A 6-mil-thick (0.15 mm) polyethylene vapor retarder
- o Demonstrate compliance with section §R403.1.7.2 Foundation Clearance from Slope

11. Framing Plan

- o Conventional framing plan all levels including roof, showing size, spacing and direction of structural members
- o Conventional header and beam sizes, spans and bearing clearly showing load path to foundation (ie: doorways, windows, archways, overhead doors, covered porches and decks and structural ridges). Detail showing insulated headers.
- o Engineered floor framing and roof truss plans stamped by a professional registered engineer in the Commonwealth of Massachusetts.
- o Raised rafter construction details stamped by a professional registered engineer in the Commonwealth of Massachusetts.
- o Floor Fire Protection §R302.13
- o Roof truss layout shall show type of uplift protection, bearing location, hangers and any other unique application. Multiple roof layouts shall require separate roof sectionals.
- o Engineered manufactured beams and columns stamped by a registered professional engineer in the Commonwealth of Massachusetts. Calculations shall be site specific verifying they generated the loads indicated and that the input and output data provided is site specific to include verification of load path and column adequacy to foundation...disclaimers of any kind shall be rejected.
- o Provide stamped engineered analysis for bearing stud wall height greater than 10 feet, and for non-load bearing stud walls in excess of heights listed in Table §R602.3(5).
- o Show exterior and interior wall bracing locations supporting wall brace method identified on cover sheet.

12. Elevations

- o Exterior building elevations all sides to include final grade
- o Exterior siding material – provide evaluation report for types of exterior wall cladding in conformance with the design pressure schedule provided on the cover sheet
- o Exterior roofing material – provide evaluation report for types of exterior roofing material in conformance with the design pressure schedule provided on the cover sheet.
- o Exterior building elevation demonstrating protection of wood based products against decay.

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

13. SECTION AU103 (RB103) SOLAR-READY ZONE

General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 ft² (55.74 m²) of roof area oriented between 110° and 270° of true north shall comply with sections AU103.2 through AU103.8 (RB103.2 through RB103.8). This needs to be marked on plot plan.

- Construction Document Requirements AU103.2 (RB103.2) for Solar Ready Zone. Construction documents shall indicate the solar ready zone where applicable.
- Roof Load Documentation AU103.5 (RB103.5). The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.
- Interconnection Pathway AU103.6 (RB103.6). Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system.
- Construction Documentation Certificate AU103.8 (RB103.8). A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

14. Cross sections

- Complete cross section of all unique sections of building, detailing method of construction from undisturbed soil to roof, including changes in floor levels.
- Stair detail showing type of material, rise and run, headroom height, handrail and guardrail.
- Masonry fireplace section showing fireplace opening size, throat size, damper location, smoke shelf, flue type and size and height of chimney above hearth level.
- Finished ceiling height all levels

15. Wall Bracing Plan Layout

- Clearly identify on separate sheet the method and location of all bracing on each wall line, all levels, including interior partitions if necessary §R602.10...the following is an aid to assist in complying with §R602.10 and is not intended to replace the written text of the code;
- Identify wall lines (§R602.10)
- Start with the exterior wall lines
- Wall lines spacing cannot exceed TABLE R602.10.3(1)
There are exceptions...if used, provide calculations
- Identify interior wall lines
- Wall lines are permitted to have offsets provided that each offset is no greater than 4 feet and the total aggregate of offsets do not exceed 8 feet within a wall line

Provide elevations, sections and details as required to clearly demonstrate application show location of all braced panels on plans

Any component that does not comply with the code prescriptive design shall bear the seal of a registered professional engineer

16. Building Planning

- **R302.3 Two-family dwellings.** *Dwelling units* in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E 119 or UL 263. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the *exterior wall*, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

- **CEILING HEIGHT R305.1** *Habitable space*, hallways, bathrooms, toilet rooms, laundry rooms and portions of *basements* containing these spaces shall have a ceiling height of not less than 7 feet (2134 mm).

Exceptions:

- For rooms with sloped ceilings, at least 50 percent of the required floor area of the room must have a ceiling height of at least 7 feet (2134 mm) and no portion of the required floor area may have a ceiling height of less than 5 feet (1524 mm).

- Bathrooms shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) at the center of the front clearance area for fixtures as shown in Figure R307.1. The ceiling height above fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a shower-head shall have a minimum ceiling height of 6 feet 8 inches (2032 mm) above a minimum area 30 inches (762mm) by 30 inches (762)

17. Building Utilities

- **Nec. 2020 210.25 Branch Circuits in Buildings with More Than One Occupancy.**
 - (A) **Dwelling Unit Branch Circuits.** Branch circuits in each dwelling unit shall supply only loads within that dwelling unit or loads associated only with that dwelling unit.

 - (B) **Common Area Branch Circuits.** Branch circuits installed for the purpose of lighting, central alarm, signal, communications, or other purposes for public or common areas of a two family dwelling, a multifamily dwelling, or a multi-occupancy building shall not be supplied from equipment that supplies an individual dwelling unit or tenant space.

- **Water District approval letter indicating number of meters to be installed**

- Sewer Department Approval or Approved Septic Plan

- **Common space marked on plans where utilities will be located**

Any person who is aggrieved by an interpretation, order, requirement, direction or failure to act by any state or local agency or official charged with the administration or enforcement of the State Building Code (780 CMR) or any of its rules and regulations, may file an appeal with the Building Code Appeals Board as prescribed in M.G.L. c. 143, §100

CHECKLIST FOR APPLICATION CHECKLIST

1. Owner's Authorization Form Completed
2. Signed contract between homeowner and the registered home improvement contractor subject to MGL c 142
3. In lieu of submitting a signed contract as the owner of record, the owner shall submit Signed Affidavit for Home Improvement Contractor Required Contract Terms
4. Electronic Set of plans for the building or structure
5. Mechanical Application (If applicable)
6. Smoke Detector Application, Sprinkler install approval from The Fire Department
7. Copies of Variances or Special Permits Granted by The Planning Board or Zoning Board of Appeals or any other Town Boards
8. Worker's Compensation Certificate
9. Insurance Binder from Insurance Company made out to the Town
10. Homeowner License Exemption (If applicable)
11. Copy of Construction Supervisor License
12. ~~Copy of Home Improvement Registration (If applicable)~~
13. Statement for disposal of debris (If applicable)
14. Massachusetts Energy Compliance Report
15. Site Plan prepared by Engineer or Registered Land Surveyor showing location of buildings or structure to lot lines also proposed location of new structures as per 780 CMR 110.10