

MA Residential Energy Code

IECC, Base Code, Stretch Code, and HERS Rating

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For MA, IECC is always in effect...

- MA Energy Code is the IECC with MA Amendments
 - IECC with Base Code Amendments
 - OR
 - IECC with Stretch Code Amendments

IECC has 3 types of requirement

Mandatory
and

Prescriptive OR Performance



Mandatory Requirements

- 401.3 IECC Permanent Certificate
- 402.4 Air Sealing demonstrated by Blower door OR Air sealing Checklist
- 402.5 Max U-value of 0.48
- 403.1 Controls – Programmable T-stat
- 403.2.2 Duct Testing
- 403.3 Mechanical piping insulation (R-3)
- 403.4 Circulating Hot water (R-2 and switch)
- 403.5 Mechanical Ventilation (auto dampers)
- 403.6 Equipment Sizing (Manual J)

Mandatory Requirements, Cont.

- 403.7 Equipment Serving Multiple Units
- 403.8 Snow Melt System Controls
- 403.9 Pools (heaters, switches, covers)
- 405.2 Supply and Return Ducts R-6 Minimum

Prescriptive Requirements

- Prescriptive OR Performance path may be chosen in Base Code Community
- Prescriptive Path may not be used in the Stretch Code Communities
- 3 Prescriptive alternatives to insulation
 1. Insulation R-values
 2. Assembly U-values
 3. Overall UA Calculation (RESCheck without Mechanicals)

Prescriptive Requirements Cont.

- Duct Insulation R-8 Min for supplies in Attics,
- All other Ducts in unconditioned space are R-6 Minimum.
- Installed R-Value?
- Is common bubble Wrap R-6 or R-4.2?

Prescriptive Requirements Cont.

- 402.2 Specific Insulation Requirements
 - details
 - details
 - details
 - details
 -
- 404.1 Lighting Requirement – >50% High Efficacy

Performance

- 3 Types of Performance Compliance
 1. IECC Simulated Performance Alternative
 2. MA Amendment Base Code -- HERS Rating 70/75
 3. MA Amendment Stretch Code -- HERS Rating 65/70



Performance – Cost Compliance

- IECC Cost Compliance
 - 405.3 Performance-based compliance.
 - Annual Energy Cost of proposed design is less than IECC standard reference design.

Performance – HERS Rating

- MA Amendment Base Code -- HERS Rating 70/75
 - For 1-4 unit residential homes, the 8th edition residential code applies and this has a performance path for HERS Ratings of 75 or less.
 - <http://www.mass.gov/eopss/docs/dps/inf/780-8th-51.pdf> See pages 22-23.
 - For residential buildings larger than 1-4 units. The 8th edition base code now allows HERS ratings for residential units up to 5 stories including mixed use buildings. With a HERS Rating of 70 or less.



Performance – Stretch Code

- MA Amendment Stretch Code
 - Historic Building Exemptions
 - Remodeling and Additions,
 - The 2009 IECC Prescriptive, OR
 - Whole house HERS Index of 85 or better.

Performance – Stretch Code

- New Homes must follow HERS Rating performance path with a Certified HERS Rater.
 - Greater than 3000 Sq. Ft. Conditioned Space -- HERS Index 65 or better
 - Less than 3000 Sq. Ft. Conditioned Space -- HERS Index 70 or better
- Stretch Code information and Energy Code Forms:
 - <http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/stretch-energy-code-information.html>



HERS Rating Process

1. Preliminary HERS Rating before issuance of Construction Permit
2. Insulation inspections for Thermal Bypasses and RESNET Standard “Insulation grading”
3. Final Inspections including:
 - Infiltration and Duct Testing,
 - Verification of installed features and
4. Final HERS Rating before issuance of Occupancy Permit.



Summary

- IECC Mandatory Requirements are always in effect!
- Base Code allows multiple prescriptive paths and performance paths... Freedom is complicated!
- For New Homes, Stretch Code requires the Performance Path with HERS Rating.
- For Additions and Remodelling, Stretch Code allows prescriptive path OR HERS Rating Path.

References and Links

- MA Code Amendments:
 - <http://www.mass.gov/eopss/agencies/dps/building-codebbrs.html>
- Advanced Building Analysis, LLC:
 - <http://advancedbuildinganalysis.com/>
- Energy Raters of Massachusetts, Inc.
 - <http://www.energyratersma.com/>

