



# The City of Bloomfield Hills

Department of Building Safety  
45 E. Long Lake Rd.  
Bloomfield Hills, MI 48304

## Energy Code Worksheet for New Homes, Additions & Alterations

To facilitate permit issuance and enable the plan reviewer to verify compliance with the applicable provisions of the current version of the Michigan Uniform Energy Code (MUEC), please complete this form (Parts I,II and III) and submit it with your application for a new, single family home building permit.

**Project Address:**

### PART I: MANDATORY PROVISIONS

The following requirements apply to all new, single-family residential Buildings. This list should be used as a checklist for all plan submittal documents and as a checklist at the various inspection stages:

- | MUEC Section # | Description:  |
|----------------|---|
| ○ 401.3        | Prior to final inspection, a permanent energy code certificate shall be posted on or in the electrical distribution panel. Such certificate shall be on a label approved or provided by the Department of Building Safety.  |
| ○ 402.4.1      | <p>The building thermal envelope shall be durably sealed to limit infiltration. The sealing methods between dissimilar materials shall allow for differential expansion and contraction. The following shall be caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material:</p> <ul style="list-style-type: none"><li>• All joints, seams and penetrations</li><li>• Site-built windows, doors and skylights</li><li>• Openings between window and door assemblies and their respective jambs and framing.</li><li>• Utility penetrations, knee walls and attic access openings</li><li>• Dropped ceilings or chases adjacent to the thermal envelope</li><li>• Walls and ceilings separating a garage from conditioned spaces.</li><li>• Behind tubs and showers on exterior walls</li><li>• Rim joist junction</li><li>• Other sources of infiltration</li></ul> |

- 402.4.2 Building envelope air tightness and insulation installation shall be demonstrated to comply by either testing or visual inspection. Indicate the method you will use **by checking one** of the Following boxes:
  - Testing option (blower door)-Prior to final approval, provide results of Blower door test indicating that the tested air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a Pressure of 50 pascals (1 psf).
  - Visual Inspection (by building department)-Request for the Building Department to conduct visual inspections to verify conformance. All Sealing shall be completed and ready for inspection at the time of insulation inspection.
  
- 402.4.3 New wood-burning fireplaces shall have gasketed doors And outdoor combustion air.
  
- 402.4.4 Windows, skylights, and sliding glass doors shall have an infiltration rate of no more than 0.3 cfm per square foot and swinging doors no more than 0.5 cfm when tested in accordance with NRFC 400 or AAMA/WDMA/CSA 101/I.S.2 /A440 and shall be listed and labeled by the manufacturer. **Labels shall remain on windows until after insulation inspection.**
  
- 402.4.5 Recessed lighting in the thermal envelope shall meet 1 of the Following:
  - (a) Type IC rated, manufactured with no penetrations between The inside of the recessed fixture and ceiling cavity shall be sealed and gasketed to prevent air leakage into the unconditioned space.
  - (b) Type IC or non-rated , installed inside a sealed box constructed from a minimum 0.5-inch thick gypsum wallboard or constructed from a preformed polymeric vapor barrier, or other air-tight assembly manufactured for this purpose, while maintaining clearances of not less than 0.5 inch from combustible material and not less than 3 inches from insulation material.
  - (c) Type IC rated and admitting not more than 2.0 cubic feet per minute of air movement from the conditioned space to the ceiling cavity when tested in accordance with ASTM E 283. The lighting fixture shall be tested at 1.57 psi pressure difference and **shall be labeled.**

- 402.5 If using the **Total UA** or **simulated performance** alternatives, The area weighted average maximum fenestration U-factor permitted shall be 0.48 for vertical fenestration and 0.75 for skylights. **The average figures shall be indicated in the supporting documentation required for the alternative method chosen.** If using the prescriptive method, mark not applicable (N/A).
- 403.1 **Controls.** At least one thermostat shall be provided for each separate heating and cooling system.
  - (a) **A programmable thermostat** shall be provided for all forced air systems.
  - (b) Heat pumps having supplementary electric-resistant heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.
- 403.2.2 **Sealing.** All ducts ,air handlers, filter boxes, and building cavities used as ducts shall be sealed. Joints and seams shall comply with section M1601.4.1 of the Michigan Residential Code (MRC).
- 403.2.3 Building framing cavities shall not be used as supply ducts.
- 403.3 Mechanical system piping capable of carrying fluids above 105 Degress or less than 55 degress shall be insulated to a minimum R-3.
- 403.4 All circulating service hot water piping shall be insulated to at least R-2 and shall have an automatic or manual switch to system off.
- 403.5 Outdoor air intakes and exhausts shall have automatic gravity dampers that close when the ventilation system is not operating.
- 403.6 Heating and cooling systems shall be sized in accordance with Section M141.3 of the MRC. **A heating/cooling plan and supporting documentation shall be submitted prior to rough mechanical inspection.**
- 403.8 and 403.9 Snow melt systems and pools have special requirements. If applicable, provide supporting documentation indicating compliance. Otherwise, mark not applicable (N/A).

## Part II-Compliance Paths

In addition to the mandatory requirements, the energy code requires you to choose one of the three alternative compliance paths to demonstrate code compliance. Indicate the path you choose below by **checking one of the following boxes and completing the instructions.**

- Prescriptive (as prescribed by the code)

If you choose to use the prescriptive method of compliance, you may demonstrate compliance by completing the attached Prescriptive Compliance Report Form. **Sign the compliance statement below and attach a copy of the completed Prescriptive Compliance Report Form along with this form when submitting for a building permit.**

- Total UA Alternative (trade-off method)

Compliance with the Total UA Alternative method may be demonstrated by completing a compliance report using Rescheck software provided free of charge at [energycodes.gov](http://energycodes.gov). **Sign the compliance statement below and attach a copy of the completed compliance report with this form when submitting for a building permit.**

Please note that the building plans shall show the same materials and methods you use to complete the REScheck form. For example, if you use basement wall insulation in REScheck, such insulation should be clearly indicated on the building plans as well.

- Simulated Performance Alternative (performance analysis)

Certain commercially available compliance software (e.g. REM/RATE, etc.) may be used to demonstrate that the proposed construction will have an annual energy cost that is less than or equal to the energy cost of the standard reference design. Please see Section 405 of the code for specific criteria.

Such software shall generate a compliance report that documents that the proposed design complies and shall include information outlined in Section 405.4.2. **Sign the compliance statement below and attach a copy of the completed compliance report with this form when submitting for a building permit.**

## Part III- compliance Statement

I have read and completed the above form and will insure that the actual construction complies with the Michigan Energy Code.

Applicant	Signature	Date
Address	Printed Name	

## Prescriptive Compliance Report Form

(Please note that this form is only required if you have chosen the prescriptive compliance path.)

In the table below, indicate the proposed values of insulation, fenestration and other components in your proposed home. Please note that such components shall meet or exceed the performance of the prescribed values. If you have any clarifications, please note them in the comment section. Finally, the building plans shall show the same materials and methods you use to complete this form.

Component Description	Prescribed Value	Proposed Value	Comment
Fenestration U-Factor	0.35		
Skylight U- Factor (a)	0.60		
Ceiling R-Value	38		
Wood Frame R Value	20 or 13+5 (b)		
Mass Wall R-Value ©	13/17		
Floor R-Value	30 (d)		
Basement Wall R-Value (e)	10/13		
Slab R-Value & Depth (f)	10,2 feet		
Crawl space Wall R-Value	10/13		
Attic supply ducts R-Value	8		
Other supply ducts R-Value	6		
High efficacy lamps in permanently installed light fixtures-percentage	50%		
Attic access doors      Doors shall be weather-stripped and insulated to level of ceiling insulation. A wood frame or equivalent retainer is required around the access when loose fill insulation is used.			

- (a) The fenestration U-factor excludes skylights
- (b) 13+5 means R-13 cavity insulation plus R-5 insulated sheathing. If structural covers 25% or less of the exterior, R-5 sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- (c) The second R-value applies when more than half the insulation is on the interior.
- (d) Or insulation sufficient to fill the framing cavity, R-19 minimum.
- (e) The first R-value applies to continuous insulation, the second to framing cavity insulation, either insulation meets the requirement.
- (f) R-5 shall be added to the required slab edge R-values for heated slabs.

**This form is intended to provide a simple means to document prescriptive code compliance. Please see the full code context for exceptions, alternatives and other requirements that apply.**