

**Charter Township of Independence  
Building, Planning and Zoning Services  
6483 Waldon Center Dr.  
Clarkston, MI 48346  
248-625-8111**

**Michigan Uniform Energy Code Worksheet**

Job Address: \_\_\_\_\_ Submitted by: \_\_\_\_\_

Builder: \_\_\_\_\_ Phone #: \_\_\_\_\_

Check method of Compliance: Prescriptive \_\_\_\_\_ Systems Method \_\_\_\_\_

If Systems Method – Select/Circle one:

- International Energy Conservation Code
- U.S. EPA Energy Star Home Program
- Home Energy Rating System

1. Percent of fenestration exterior wall opening: \_\_\_\_\_ (Additions only)
  
2. Submit documentation for certified or labeled “R” values of all fenestration products including windows, doors and skylights. In addition, submit manufacturer’s verification that fenestration products do not exceed .37 cfm of air leakage per lineal feet of sash crack perimeter at air pressure of 1.56 p.s.f (25 mph) using ASTM – E283 Procedures.
  
3. Indicate the proposed insulation (include “R” value and thickness)
  - Walls \_\_\_\_\_ Heated Slabs \_\_\_\_\_
  - Ceilings \_\_\_\_\_ Unheated Slabs \_\_\_\_\_
  - Floors \_\_\_\_\_ Basement Walls \_\_\_\_\_
  
4. At the time of inspection, the insulation installer shall provide a certificate for blown-in or sprayed insulation that lists the following information:
  - a. Initial Thickness
  - b. Settled Thickness
  - c. Coverage Area
  - d. Number of Bags Used

## CHAPTER 4

# RESIDENTIAL ENERGY EFFICIENCY

### SECTION 401 GENERAL

**401.1 Scope.** This chapter applies to residential buildings.

**401.2 Compliance.** Projects shall comply with Sections 401, 402.4, 402.5, and 403.1, 403.2.2, 403.2.3, and 403.3 through 403.9 (referred to as the mandatory provisions) and either:

1. Sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive); or
2. Section 405 (performance).

**401.3 Certificate.** A permanent certificate shall be posted on or in the electrical distribution panel, and shall meet all of the following:

- (a) Be affixed or attached so it does not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels.
- (b) Be completed by the builder or registered design professional.
- (c) List the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor) and ducts outside conditioned spaces and *U*-factors for fenestration. If there is more than 1 value for each component, then the certificate shall list the value covering the largest area.
- (d) List the types and efficiencies of heating, cooling and service water heating equipment.
- (e) If a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, then the certificate shall list "gas-fired unvented room heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces, or electric baseboard heaters.

R 408.31061

### SECTION 402 BUILDING THERMAL ENVELOPE

**402.1 General (Prescriptive).**

**402.1.1 Insulation and fenestration criteria.** The *building thermal envelope* shall meet the requirements of Table 402.1.1 based on the climate *zone* specified in Chapter 3.

**402.1.2 *R*-value computation.** Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component *R*-value. The manufacturer's settled *R*-value shall be used for blown insulation. Computed *R*-values shall not include an *R*-value for other building materials or air films.

**402.1.3 *U*-factor alternative.** An assembly with a *U*-factor equal to or less than that specified in Table 402.1.3 shall be permitted as an alternative to the *R*-value in Table 402.1.1.

**402.1.4 Total UA alternative.** If the total building thermal envelope UA (sum of *U*-factor times assembly area) is less than or equal to the total UA resulting from using the *U*-factors in Table 402.1.3 (multiplied by the same assembly area as in the proposed building), the building shall be considered in compliance with Table 402.1.1. The UA calculation shall be done using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials.

R 408.31065

**402.2 Specific insulation requirements (Prescriptive).**

**402.2.1 Ceilings with attic spaces.** When section 402.1.1 would require R-49 in the ceiling, R-38 shall satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the *U*-factor alternative approach in section 402.1.3 and the total UA alternative in section 402.1.4.

R 408.31063a

**TABLE 402.1.1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT**

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT <sup>a</sup> U-FACTOR	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE <sup>f</sup>	FLOOR R-VALUE	BASEMENT <sup>b</sup> WALL R-VALUE	SLAB <sup>c</sup> R-VALUE & DEPTH	CRAWL SPACE <sup>e</sup> WALL R-VALUE
5A	0.35	0.60	38	20 or 13+5 <sup>e</sup>	13/17	30 <sup>d</sup>	10/13	10, 2 ft	10/13
6A	0.35	0.60	49	20 or 13+5 <sup>e</sup>	15/19	30 <sup>d</sup>	15/19	10, 4 ft	10/13
7	0.35	0.60	49	21	19/21	38 <sup>d</sup>	15/19	10, 4 ft	10/13

For SI: 1 foot = 304.8 mm.

a. The fenestration *U*-factor column excludes skylights.

b. The first *R*-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.

c. R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less, in zones 1-3 for heated slabs.

d. Or insulation sufficient to fill the framing cavity, R-19 minimum.

e. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing 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.

f. The second *R*-value applies when more than half the insulation is on the interior.

R 408.31063