

# Residential Energy Efficiency Compliance Declaration Form

Jobsite Address: \_\_\_\_\_  
Street Address & City/Township

## ***2019 Residential Code of Ohio (RCO) 1101.2***

Compliance shall be demonstrated by meeting the requirements of one of the following options:

1. Sections 1101.14 through 1104 of Chapter 11 of the 2019 RCO, or
2. Section 1105 (the Simulated Performance approach) and provisions of Sections 1101.14 through 1104 indicated as “Mandatory”, or
3. Section 1106 (the Energy Rating Index (ERI) approach) and the provisions of Sections 1101.14 through 1104 indicated as “Mandatory,” and Section 1103.5.3, or
4. Section 1112 (“The Ohio Home Builder’s Association (OHBA) Alternative Energy Code Option”), or
5. The “International Energy Conservation Code”

### **Applicant shall indicate the energy compliance option below:**

#### **Check one option below:**

1.  2019 RCO Sections 1101.14 through 1104, Prescriptive Method\*

**Then check on of the following:**

- Prescriptive method based on R-value, 2019 RCO Table 1102.1.2
- Prescriptive method based on U-factor alternative, 2019 RCO Table 1102.1.4
- Prescriptive method based on Total UA alternative, 2019 RCO 1102.1.5

2.  2019 RCO Section 1105 Simulated Performance Approach\*

3.  2019 RCO Section 1106 Energy Rating Index (ERI) Approach\*

**\*Note:**

**2019 RCO 1102.4.1.2:** Air leakage testing in accordance with RESNET/ICC 380, ASTM E779, or ASTM E1827 & written report required.  
**2019 RCO 1103.3.3(1) or (2):** Duct air leakage testing & written report required (*not required if air handler and all ducts are located within conditioned space*).

4.  2019 RCO Section 1112 “The Home Builder’s Association (OHBA) Alternative Energy Code Option”\*\*

**Then check on of the following:**

- Compliance Path #1
- Compliance Path #2

**\*\*Note:**

**2019 RCO 1112.2.4.2.1:** Air-leakage testing (blower door) & written report required.  
**2019 RCO 1103.2.2(1) or (2):** Duct air-leakage testing & written report required (*not required if air handler and all ducts are located within conditioned space*).

5.  2018 International Energy Conservation Code (IECC)

6.  Compliance Alternatives for Existing Buildings, RCO Sections 1107 thru Section 1111 (*Additions, Alterations, Repairs and Change of Occupancy or Use*)

Signature \_\_\_\_\_ Date \_\_\_\_\_

## Supplemental Energy Information

2019 RCO Sections 1101.14 through 1104, Prescriptive Method (Design Table(s))

Table 1102.1.2  
Insulation and Fenestration Requirements by Component

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
5 and Marine 4	0.30	0.55	NR	49	20 or 13 + 5	13/17	30	10/13	10, 2 ft	10/13

Table 1102.1.4  
Equivalent U-Factors

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
5 and Marine 4	0.30	0.55	0.026	20 or 13 + 5	13/17	30	10/13	10/13

2019 RCO Sections 1107.4.1, Compliance Alternative for Existing Buildings, Prescriptive Method (Design Table)

Table 1107.4.1  
Insulation and Fenestration Requirement by Component

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
5 and Marine 4	0.30	0.55	NR	49	20 or 13 + 5	13/17	30	10/13	10, 2 ft	10/13

2019 RCO Section 1112 “The Home Builder’s Association (OHBA) Alternative Energy Code Option” (Design Table(s))

Table 1112.2.1  
Insulation and Fenestration Requirements by Component

	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
Compliance Path #1	0.32	0.60	NR	49	15 or 13 + 3	13/17	30	10/13 (minimum 4 ft)	10, 2 ft	10/13
Compliance Path #2	0.32	0.60	NR	49	13	13/17	30	10/13 (minimum 4 ft)	10, 2 ft	10/13

Table 1102.1.4  
Equivalent U-Factors

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
Compliance Path #1	0.32	0.60	0.026	0.077	0.082	0.033	0.059 (minimum 4 ft)	0.065
Compliance Path #2	0.32	0.60	0.026	0.082	0.082	0.033	0.059 (minimum 4 ft)	0.065

## **2019 RCO Sections 1101.14 through 1104, Mandatory Requirements**

**1101.14 Certificate (Mandatory).** A permanent certificate shall be completed by the owner or the owner's representative and posted on a wall in the space where the furnace is located, a utility room or an approved location inside the building. Where located on an electric panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall indicate the predominant R-values of insulation installed in or on ceilings, roofs, walls, foundation components such as slabs, basement walls, crawl spaces walls and floors, and ducts outside conditioned spaces; U-factors or fenestration and the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leaking testing performed on the building. Where there is more than one value for each component, the certificate shall indicate the value covering the largest area. The certificate shall indicate the types and efficiencies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall indicate "gas fired unvented room heater", "electric furnace" or "baseboard electric heater", as appropriate. An efficiency shall not be indicated for gas-fired unvented room heaters, electric furnaces and electric baseboard heaters.

**1102.4 Air leakage (Mandatory).** The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections 1102.4.1 through 1102.4.5.

**1102.4.1 Building thermal envelope.** The building thermal envelope shall comply with Sections 1102.4.1.1 and 1102.4.1.2. The sealing method between dissimilar materials shall allow for differential expansion and contraction.

**1102.4.1.1 Installation.** The components of building thermal envelope as indicated in Table 1102.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria indicated in Table 1102.4.1.1, as applicable to the method of construction.

**1102.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate of not more than five air changes per hour. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported as pressure of 0.2 inch w.g. (50 Pascals). A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creating of all penetrations of the building thermal envelope.

During Testing:

1. Exterior windows and doors, fireplace, and stove doors shall be closed but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft, and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, where installed at the time of test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be sealed.
5. Heating and cooling systems, where installed at the time of the test, shall be turned off.
6. Supply and return registers, where installed at the time of the test, shall be fully open.

*Exception: Existing buildings complying with Section 1107.*

**1102.4.2 Fireplaces.** New wood-burning fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air. Where tight-fitting doors on factory build fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace.

**1102.4.3 Fenestration air leakage.** Windows, skylights and sliding glass doors shall have an air infiltration rate of not greater than 0.3 cfm per square foot, and floor swinging doors not greater than 0.5 cfm per square foot, when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an approved agency and listed and labeled by the manufacturer.

**1102.4.4 Rooms containing fuel-burning appliances.** In Climate Zones 3 through 8, where open combustion air ducts provide combustion air to open combustion fuel burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room that is isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table 1102.1.2, where the walls, floors and ceilings shall meet a minimum of the basement wall R-value requirement. The door into the room shall be fully gasketed and any water lines and ducts in the room insulated in accordance with 1103. The combustion air duct shall be insulated where it passes through conditioned space to an R-value of not less than R-8.

**Exceptions:**

1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.
2. Fireplaces and stoves complying with 1102.4.2 and 1006.

**1102.4.5 Recessed lighting.** Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Recessed luminaires shall be IC-rated and labeled as having an air leakage rate of not greater than 2.0 cfm when tested in accordance with ASTM E283 at a pressure differential of 1.57 psf. Recessed luminaires shall be sealed with a gasket or caulked between the housing and the interior wall or ceiling covering.

**1102.5 Maximum fenestration U-factor and SHGC (Mandatory).** The area-weighted average maximum fenestration U-factor permitted using tradeoffs from Section 112.1.5 or 1105 shall be 0.48 in Climate Zones 4 and 5 for vertical fenestration, and 0.75 in Climate Zones 4 through 8 for skylights.

**1103.1 Controls (Mandatory).** Not less than one programmable thermostat shall be provided for each separate heating and cooling system.

**1103.1.1 Programmable thermostat.** The thermostat controlling the primary heating or cooling system of the dwelling unit shall be capable of controlling the heating or cooling system of the dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day. This thermostat shall include the capability to set back or temporarily operate the system to maintain zone temperature of not less than 55°F to not greater than 85°F. The thermostat shall be programmed initially by the manufacturer with a heating temperature setpoint of not greater than 70°F and a cooling temperature setpoint of not less than 78°F.

**1103.1.2 Heat pump supplementary heat.** Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

**1103.3.2 Sealing (Mandatory).** Ducts, air handlers and filter boxes shall be sealed. Joint and seams shall comply with Section 1601.4.1.

**1103.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. Registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

**Exceptions:**

1. A duct air-leakage test shall not be required where the ducts and air handlers are located entirely inside conditioned space.
2. A duct air-leakage test shall not be required for ducts serving heat or energy recovery ventilators that are not integrated with ducts serving heating or cooling systems.

A written report of the results of the test shall be signed by the party conducting the test and provided to the building official.

**1103.3.5 Building cavities (Mandatory).** Building framing cavities shall not be used as supply ducts.

**1103.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids greater than 105°F or less than 55°F shall be insulated to an R-value not less than R-3.

**1103.5.1 Heated water circulation and temperature maintenance systems (Mandatory).** Heated water circulation systems shall be in accordance with Section 1103.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section 1103.5.1.2. Automatic controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

**1103.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermosiphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

**1103.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input of the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

**1103.6 Mechanical ventilation (Mandatory).** The building shall be provided with ventilation that complies with the requirements of Section 1505 or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

**1103.7 Equipment sizing and efficiency rating (Mandatory).** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. New or replacement heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed.

**1103.8 Systems serving multiple dwelling units (Mandatory).** Systems serving multiple dwelling units shall comply with Sections 403 and 404 of the *International Energy Conservation Code – Commercial Provisions* instead of Section 1103.

**1103.9 Snow melt system controls (Mandatory).** Snow and ice-melting systems, supplied through energy services to the building, shall include automatic controls capable of shutting off the system when the pavement temperature is greater than 50°F and precipitation is not falling, and an automatic or manual control that will allow shutoff when the outdoor temperature is greater than 40°F

**1104.1 Lighting equipment (Mandatory).** Not less than 90 percent of permanently installed lighting fixtures shall contain only high efficiency lamps.

**1104.1.1 Lighting equipment (Mandatory).** Fuel gas lighting systems shall not have continuously burning pilot lights.