



Ohio's 2011 Program Standards

Participating Ohio electric cooperatives adhere to Zone 5 standards throughout the state.

<p>ROOF, CEILING INSULATION ≥R-38 (or full cavity fill)</p> <p>ATTIC INSULATION ≥ R-42</p> <p>WALL INSULATION (WOOD) ≥ R-20 or R-13 insulation + R-5 insulated sheathing³.</p> <p>KNEE WALLS Same as wall R-value. Air barrier required. Thermal envelope must be sealed and insulated.</p> <p>MASS WALL ≥ R-13 or ≥ R-17 if more than half of insulation is on interior wall.</p> <p>FLOOR INSULATION ≥ R-30 or insulation to fill framing cavity; R-19 minimum.</p> <p>CONCRETE SLAB ≥ R-10; 2 ft. depth perimeter</p>	<p>BASEMENT WALL INSULATION ≥ R-10/13. R-10 continuous insulated sheathing on interior or exterior of home or R-13 cavity insulation on interior of basement wall.</p> <p>CRAWLSPACE WALL¹ ≥ R-10/13. R-10 continuous insulated sheathing on interior or exterior of home or R-13 cavity insulation on interior of basement wall.</p> <p>GROUND COVER 6-mil vapor barrier taped at all joints with 6" overlap</p> <p>AIR INFILTRATION CONTROL² Air seal package required. ≤ 0.25 natural ACH</p> <p>EXHAUST SYSTEMS Must be ENERGY STAR.</p> <p>HOUSE WRAP Continuous & sealed drainage plane</p> <p>FENESTRATION U-FACTOR U = ≤ 0.30</p> <p>SKYLIGHT U-FACTOR U = ≤ 0.55</p>	<p>GLAZED FENESTRATION SHGC not required</p> <p>WINDOW/GLASS ≥ Double pane; ENERGY STAR preferred</p> <p>DOORS Doors U ≤ 0.30 Opaque: U ≤ 0.21 ≤1/2 lite: 0.27 U & 0.30 SHGC ≥ 1/2 lite: 0.32 U & 0.30 SHGC Weather-strip & insulate.</p> <p>HEATING TYPE Air source or geothermal heat pump. Geo must be ENERGY STAR. Programmable thermostat required. Gaskets on wood fireplace door & outdoor combustion air.</p> <p>HEAT PUMP SIZING Requires Manual J or other recognized calculations.</p> <p>HEAT PUMP PERFORMANCE Air Source: ≥ 9.25 HSPF; 14.5 SEER; 12 EER or ENERGY STAR qualified geothermal. (Effec 1/1/11: Closed loop 16.1 EER; 3.5 COP. Open loop 18.2 EER; 3.8 COP. Effec 1/1/12: Closed loop 17.1 EER; 3.6 COP. Open loop 21.1 EER; 4.1 COP.)</p>	<p>DUCT WORK Min. R-8 in attics; R-6 all other ducts (Exception: Ducts located inside building thermal envelope). Seal seams and joints. Leakage to outdoors ≤ 4CFM25 per 100 sq. ft of CFA.</p> <p>WATER HEATER TYPE Electric; Heat pump water heaters allowed. Instantaneous water heaters prohibited.</p> <p>WATER HEATER EFFICIENCY 30 gal; .94 EF 40 gal; .93 EF 50 gal; .92 EF 60 gal; .90 EF 70 gal; .90 EF ≥ 80 gal; .89 EF</p> <p>APPLIANCES All appliances must be electric, including range.</p> <p>GAS APPLICATIONS Gas fireplaces are permissible.</p> <p>CAN LIGHTS ICAT rated and air sealed.</p> <p>LIGHTS AND APPLIANCES 80% ENERGY STAR CFLs or pin-based (or 60% on hard-wired fixtures). ENERGY STAR refrigerators, dishwashers, ceiling fans, exhaust fans</p>
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Note 1: 1. No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly. 2. An air-impermeable insulation is applied in direct contact to the underside/interior of the structural roof deck. (Air impermeable defined by ASTM E 283.) 3. Zones 3 - 8 as defined by Section N1101.2, sufficient insulation is installed to maintain the monthly average temp of the condensing surface above 45 F.... (see complete code for further detail)

Note 2: 1. all joints, seams and penetrations; 2. site-built windows, doors and skylights. 3. openings between window and door assemblies and respective jambs and framing; 4. utility penetrations; 5. dropped ceilings or chases adjacent to thermal envelope; 6. Knee walls; 7. walls and ceilings separating a garage from conditioned spaces; 8. behind tubs and showers on exterior walls; 9. common walls between dwellings; 10. other sources of infiltration. 403.2.2 also addresses sealing ducts, air handlers, filter boxes, and building cavities used as ducts--reference M1601.3.1 of IRC.

Note 3: "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of exterior, insulating 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.