



**ENERGY EFFICIENCY REQUIREMENTS
2009 INTERNATIONAL ENERGY CONSERVATION CODE**

**WOOD FRAME WALL CONSTRUCTION
DETACHED ONE AND TWO FAMILY DWELLINGS**

GENERAL REQUIREMENTS

COMPLIANCE ✓

1. Provide design documents that show the required insulation as determined below.
2. Minimum requirements are given; better quality insulation and windows are acceptable and will provide improved comfort.
3. Caulk and seal all joints, cracks and holes. Weather-strip all doors and windows.
4. Up to 1% of heated area is allowed in skylight units. Skylights shall be insulated.
5. Supply ducts in unconditioned spaces shall be insulated to a minimum of R-8 all other ducts shall be insulated to a minimum of R-6.
6. Lighting equipment a minimum of 50% percent of the lamps in permanently installed fixtures shall be high-efficacy lamps.
7. Slab perimeter insulation can be placed along slab edge in the three ways: vertical, horizontal or combination of vertical and horizontal.
8. New wood-burning fireplaces shall have tight fitting flue dampers and outdoor combustion air.
9. Programmable thermostat shall be installed as per Section 403 of the 2009 IECC.

ROOF, WALL, WINDOW AND DOOR REQUIREMENTS

COMPLIANCE ✓

Roof batt insulation	R-38	12" fiberglass batt	<input type="checkbox"/>
Wall batt insulation	R-19	6" fiberglass batt, 2x6 studs	<input type="checkbox"/>
Fenestration	Max. U-Factor 0.35	Insulated, wood or vinyl frame	<input type="checkbox"/>

FLOOR REQUIREMENTS

COMPLIANCE ✓

Slab	R-10	2"x 48" expanded polystyrene board	<input type="checkbox"/>
Slab with radiant floor heating	R-15	3"x 48" expanded polystyrene board	<input type="checkbox"/>
Crawl space walls	R-13	4" expanded polystyrene board	<input type="checkbox"/>
Basement walls	R-13	3" expanded polystyrene board	<input type="checkbox"/>
Floor over unheated crawl space or unheated basement	R-19	6" fiberglass batt	<input type="checkbox"/>
Floor over outdoor air	R-38	12" fiberglass batt	<input type="checkbox"/>

SIGNATURE _____

DATE _____

GENERAL REQUIREMENTS (CONTINUED): ONE- AND TWO-FAMILY DETACHED DWELLINGS

APPLICABILITY

1. **New and Existing Dwellings:** All new construction of one- and two-family dwellings is covered by the energy code. Additions and remodeling of existing dwellings are also covered by the energy code: however, only new elements shall be made to comply. Unheated garages are exempt.
2. **Seasonal Usages:** Design of mechanical and envelope systems must be based on climate for a full year, regardless of occupancy schedule.
3. **Location:** Use requirements of the appropriate location or the requirements of the location that most closely matches the climate of the construction site.

MECHANICAL SYSTEMS

1. **Insulation:** Piping of space heating systems shall have R-4 insulation for up to 1-inch diameter pipe and R-8 insulation for over 1-inch diameter pipe. Refrigerant piping shall have R-4 insulation for up to 1-inch diameter pipe and R-6 insulation for over 1-inch diameter pipe. Air-handling ductwork in attics, crawl spaces, exterior cavities and outside shall be R-8. For heated basements use R-6. Seal duct joints with mastic, tape or mastic plus tape.
2. **Showers:** Maximum discharge of hot water from showerheads shall be limited to 3 gallons per minute.
3. **Swimming pools:** Heated **swimming** pools shall be equipped with a pool cover. Pumps must have a time clock. Heater must have an on/off switch.
4. **Water Heating System:** Circulating hot water systems must have on/off control.
5. **Heating System:** All dwellings shall have a heating system capable of maintaining 70 degrees F.
6. **Controls:** Provide at least one adjustable thermostat for each separate system. Thermostat shall have capability to setback to an energy-saving setting. Thermostats shall have the following ranges:

**Heating only
55-75 degrees F**

**Cooling only
70-85 degrees F**

**Heating and Cooling
55-85 degrees F**

Heat pumps must have a two-stage thermostat: stage #1 = heat pump alone; stage #2 = backup heat.

7. **Equipment Efficiency:** Space heating, space cooling and domestic water heating equipment shall meet requirements of the National Appliance Energy Conservation Act of 1987 (NAECA). Minimum coefficient of performance for water source heat pumps shall be 3.0.

ENVELOPE

1. **Moisture Control:** In frame walls, roof or floor construction, use either a vapor barrier or venting to reduce moisture condensation. Ventilated crawl spaces below insulated floors shall have one square foot of venting per 150 square feet of floor area.
2. **Basement Insulation:** Basements below non- insulated floors shall have insulated walls down to the basement floor or 10 feet below grade, whichever is less.
3. **Batt Insulation:** Do not compress insulation to reduce thickness (R-value will be decreased).

ALTERNATIVE METHODS

1. **Design:** Designs not adequately covered by the requirements shown may comply through the compliance paths. Obtain compliance calculation worksheets and demonstrate energy efficiency equal to or exceeding what would be achieved by the requirements shown.
2. **Materials:** Materials not covered by the requirements shown to be utilized. Provide documentation of the material properties, including structural, fire and energy characteristics. Obtain compliance worksheets and demonstrate energy efficiency equal to or exceeding what would be achieved by the requirements shown.