DOUGLAS COUNTY
COLORADO

2006 IECC Residential Compliance Guide

New residential; construction, additions, alterations, renovations or repairs shall comply with one of the following three paths for energy conservation: Prescriptive, Alternative or Performance.

It is mandatory that you also comply with the Air Leakage, Moisture Barrier and HVAC Requirements regardless of which path is chosen.

THE DESIGN CRITERIA FOR DOUGLAS COUNTY IS **CLIMATE ZONE 5B**

1. PRESCRIPTIVE PATH

Window U-Factor	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value	Crawl Space Wall R-Value
0.35	0.60	R-38	R-19 or R-13+5(A)	R-13	R-30	(B) R-10(CI)/13	R-10, 2ft R-15(C) if heated	(B) R-10(CI)/13

(ALL R-VALUES ILLUSTRATE MINIMUMS / ALL U-VALUES ILLUSTRATE MAXIMUMS)

(A) "13+5" means R-13 plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the 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.
(B) The first R-Value applies to the continuous insulation (CI), the second to framing cavity insulation; either insulation meets the requirement.
(C) R-15 is required for a heated slab; insulation is required to continue 2 feet horizontal or vertical.

2. ALTERNATIVE PATH

Douglas County approves the use of a national, state or local energy efficiency program that exceeds the energy efficiency required by this code. These programs include:

-REScheck
-Energy Star
-LEED
And others

Air leakage - Mandatory

The building thermal envelope shall be durably sealed to limit infiltration. The following shall be caulked, gasketed, weather stripped or otherwise sealed with an air barrier material, suitable film or solid material:

1. All joints, seams and penetrations.
2. Site-built windows, doors and skylights.
3. Openings between window and door assemblies and their respective jambs and framing.
4. Utility penetrations.
5. Dropped ceilings or chases adjacent to the thermal envelope (insulated wall or ceiling).
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 dwelling units.
10. Recessed lighting installed in the ceiling shall be sealed to limit air leakage between conditioned and unconditioned spaces by being IC/Airtight rated can or enclose an IC rated fixture in an air tight box.
11. Any other source of infiltration.

Moisture Control - Mandatory

Walls, floors and ceilings not ventilated to allow moisture to escape shall be provided with an approved vapor retarder. The vapor retarder shall be installed on the warm-in-winter side of the thermal insulation with a perm backed insulation or a 4 mil plastic.

3. PERFORMANCE PATH

Compliance based on simulated energy performance requires that a proposed residence (proposed design) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the standard reference design (Standard Design). Energy prices shall be taken from the Department of Energy or Energy Information Administration's *State Energy Price and Expenditure Report.* Specific Software, calculation procedures and reports are required. Please speak with a Douglas County plans examiner if you elect to use this path.

Heating and Cooling Systems (HVAC) - Mandatory

Ducts:

Supply and return ducts located in an unconditioned attic shall be insulated with R-8.
Supply and return ducts located in an exterior wall or floor shall be insulated with R-6.

Sealing:

All supply, return, filter boxes and plenums shall be sealed with a UL181 listed tape or mastic.

Mechanical and Circulating hot water systems:

Mechanical system piping (HVAC piping) conveying fluids greater than 105° F or less than 55° F shall be insulated to R-2 minimum. Typically, this will apply to refrigerant piping and water piping for hydronic heating systems.
All circulating service hot water piping shall be insulated to at least R-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.

Equipment and duct sizing:

Heating/cooling equipment and the duct system shall be sized in accordance with Manual J and Manual D. Mechanical contractors shall be responsible for sizing these systems.

Please contact us with your questions or concerns @ (303) 660-7497

New Residential Inspections Required Under the 2006 IECC

1. **Foundation Insulation Inspection (Insp. # 114)**
   For insulation that will be covered by backfill or structural floors. The Mono slab and post-tension slab insulation shall be inspected before the placement of concrete.

2. **Fenestration (Insp. # 106)**
   For replacement glazing (windows, skylights, sliding doors etc.). Factory labels must remain on the glazing that show fenestration, solar heat gain and air leakage as required in Section 402.3 and Section 402.4.2.

3. **Thermal Envelope** (also known as Exterior House Wrap) **(Insp. # 132)**
   All house wrap, air barrier or suitable film shall be installed in accordance manufacturer's recommendations, including overlapping, inside corners and taping. All penetrations through the building wrap have been sealed. Window and door flashing has been installed in accordance with manufacturer's specifications.

4. **Rough Energy Compliance (Insp. # 129)**
   All joints, seams and penetrations shall be caulked, foamed, or otherwise gasketed to prevent air leakage. Factory labels must remain on the glazing to show fenestration, solar heat gain and air leakage. Air tight recessed lighting in attic spaces, required dampers (mechanical or gravity) and insulation behind junction boxes in exterior walls shall be in place for this inspection.
   -See Air Leakage (Mandatory)-

5. **Insulation – Mechanical Systems (Insp. # 122)**
   This inspection shall be requested after Rough Frame Inspection has been approved. This inspection is to verify that all supply and return air ducts outside the conditioned space are insulated in accordance with Section 403.2.
   All Mechanical and Circulation hot water systems shall be insulated in accordance with Section 403.3 and 403.4.
   -See Heating and Cooling Systems (Mandatory)-

6. **Insulation (Insp. # 36)**
   This inspection includes all cavity or continuous (blanket) insulation that will be concealed. For blown in attic insulation, baffles at soffit vents and inch markers every 300 sq. ft. shall be installed at the time of this inspection.
   -See Moisture Control (Mandatory)-

7. **Final Energy Compliance (Insp. # 109)**
   A permanent certificate shall be posted in the area housing the mechanical equipment. The certificate shall be completed by the builder or registered design professional. The certificate shall list the 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; U-factors for fenestration. The certificate shall list the type and efficiency rating of heating, cooling and service water heating equipment. Crawl space and unfinished basement walls blanket insulation may be inspected at this time.
   A ladder shall be provided by the permit holder for access to attic spaces containing blown in insulation and or mechanical equipment.
   For Performance Path submittals, a signed certificate shall also be provided that shows the home complies with the originally approved design plans.