

Northern Colorado ENERGY STAR® Builder Option Package Basic Requirements -- August 2008

Component	Requirement
Foundations	
Basement Walls	R-10 continuous or R-13 framed cavity, Grade I
Crawl Space	Conditioned crawl space: perimeter walls R-10 continuous or R-13 framed cavity Unconditioned crawl space: Floor above R-19 to R-30 Both approaches: Grade I insulation, sealed moisture barrier on ground
Slab-on-Grade	Unheated slab: R-10 for 2 ft Heated slab: R-15 for 2 ft and R-5 slab edge
Rim Joists + Frame Walls	
Rim Joists	R-19 cavity or R-13 cavity + R-5 sheathing, Grade I
Framed Walls (including knee walls)	Wood frame: R-19 cavity or R-13 cavity + R-5 sheathing Steel frame: R-13 cavity + R-9 sheathing Mass wall: R-13 All walls: Grade I
Framed Floors	
Over Garage	Joist cavity full (R-30 minimum), Grade I
Cantilever	Joist cavity full (R-30 minimum) with sealed barrier to outside, Grade I
Ceilings	
Attic Above	R-38 Grade I
Cathedral	R-38 (R-30 allowed up to 500 sq ft), Grade I
Windows	
Windows	$U = 0.35 / SHGC = 0.33$ Window/floor area ratio 15% maximum (when greater must take Energy Rating path)
Skylights	ENERGY STAR qualified skylight Skylight area included in window/floor area ratio
Air Sealing	
Blower Door Test	Blower-door test result: ACH50 = 3.0 maximum (approximately equal to 0.15 to 0.20 ACH-natural)
Natural Gas or Propane Furnace/Boiler	
Location	No garage installations
Type	Sealed-combustion/sealed-exhaust
AFUE	90%
Sizing	Right-sized using ACCA procedures Calculations submitted
Installed Performance	Commissioned by HVAC contractor to document airflow and combustion performance meet manufacturer specifications

Component	Requirement
Air Conditioner/Heat Pump	
ARI-matched components	Required
SEER	AC = 13 Heat Pump = 14
EER	Heat Pump = 11.5
HSPF	Heat Pump = 8.5
Sizing	Right-sized using ACCA procedures Calculations submitted
Installed Performance	Commissioned by HVAC contractor to document airflow and refrigeration performance meet manufacturer specifications
Ductwork	
Layout	Building cavities may not be used for supply or return ducts
Sealing	Mastic or better depending on duct materials used
Leakage to outside	Duct test result: maximum 4 cfm/100 sq. ft. conditioned floor area No test required if all ductwork within conditioned envelope
Insulation	Unconditioned area: R-8
Room-by-room delivered air flow	Commissioned by HVAC contractor to document required airflow
Water Heater	
Type	Power-vented or sealed-combustion/sealed-exhaust
Efficiency rating	Varies by tank size. E.g. 40-gallon tank: Gas = 0.61 / Electric = 0.93
Air Quality	
Fireplace	Closed-combustion
Bathrooms	Fan in every bathroom
Kitchen	Exhaust to outside required if gas oven installed Maximum CFM limit without makeup air
Ventilation	Controlled ventilation required to meet ASHRAE 62.2 standard. Example approaches: * Bathroom fan with 24-hour clock timer * AirCycler control with ECM blower * Energy Recovery Ventilator
Appliances	
Household	Five or more ENERGY STAR qualified appliances including ceiling fans, exhaust fans, light fixtures
Inspection and Testing	
Requirements	RESNET-certified energy rater conducts inspections and testing Pre-wallboard visit, including: * Thermal Bypass Checklist * Insulation grade * Duct leakage test (if possible) Completed home, including * Blower-door test * Duct leakage test (if not conducted earlier)
Frequency	Every house inspected and tested