

Fourmile Rebuild Project Under BuildSmart



Intent of BuildSmart

To promote and encourage high performing sustainable development and redevelopment in the unincorporated areas of Boulder County. Create cost-effective, energy-efficient structures that reduce both the production of greenhouse gases from residential buildings and conserve and protect water and other natural resources.

Choose your path for compliance:

- Performance Path Option
- Prescriptive Path Option

What is the Performance Path?

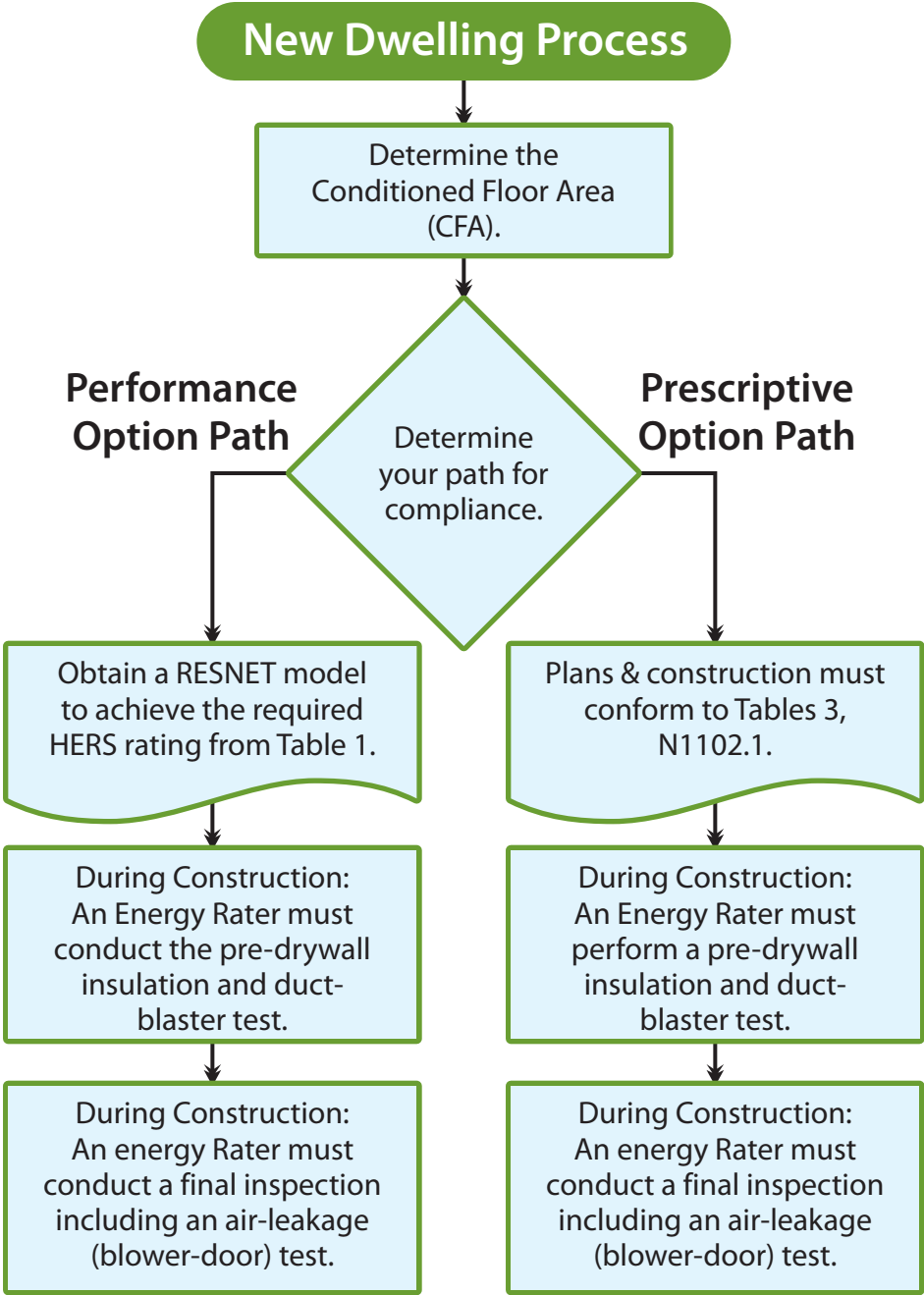
A design employing the use of computer software which compares the energy costs of the designed home to that of an IRC-compliant home. This compliance method has some mandatory measures but allows flexibility in choosing what options best suit their needs and desires as they design and build their home.

What is the Prescriptive Path?

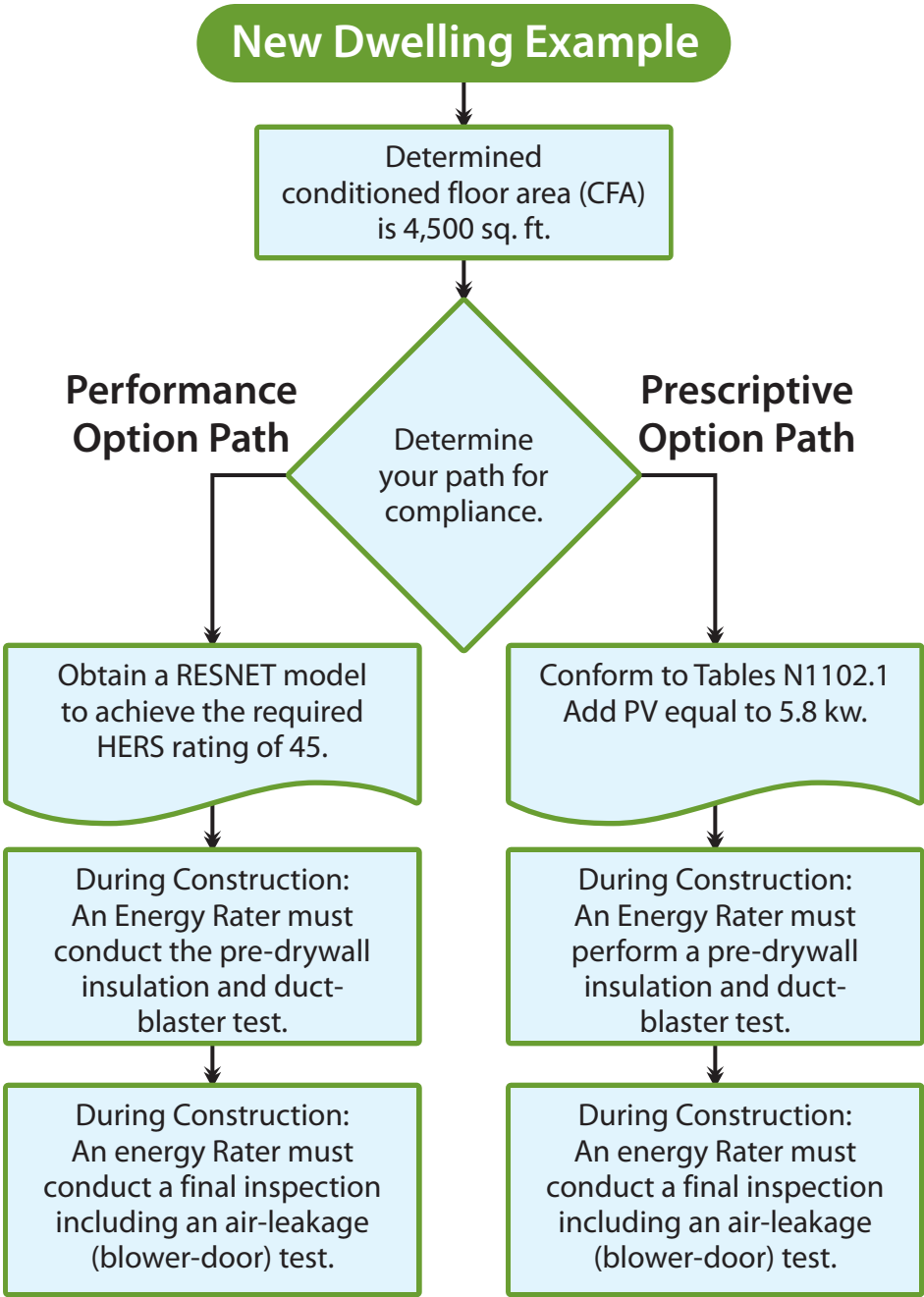
A combination of materials and techniques to create a high-efficiency building envelope without the use of computer modeling. This compliance method includes mandatory measures a homeowner must take in order to comply.



BuildSmart Compliance Flow Chart for New Dwellings



BuildSmart Compliance Flow Chart for New Dwellings



BuildSmart Prescriptive Path Option Requirements

Chapter 11 Energy Efficiency Code Table N1102.1: Insulation, Fenestration, and Additional Requirements

Insulation, Fenestration, and Additional Requirements	
Fenestration U-Factor	0.35
Skylight U-Factor	0.45
Ceiling R-Value	54
Wood Frame Wall R-Value	19+10 ^d
Mass Wall R-Value	18/24 ^a
Floor R-Value	42 ^f
Basement Wall R-Value	15/20 ^b
Slab Edge R-Value and Depth	15, 3 ft. ^c
Crawl Space Wall R-Value	15/20 ^b
Underslab R-Value	10
Maximum Glazing to Floor Area Ratio	18%
Maximum Air Leakage	5 ACH at 50 Pascals ⁱ
Appliances (New or Replaced)	Energy Star Certified
Lighting Fixtures	80% CFL or equal
Insulation Installation Standards	RESNET grade 1 standards
Furnaces And Boilers	92% AFUE w/ ECM Blower Motors ^{h&g}
Water Heaters	82 EF ^{h&g}

- ^a The second R-value applies when more than half the insulation is on the interior.
- ^b The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.
- ^c R-5 shall be added to the required slab edge R-values for heated slabs.
- ^d 19 + 10 means R-19 cavity insulation plus R-10 insulated sheathing. If structural sheathing covers 25% or less of the exterior, R-10 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-5.
- ^e When more than half the insulation is on the interior, the mass wall U-factor shall be the same as the frame wall U-factor.
- ^f Floors over conditioned space are exempt from this requirement.
- ^g Permits issued for the replacement of existing furnaces, boilers, and water heaters are exempt from these requirements.
- ^h For projects involving additions and remodels furnace and water heaters only need to meet these requirements if they are replaced.
- ⁱ Seven (7) Air Changes per Hour (ACH) at 50 Pascals for additions and remodels.

Some Terms you will need to be familiar with...

Certified or Accredited Home Energy Rater

A residential energy professional who is certified by the Residential Energy Services Network (RESNET); also referred to as an Energy Rater.

Please see the current list of Certified Home Energy Raters serving Boulder County at our website: www.BoulderCountyBuildSmart.org

Conditioned Floor Area

The floor area of a building that is heated or cooled, measured from the outside face of the exterior wall. Unenclosed unconditioned covered porches, decks, and unconditioned garages are not considered conditioned floor area.

Gross Wall to Floor Area Ratio

The relationship of the total wall area and the total floor area of the conditioned space including the floor area within the inside face of the exterior wall and the wall area measured between the top of the floor and the bottom of the ceiling including window and door openings.

Performance Path Option

Construction of conditioned space where compliance is measured using the RESNET system to determine anticipated energy consumption and energy efficiency, (HERS Rating System).

Prescriptive Path Option

Construction of conditioned space where compliance is achieved by applying minimum standards to the dwellings thermal envelope, fenestration, lighting, and air leakage (from Tables N1102.1 & N1102.1.3), plus either Table 3 or 4 if applicable.

Exceptions To Boulder County BuildSmart Requirements:

The Building Official may apply individual modifications to BuildSmart requirements as required under Section N.1105.3.1. of 2009 IRC Chapter 11 of the Building Code (commonly known as "Boulder County BuildSmart"). These modifications may be granted based on the creation of practical difficulties or excessive expense in the construction of any residential structure proposed to be restored to its preexisting size under Article 19 of the Land Use Code.

BuildSmart Performance Path Option Requirements

Chapter 11 Energy Efficiency Code Home Energy Rating System and Photovoltaic Tables

Table 1: HERS Rating Requirements for New Construction

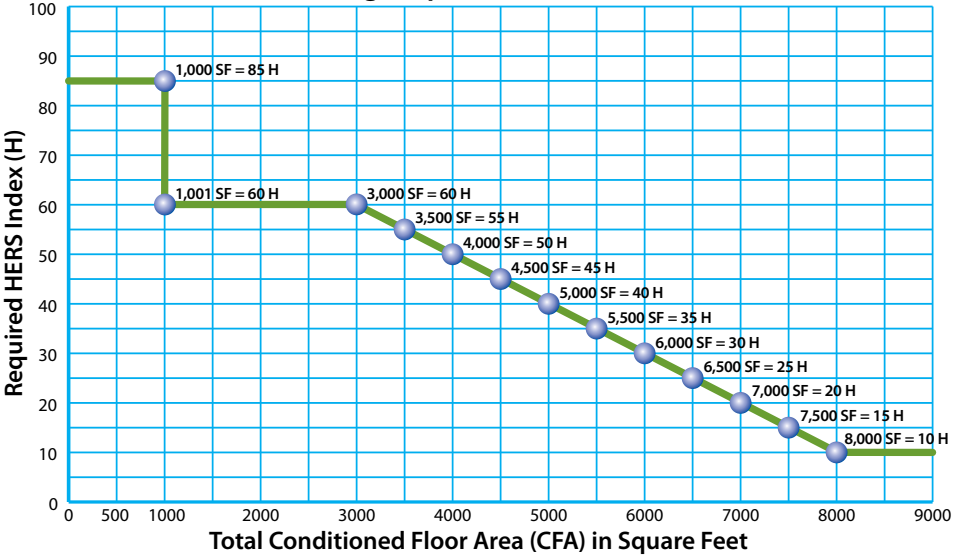
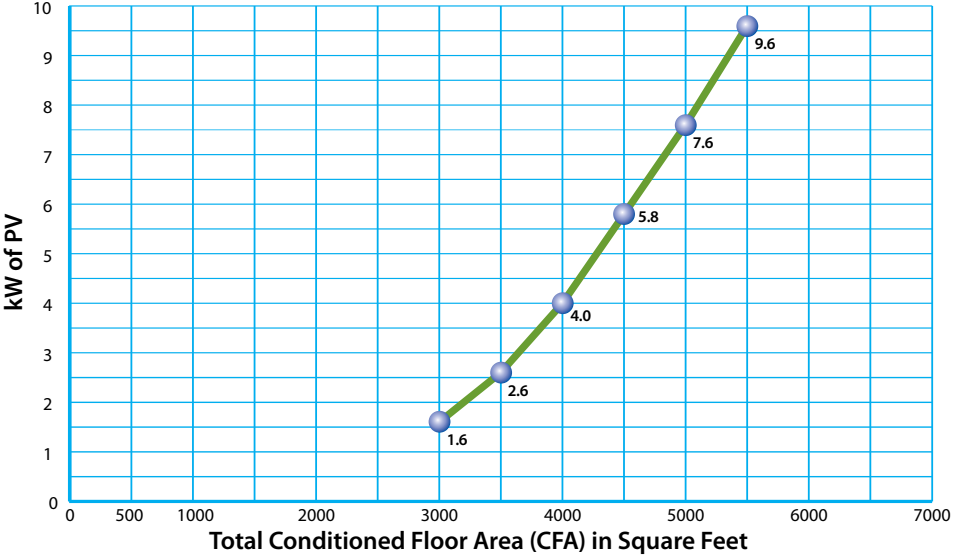


Table 3: PV Requirements for New Dwelling Prescriptive Path Option 3,000 sq. ft. to 6,000 sq. ft.



Prescriptive Path Option Requirements

PV Requirement Table 3:

To use either Table 3 one must first calculate the Gross Wall to Conditioned Floor Area ratio. In calculating the wall to floor area ratio the following must be included:

1. The entire Conditioned Floor Area (CFA).
2. The wall area measured from the top of the foundation to the bottom of the ceiling including all door and window openings.
3. The Gross Wall Area is divided by the Conditioned Floor Area.

Please Note: If the gross wall to floor area ratio is greater than one, the Performance Path Option must be used.