

Commercial Amendment Summary



In 2017, the City of Boulder introduced an updated version of its adopted energy code. This code, known as the 2017 City of Boulder Energy Conservation Code (COBECC), has simplified the compliances approaches and access to information. This resource provides a high level overview of what areas of the 2012 IECC have been significantly amended to create the 2017 City of Boulder Energy Conservation Code.¹ This resource is not a substitute for the code language itself.

Revised from 2012 IECC New for 2017 COBECC

Compliance Path Requirements

Code Application	COBECC Section	Notes
Amended Definitions Section	C202	<p>Definitions section has been amended to include:</p> <p>Construction Valuation: “The total value of work covered by the permit, to be determined consistent with the standards of Subsection 4-20-4(d), B.R.C. 1981. The higher of the two valuations considered under Subsection 4-20-4(d), B.R.C. 1981, shall be the total value of work.”</p> <p>Floor Area: The total square footage of all levels as measured from the inside finished surface of the walls, but excluding courts, unconditioned garages, and uninhabitable crawl spaces and attics.</p> <p>Residential Building: For this code, includes detached one- and two-family dwellings and multiple single family dwellings (townhouses and duplexes) with a separate means of egress and their accessory structures, as well as Group R-3 and R-4 buildings three stories or less in height above grade plane.</p> <p>Solar Ready: A number of new definitions were added for the new solar ready requirements in C406.</p>
Assessed Value of Existing Building	Table C401.2.2	Actual value as assessed by Boulder County’s Tax Assessor. Click here to access the Tax Assessor’s database.
Compliance for Mixed Occupancy Buildings	C101.4.6	Where a building includes both residential and commercial occupancies, the building shall meet the requirements of this code for commercial buildings.
New Buildings and Additions	C401.2.1	Section amended to read “New buildings and additions with a construction valuation of \$500,000 or more shall have annual energy operating costs for the proposed design that are at least 30 percent less than the standard reference design of Appendix G of ASHRAE/IESNA Standard 90.1-2010 Energy Standard for Buildings Except for Low-Rise Residential Buildings.” Compliance is demonstrated through performance modeling conducted by a registered design professional and must also comply with all mandatory requirements in Chapter 4.
		New buildings and additions with a construction valuation less than \$500,000 shall comply with requirements in COBECC sections C402, C403, C404, C405, C406, and C407.

¹ In addition to what is listed in this document, all code requirements from 2012 IECC related to other climate zones were removed.

Compliance Path Requirements Continued

Revised from 2012 IECC

New for 2017 COBECC

System	COBECC Section	Notes
Core and Shell Buildings	C401.2.1	Core and Shell buildings may take credit for energy efficiency that is part of the future tenant finish provided the efficiency measures are shown on the final tenant finish drawings. A temporary certificate of occupancy will be issued until the tenant finish drawings are submitted showing the efficiency measures.
Alteration valuation is < 26% of assessed value of existing building	C401.2.2	Alterations and repairs shall comply with all mandatory requirements in Chapter 4 and all energy and building code requirements (for alteration scope).
Alteration valuation is 26 to 50% of assessed value of existing building		Alterations and repairs shall have annual energy operating costs for the proposed design that are equal to or less than the standard reference design of Appendix G of ASHRAE 90.1-2010 Energy Standard for Buildings Except for Low-Rise Residential Buildings. Compliance is demonstrated through performance modeling conducted by a registered design professional and must also comply with all mandatory requirements in Chapter 4.
Alteration valuation is > 50% of assessed value of existing building		Triggers new construction requirements (see C401.2.1 above).

Envelope: Mandatory Requirements

System	COBECC Section	Notes
Air Infiltration Commercial Building Test	C402.4.1.2.1	Additional requirements for testing: "Testing and inspection shall be conducted by a third party registered design professional. A written report of the test results shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after completion of all penetrations of the building thermal envelope."
Dwelling Unit Air Infiltration	C402.4.1.2.2	In multifamily buildings that are regulated by the commercial code (not duplexes or townhomes), a sampling of a minimum of 20 percent of dwelling units in each building shall be tested for air infiltration. See C402.4.1.2.2 for more details on testing protocols and requirements.

Envelope: Prescriptive Requirements

System	COBECC Section	Notes
Envelope (Roof, Wall, Floor, Opaque Door)	C402.1&C402.2	U-factors revised in Table C402.1.2- Opaque Thermal Envelope Assembly Requirements
		U-factors revised in Table C402.2- Opaque Thermal Envelope Requirements
Fenestration	C402.3	U-factor for entrance doors & SHGC revised for vertical fenestration, and U-factor & SHGC revised for skylights in Table C402.3 Building Envelope Requirements: Fenestration.

HVAC: Mandatory Requirements

System	COBECC Section	Notes
Design Temperatures for Load Calculations	C301.1	Revised design temperature used for heating load calculations shall be a maximum of 70°F, as opposed to the previous maximum design temperature of 72°F.
Mechanical System Shutoff	C403.2.4.5	Any directly conditioned space with operable wall or roof openings, overhead doors, cargo doors, sliding doors or folding accordion style wall systems that open to the outdoors shall be equipped with interlock controls that disable or reset the temperature setpoint for mechanical heating and cooling. See C403.2.4.5 for additional details about control requirements and exceptions.
Hydronic (water loop) Heat Pump Systems Heat Rejection	C403.4.3.3.2	If an open- or closed-circuit cooling tower is used, a separate heat exchanger shall be provided to isolate the cooling tower from the heat pump loop, and heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop and providing an automatic valve to stop the flow of fluid

HVAC: Prescriptive Requirements

System	COBECC Section	Notes
Cooling Equipment	C403.2.3	Revised minimum efficiency requirements in Table C403.2.3(1) Electrically Operated Unitary Air Conditioners and Condensing Units.
		Revised minimum efficiency requirements in Table C403.2.3(2) Electrically Operated Unitary and Applied Heat Pumps.
		Revised minimum efficiency requirements in Table C403.2.3(8) Minimum Efficiency Requirements: Heat Rejection Equipment.
Heating Equipment	C403.2.3	Revised minimum efficiency requirement in Table C403.2.3(5) Minimum Efficiency Requirements: Gas and Oil-Fired Boilers.

Service Water Heating: Prescriptive Requirements

System	COBECC Section	Notes
Equipment Performance Efficiency	C404.2	Equipment performance efficiency is a prescriptive requirement under COBECC. Performance requirements in Table C404.2 Minimum Performance of Water Heating Equipment have been revised.

Electric Power and Lighting: Mandatory Requirements

System	COBECC Section	Notes
Exterior Lighting	C405.6	Revised lighting power allowances in Table C405.6.2(2) Individual Lighting Power Allowances for Building Exteriors.

Lighting: Prescriptive Requirements

System	COBECC Section	Notes
Interior lighting power	C405.5.2	Space by space method shall be used to determine lighting power allowances. Revised lighting power allowances in Table C405.5.2(1) Interior Lighting Power Allowances.

Solar Ready Buildings: Mandatory Requirements

System	COBECC Section	Notes
Requirements for Solar Ready Buildings	C406	<p>All New Construction required to be solar ready including:</p> <ul style="list-style-type: none"> • 40% of roof area designated for PV (no obstructions or shading) • Locate and provide space for future required electrical equipment (inverter and meter) • Install conduit from roof to future electrical equipment location. • Main electrical panel shall have space for future solar. • Structural live and dead loads included in roof design. <p>See C406 for detailed requirements on how to comply with solar ready requirements.</p>

System Commissioning: Mandatory Requirements

System	COBECC Section	Notes
HVAC, Electrical Power and Lighting Systems Commissioning	C407	Commissioning process and documentation requirements outlined in C407 are mandatory, and slight adjustments have been made to the Operations and Maintenance manuals.

Additional Sustainability Measures

System	Code	Notes
Electric Vehicle Charging Infrastructure	NEC 210.52(J)	For multi-family units, require charging infrastructure (120 and 240 V outlets) for 10 percent of the parking spaces, and require Level 2 dual port charging stations for at least one space.
Water Efficiency	IPC Table 604	Revised plumbing code fixture flow rates.