

GEW1-14

Chapter 6, 302.1.1, 302.1, 903.1, 904.3, 1007.3, 1007.3.1, 1007.3.2, 1007.3.3, 1007.3.3.1, 1007.3.3.2, 1007.3.3.3, A106

Proponent: Shaunna Mozingo, Colorado Code Consulting, LLC, representing Colorado Chapter of ICC, Inc (smozingo@coloradocode.net); Craig Conner, representing self

Revise as follows:

601.3 Application. ~~Buildings and their associated building sites shall comply with Section 601.3.1 or Section 601.3.2.~~ Buildings shall be designed and constructed in accordance with the *International Energy Conservation Code*.

601.3.1 Performance-based compliance. Buildings designed on a performance basis shall comply with ~~Sections 602, 608.6, 609, 610 and 614~~ Section 602 and the commercial mandatory and performance based requirements of the *International Energy Conservation Code*.

601.3.2 Prescriptive-based compliance. Buildings designed on a prescriptive basis shall comply with the requirements of ~~Sections 605, 606, 607, 608, 609, 610 and 614~~. Section 602 and the commercial mandatory and prescriptive based requirements of the *International Energy Conservation Code*

601.4 Minimum requirements. ~~Buildings shall be provided with metering complying with Section 603, and commissioning complying with Section 611. Where required in accordance with Section 604.1, building shall be provided with automated demand response complying with Section 604.~~

601.5 Multiple buildings on a site and mixed use buildings. ~~Where there is more than one building on a site and where a building has more than one use in the building, each building or each portion of a building associated with a particular use shall comply with Sections 601.5.1 or 601.5.2 or a combination of both.~~

601.5.1 Multiple buildings on a site. ~~For building sites with multiple buildings, the energy use associated with the building site shall be assigned on a proportional basis to each building based on total gross floor area of each building in relation to the total gross floor area of all buildings on the building site.~~

~~Where energy is derived from either renewable or waste energy, or both sources located on the building site, within individual buildings, or on individual buildings and delivered to multiple buildings, the energy so derived shall be assigned on a proportional basis to the buildings served based on building gross floor area. Energy delivered from renewable and waste energy sources located on or within a building shall be assigned to that building.~~

Exception: ~~Where it can be shown that energy to be used at the building site is associated with a specific building, that energy use shall be assigned to that specific building.~~

601.5.2 Mixed use buildings. ~~Where buildings have more than one use, the energy use requirements shall be based on each individual occupancy.~~

~~602 MODELED PERFORMANCE PATHWAY REQUIREMENTS~~

~~603 ENERGY METERING, MONITORING AND REPORTING~~

~~604 AUTOMATED DEMAND RESPONSE (AUTO-DR) INFRASTRUCTURE~~

~~605 BUILDING ENVELOPE SYSTEMS~~

~~606 BUILDING MECHANICAL SYSTEMS~~

607 BUILDING SERVICE WATER HEATING SYSTEMS

608 BUILDING ELECTRICAL POWER AND LIGHTING SYSTEMS

609 SPECIFIC APPLIANCES AND EQUIPMENT

610-602 BUILDING RENEWABLE ENERGY SYSTEMS

611 ENERGY SYSTEMS COMMISSIONING AND COMPLETION

Revise as follows:

302.1 Requirements determined by the jurisdiction. The jurisdiction shall indicate the following information in Table 302.1 for inclusion in its code adopting ordinance:

1. The jurisdiction shall indicate whether requirements for residential buildings, as indicated in Exception 1 to Section 101.3, are applicable by selecting “Yes” or “No” in Table 302.1. Where “Yes” is selected, the provisions of ICC 700 shall apply and the remainder of this code shall not apply.
2. ~~Where the jurisdiction requires enhanced energy performance for buildings designed on a performance basis, the jurisdiction shall indicate a zEPI of 46 or less in Table 302.1 for each occupancy required to have enhanced energy performance.~~
3. 2. Where “Yes” or “No” boxes are provided, the jurisdiction shall check the box to indicate “Yes” where that section is to be enforced as a mandatory requirement in the jurisdiction, or “No” where that section is not to be enforced as a mandatory requirement in the jurisdiction.

**TABLE 302.1
REQUIREMENTS DETERMINED BY THE JURISDICTION**

Section	Section Title or Description and Directives	Jurisdictional Requirements	
CHAPTER 6. ENERGY CONSERVATION, EFFICIENCY AND CO₂e EMISSION REDUCTION			
302.1, 302.1.1, 602.1	zEPI of Jurisdictional Choice—The jurisdiction shall indicate a zEPI of 46 or less in each occupancy for which it intends to require enhanced energy performance.	Occupancy: _____ zEPI: _____	
604.1	Automated demand response infrastructure	<input type="checkbox"/> Yes	<input type="checkbox"/> No
CHAPTER 10. EXISTING BUILDINGS			
1007.2	Evaluation of existing buildings	<input type="checkbox"/> Yes	<input type="checkbox"/> No
1007.3	Post Certificate of Occupancy zEPI, energy demand, and CO₂e emissions reporting	<input type="checkbox"/> Yes	<input type="checkbox"/> No

(portions of table not shown remain unchanged)

302.1.1 zEPI of 46 or less. Where a zEPI of 46 or less is indicated by the jurisdiction in Table 302.1, buildings shall comply on a performance basis in accordance with Section 601.3.1.

Exception: Buildings less than 25,000 square feet (2323 m²) in total building floor area pursuing compliance on a prescriptive basis shall be deemed to have a zEPI of 51 and shall not be required to comply with the zEPI of Jurisdictional Choice indicated by the jurisdiction in Table 302.1.

Revise as follows:

903.1 General. Where application is made for construction as described in this section, the registered design professional in responsible charge or approved agency shall perform commissioning during construction and after occupancy as required by Table 903.1. Where Table 903.1 specifies that commissioning is to be done on a periodic basis, the registered design professional in responsible charge shall provide a schedule of periodic commissioning with the submittal documents that shall be reviewed and *approved* by the *code official*.

The approved agency shall be qualified and shall demonstrate competence, to the satisfaction of the *code official*, for the commissioning of the particular type of construction or operation. The registered design professional in responsible charge and engineers of record involved in the design of the project are permitted to act as the approved agency provided those personnel meet the qualification requirements of this section to the satisfaction of the *code official*. The approved agency shall provide written documentation to the *code official* demonstrating competence and relevant experience or training. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of commissioning activities for projects of similar complexity and material qualities.

**TABLE 903.1
COMMISSIONING PLAN**

CONSTRUCTION OR SYSTEM REQUIRING VERIFICATION	PREOCCUPANCY	POST-OCCUPANCY	METHOD	OCCURRENCE		SECTION/ REFERENCED STANDARD
				Preoccupancy	Post-occupancy	
Chapter 6: Energy						
Energy consumption, monitoring, targeting and reporting						
a. Monitoring system	X	None	Inspection and verification	During construction and prior to occupancy	None	603, 610.5
b. Calibration	X	X	Testing and review and evaluation or test reports	During commissioning	Annually	603, 610.5
Mechanical systems completion — all buildings						
a. Air system balancing— provide the means for system balancing	X	None	Inspection and verification	During construction and prior to occupancy	None	611.1.2.1 and through reference to IECC
b. Hydronic system balancing— provide means for system balancing	X	None	Inspection and verification	During construction and prior to occupancy	None	611.1.2.2 and through reference to IECC
c. Mechanical system manuals— construction documents to require O&M manual	X	None	Verification of construction documents	Plan review	None	611.1.5.2
Mechanical systems — buildings over 5,000 square foot total building floor area						
a. Commissioning required and noted in plans and specifications	X	None	Verification of construction documents	Plan review	None	611.1
b. Documentation of required commissioning outcomes	X	None	Verification with the building owner	Subsequent to completion of all commissioning activities	None	611.1

CONSTRUCTION OR SYSTEM REQUIRING VERIFICATION	PREOCCUPANCY	POST-OCCUPANCY	METHOD	OCCURRENCE		SECTION/ REFERENCED STANDARD
				Preoccupancy	Post-occupancy	
c. Preparation and availability of a commissioning plan	X	None	Verification with the RDP or commissioning agent	Between plan review and commissioning initiation	None	611.1.1
d. Balance HVAC systems (both air and hydronic)	X	X	HVAC system installer/contractor or commissioning agent	After installation of HVAC systems and prior to occupancy	TBD	611.1.2
e. Functional performance testing of HVAC equipment	X	X	HVAC system installer/contractor or commissioning agent	After installation of HVAC systems and prior to occupancy	TBD	611.1.3
f. Functional performance testing of HVAC controls and control systems	X	X	HVAC system installer/contractor or commissioning agent	After installation of HVAC systems and prior to occupancy	TBD	611.1.3.2
g. Preparation of preliminary commissioning report	None	X	HVAC system installer/contractor or commissioning agent	None	Subsequent to commissioning	611.1.4
h. Acceptance of HVAC systems and equipment/system verification report	None	X	Building owner	None	Letter verifying receipt of the commissioning report	611.1.4.4
i. Preparation and distribution of final HVAC system completion — Documentation that construction documents require drawings, manuals, balancing reports and commissioning report be provided to the owner and that they have been provided	None	X	RDP, contractor or commissioning authority	None	90 days after final certificate of occupancy	611.1.5
Chapter 6: Lighting						
Auto demand reduction control system functionality	X	X	Functional testing	Final inspection	18-24 months	604.4
Plug load controls	X	None	Functional testing	Final inspection	None	608.6

CONSTRUCTION OR SYSTEM REQUIRING VERIFICATION	PREOCCUPANCY	POST-OCCUPANCY	METHOD	OCCURRENCE		SECTION/ REFERENCED STANDARD
				Preoccupancy	Post-occupancy	
Connection of appliances to switched receptacles	—	X	Field inspection	None	18-24 months	608.6
Specified transformer nameplate efficiency rating	X	None	Field inspection	Final inspection	None	608.8.1.4
Verification of lamp	X	X	Field inspection	Final inspection	18-24 months	608.10
Verification of ballast	X	None	Field inspection	Final inspection	None	608.10
Lighting controls						
a. Installation	X	None	Field inspection	Post-installation	None	608.11
b. Calibration	X	X	System installer/contractor or commissioning agent	Post-installation	18-24 months	611.3.3

(portions of Table not shown remain unchanged)

904.3 Building operations and maintenance documents. The building operations and maintenance documents shall consist of manufacturer's specifications and recommendations, programming procedures and data points, narratives, and other means of illustrating to the owner how the building, site and systems are intended to be maintained and operated. The following information shall be included in the materials, as applicable to the specific project:

1. Directions to the owner or occupant on the manual cover sheet indicating that at least one copy of the materials shall be in the possession of the owner or occupant.
2. Operations and maintenance manuals for equipment, products and systems installed under or related to the provisions of Chapter 4 including, but not limited to, the following, as applicable:
 - 2.1. Vegetative shading, vegetative roofs and natural resource protections and setbacks.
 - 2.2. Water-conserving landscape and irrigation systems.
 - 2.3. Stormwater management systems.
 - 2.4. Permanent erosion control measures.
 - 2.5. Landscape or tree management plans.
3. Operations and maintenance documents for materials, products, assemblies and systems installed under or related to the provisions of this code for material resource conservation in accordance with Chapter 5 including, but not limited to, the following, as applicable:
 - 3.1. Care and maintenance instructions and recommended replacement schedule for flooring, including, but not limited to, carpeting, walk-off mats and tile.
 - 3.2. Care and maintenance instructions for natural materials including, but not limited to, wood, bio-based materials and stone.
 - 3.3. Available manufacturer's instructions on maintenance for:
 - 3.3.1. Exterior wall finishes.
 - 3.3.2. Roof coverings.
 - 3.3.3. Exterior doors, windows and skylights.

- 3.4. Information and recommended schedule for required routine maintenance measures, including, but not limited to, painting and refinishing.
4. ~~Operations and maintenance documents for equipment, products and systems installed under or related to the provisions of this code for energy conservation in accordance with Chapter 6 including, but not limited to, the following:~~
- ~~4.1. Heating, ventilating and air-conditioning systems including: Domestic hot water systems including performance criteria and controls.

 - ~~4.1.1. Recommended equipment maintenance schedule.~~
 - ~~4.1.2. Air filters and fluid filters, including recommended replacement schedule and materials.~~
 - ~~4.1.3. Time clocks, including settings determined during commissioning.~~
 - ~~4.1.4. Programmable controls and thermostats, including settings determined during commissioning.~~~~
 - ~~4.2. *Building thermal envelope* systems including:

 - ~~4.2.1. Glazing systems inspection schedule.~~
 - ~~4.2.2. Performance criteria for replacements and repairs.~~
 - ~~4.2.3. Information and recommended schedule on required routine maintenance measures, including but not limited to, sealants, mortar joints and screens.~~~~
 - ~~4.3. Electrical and lighting systems including: Automatic demand reduction systems.

 - ~~4.3.1. Technical specifications and operating instructions for installed lighting equipment.~~
 - ~~4.3.2. Luminaire maintenance and cleaning plan.~~
 - ~~4.3.3. Lamp schedule, recommended relamping plan, and lamp disposal information.~~
 - ~~4.3.4. Programmable and automatic controls documentation, including settings determined during commissioning.~~
 - ~~4.3.5. Occupant sensor and daylight sensors documentation, including settings determined during commissioning.~~~~
- 5 4. Operations and maintenance documents for equipment, products and systems installed under or related to the provisions of this code for water conservation in accordance with Chapter 7, including, but not limited to the following:
- ~~5.1~~ 4.1. Domestic fixtures.
 - ~~5.2~~ 4.2. Water-regulating devices including faucets and valves.
 - ~~5.3~~ 4.3. Irrigation and rainwater and gray water catchment.
- 6 5. Operations and maintenance documents for equipment products and systems under or related to the provisions of this code for indoor environmental quality in accordance with Chapter 8, including, but not limited to, the following:
- ~~6.1~~ 5.1. Humidification/dehumidification.
 - ~~6.2~~ 5.2. Green cleaning products, procedures and techniques.
 - ~~6.3~~ 5.3. Recommended window cleaning schedule.
 - ~~6.4~~ 5.4. Ventilation controls.
 - ~~6.5~~ 5.5. Floor finishes.
 - ~~6.6~~ 5.6. Fireplaces and combustion appliances.

Delete without substitution:

~~1007.3 Post certificate of occupancy zEPI, energy demand, and CO₂e emissions reporting.~~ Where the jurisdiction indicates in Table 302.1 that ongoing post certificate of occupancy zEPI, energy demand and CO₂e emissions reporting is required, and where the jurisdiction has indicated in Table 302.1 that enhanced energy performance in accordance with Section 302.1 or CO₂e emissions in accordance with Section 602.2 are required, zEPI, energy demand, and CO₂e emissions reporting shall be provided in accordance with this section.

~~**1007.3.1 Purpose.** The purpose of this section is to provide for the uniform reporting and display of the total annual net energy use, peak demand for each energy form and emissions associated with building operations and building sites.~~

~~**1007.3.2 Intent.** The intent of these requirements is to provide for the ongoing reporting and display of the total annual net energy use, peak energy demand and emissions associated with operation of the building and its systems to document ongoing compliance with the provisions of Sections 601 and 602.~~

~~**1007.3.3 Reporting.** Reports in accordance with Sections 1007.3.3.1 through 1007.3.3.3 shall be generated.~~

~~**1007.3.3.1 Annual net energy use.** The zEPI associated with the operation of the building and the buildings on the site, as determined in accordance with Section 602.1, shall be reported by the building owner or the owner's registered agent to the [INSERT NAME OF APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY RESPONSIBLE FOR COLLECTING REPORTED INFORMATION].~~

~~Where there are multiple buildings on a building site, each building shall have its zEPI reported separately. Where there are energy uses associated with the building site other than the buildings on the site, the zEPI for the building site shall be reported separately.~~

~~Energy use for the previous year shall cover the complete calendar year and be reported on, or before, March 1st of the following year.~~

~~**1007.3.3.2 Peak monthly energy demand reporting.** The peak demand of all energy forms serving each building and the building site shall be reported by the building owner or the owner's registered agent to the [INSERT NAME OF APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY RESPONSIBLE FOR COLLECTING REPORTED INFORMATION].~~

~~Where there are multiple buildings on a building site, each building shall have its energy demand reported separately. Where there are energy uses associated with the building site other than the buildings on the site, the energy demand for the building site shall be reported separately.~~

~~Monthly energy demand data for the previous year shall cover the complete calendar year and be reported on, or before, March 1st of the following year.~~

~~**1007.3.3.3 Annual CO₂e emissions reporting.** The annual emissions associated with the operation of the building and its systems, as determined in accordance with Section 602.2, shall be reported by the building owner or the owner's registered agent to the [INSERT NAME OF APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY RESPONSIBLE FOR COLLECTING REPORTED INFORMATION].~~

~~Where there are multiple buildings on a building site, each building shall have its annual emissions reported separately. Where there are energy uses associated with the building site other than the buildings on the site, the annual CO₂e emissions for the building site shall be reported separately.~~

~~Emissions reported for the previous year shall cover the complete calendar year and be reported on, or before, March 1st of the following year.~~

Delete without substitution:

~~**A106 ENERGY CONSERVATION, EFFICIENCY AND EARTH ATMOSPHERIC QUALITY**~~

Reason: The 2012 IgCC is not being adopted. The few jurisdictions that are adopting the IgCC are adopting it with a limited scope, as a "voluntary" code or outright deleting the Chapter 6 (Dallas Texas). We stand the chance of losing the IGCC and all of the hard work that has been put into it because it is not profitable to publish a book that nobody buys. Code officials have expressed

over and over again that the energy codes have gone far enough and feel as though the IgCC energy provisions are far too complicated to learn, understand and enforce therefore most either don't adopt it or don't use it if they do adopt it. If that is the case, then are we really seeing any pay off for all of those efforts?

By proposing that the energy provisions of the IgCC simply reflect the provisions of the code that it is supposed to overlay, the IECC, there will be more buy in and eventual use of the code because it will be something that is already understood and being used. Sure, the energy provisions won't be much above code, with the exception of the renewable requirements, but are we getting above code now when nobody is using it? Wouldn't it

be better to leave the remaining chapters of the IgCC to carry the above code requirements and let Chapter 6 reflect the requirements that people are slowly getting used to in the IECC? The IECC has been advancing so fast that it has been hard to keep up with it. We would propose that it has advanced enough that we could use the requirements in it as the base for this code for at least one code cycle to see if it makes a difference in the adoption and use of this code.

The final action hearings for the IECC ended only a couple of months prior to the deadline for submitting changes to the IgCC. The 2015 IECC wasn't even published by the deadline for these submittals. Most of the time we are guessing what those IECC requirements are truly going to be while attempting to write something that is supposed to go above those requirements in efficiency. It's pretty hard to do when you don't really know what the IECC says yet.

If the IECC commercial provisions become the basis for Chapter 6 of the IGCC then we have eliminated the problem of not knowing what one says before we have to write the next. We eliminate the need for a third round of hearings because we can now write the IECC and the IGCC at the same time, while all of the same code writers are already in the room together. We can save ICC tens of thousands of dollars on separate hearings. We may even be able to save this code from extinction.

How long will a publisher keep publishing a book that is not used? We could find ourselves having to rely on other standards for a green code because it isn't worth continuing the cost of hearings and publishing for this code. The problem with that is that we don't have as much opportunity for input into those other documents. The ICC Code Development process is one of a kind. We can't afford to lose that for this type of code. It needs our input but if all of that input makes a document that nobody uses, it's time to rethink our strategy. What will make this code get used? We've researched the reasons for limited use and the same comment comes up over and over again-- make the energy chapter something that is understandable and easier to use. People keep saying that the IECC is advancing so fast that we need to take a break and let people catch up with the requirements and learning the new technologies and applications before trudging forward. Let's give it to them this cycle in the IGCC and see if it works

This proposal references the IECC in the new Section 601.3 with the same code language that the IBC does. As such it would also allow the use of ASHRAE90.1.

There are plenty of other provisions in this code that make it "green" and above code. All of those other requirements aren't found in other codes so they are "above code". Let them carry the IgCC for a cycle. At its core, this proposal is simply an effort to get the IgCC adopted and used by making it simpler and more familiar to the user.

Cost Impact: Will not increase the cost of construction. This proposal will likely reduce the cost of construction in most instances.

GEW1-14: 601.3.1-MOZINGO994