

GEW2-14

302.1, 302.1.1, 1003.2.2, Chapter 6, 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: Mark Nowak, Steel Framing Alliance, representing Steel Framing Alliance (mark@mnowak.net)

Revise as follows:

CHAPTER 6 ENERGY CONSERVATION, ~~EFFICIENCY AND CO₂e~~ EMISSION REDUCTION

601.3 Application. Buildings and their associated building sites shall comply with Section ~~C407~~ 601.3.1 or Section 601.3.2 of the *International Energy Conservation Code* and shall exceed the requirements of Section C407 by not less than 10 percent.

601.3.1 Performance-based compliance. Buildings designed on a performance basis shall comply with Sections 602, 608.6, 609, 610 and 611.

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 611.

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.

~~602 MODELED PERFORMANCE PATHWAY REQUIREMENTS~~

603.5.1 Annual emissions. ~~The data acquisition and management system shall be capable of providing the data necessary to calculate the annual CO₂e emissions associated with the operation of the building and its systems using the results of annual energy use measured in accordance with Section 603.5. The calculation shall be based on energy measured for each form of energy delivered to the site on an annual basis. Where reporting of emissions is required, the determination of emissions shall be in accordance with Section 602.2.3.~~

~~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~~

610.1.1 Building performance-based compliance. Buildings and surrounding property or building sites where there are multiple buildings on the building site, ~~that are designed and constructed in accordance with Section 601.3.1, performance-based compliance,~~ shall be equipped with one or more renewable energy systems that have the capacity to provide not less than 2 percent of the total calculated annual energy use of the building, or collective buildings on the site.

~~**610.1.2 Building prescriptive compliance.** Buildings and surrounding property or building sites where there are multiple buildings on the building site, that are designed and constructed in accordance with Section 601.3.2, prescriptive compliance, shall be equipped with one or more renewable energy systems that have the capacity to provide not less than 2 percent of the total estimated annual energy use of the building, or collective buildings on the building site, with onsite renewable energy by calculation demonstrating that onsite renewable energy production has a rating of not less than 1.75 Btu/h (0.5 W) or not less than 0.50 watts per square foot of conditioned floor area, and using any single or combination of renewable energy generation systems meeting the requirements of Sections 610.2, 610.3, or 610.4.~~

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. 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
4007.3	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:

1003.2.2 Heating, ventilating and air-conditioning. Heating, ventilating and air-conditioning systems and equipment shall be in accordance with the following:

1. Time clock and automatic time switch controls that can turn systems off and on according to building occupancy requirements shall be provided and connected to the following HVAC equipment: chillers and other space-cooling equipment, chilled water pumps, boilers and other space-heating devices, hot water pumps, heat exchanger circulation pumps, supply fans, return fans, and exhaust fans. Where occupant override is provided, it shall be designed with a timer to automatically revert to time clock and automatic time switch controls in not longer than 12 hours.

Exception: A time clock or automatic time switch controls shall not be required for spaces where any of the following conditions exist:

1. A time clock is not required by Section C403.2.4.3 of the *International Energy Conservation Code*.
2. There is 24-hour occupancy materials with special atmospheric requirements dependent on 24-hour space conditioning.
3. A majority of the areas of the building served by the system are under setback thermostat control.
4. Manufacturer's specifications stipulate that the system must not be shut off.

2. Functional outside air economizers shall be provided on all cooling systems or more than 4 ½ tons cooling capacity, 54,000 Btu/h, or more than 1800 cfm (9.144 m³/s x m²) air flow, provided manufactures' guidelines are available for adding the economizer to the existing system.

Exception: An outside air economizer shall not be required for buildings or special uses where 100 percent outside air for ventilation is required or where any of the following conditions exist:

1. Section C403.3.1 of the *International Energy Conservation Code* would not require an economizer.
2. The existing system has a water-based economizer.
3. The existing system does not have an outside air intake.
4. Special economizer operations such as, but not limited to, carefully controlled humidity would require more energy use than is conserved.
5. There is insufficient space to install necessary equipment.
6. Installation of an economizer would require major modifications to the building's life safety system.
7. The existing system is a multi-zone system where the same intake air is used at the same time for either heating or cooling in different parts of the building.

3. HVAC piping and ducts, including those located above suspended ceilings, shall comply with ~~Sections 606.3 and 606.4.~~ *International Energy Conservation Code*.

Exception: Additional insulation shall not be required for piping where any of the following conditions exist:

1. Additional insulation shall not be required for piping where any of the following conditions exist:
 - 1.1. It is located within HVAC equipment;

- 1.2. It is located within conditioned space that conveys fluids between 60°F (15.6°C) and 105°F (40.6°C);
 - 1.3. Piping that is already insulated and the insulation is in good condition; or
2. Where HVAC ducts and piping are installed in a building cavity or interstitial framing space of insufficient width to accommodate the duct or pipe and the insulation required by Section 606.3 and Table 606.4, the insulation thickness shall be permitted to have the maximum thickness that the wall can accommodate, but shall not be less than $\frac{1}{2}$ -inch (12.7 mm) thick.
4. Where central heat is intended to be replaced with individual electric space heaters, the application for the electrical permit shall include documentation demonstrating that the new electric heaters will not consume more energy than the existing nonelectric heaters.
5. Boiler systems shall have been cleaned and tuned within one year prior to the alteration. Boilers shall be equipped with an outdoor air lock-out thermostat or a temperature reset control.
6. Chillers shall be equipped with an outdoor air lockout thermostat and chilled water reset control.
7. A maximum 5-year phase out plan shall be provided for buildings with existing systems that use CFC-based refrigerants.
8. Where mechanical and electrical systems and equipment are joined with microprocessors that communicate with each other or to a computer, a properly integrated building automation system shall be installed to optimize energy, operations, and indoor comfort. The building automation system shall:
 - 8.1. Allow the owner to set up schedules of operation for the equipment and provide equipment optimal start with adaptive learning;
 - 8.2. Provide trim and respond capabilities based on zone demand;
 - 8.3. Offer the ability to monitor energy usage, including the ability to meter electric, gas, water, steam, hot water, chilled water, and fuel oil services;
 - 8.4. Offer economizing based on enthalpy calculation and/or CO₂ set point control;
 - 8.5. Offer load shedding when power companies are at peak demand and need; and
 - 8.6. Offer the ability to send alarms to alert building owner, manager, or operator when problems occur due to system failures.

~~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.~~

NOTE: This version of the code change proposal has been updated to include all reported errata.

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: This proposal simplifies the code by relying on the base IECC code to achieve a higher performing building. It will eliminate the need for code officials, designers, owners, and others to learn and implement an approach and terminology that is vastly different from the base IECC code, and it eliminates the need to use two different methods to comply with the two codes. It will, however, retain the benefits of a green code that exceeds the base code in a balanced and flexible manner. Users of the code will be able to continue to use the performance path in the IECC but the level of performance will be required to be 10% higher. This is a simplification of the code that will allow owners to determine how to best achieve the energy efficiency objectives of the code.

Further, this proposal eliminates the arbitrary prescriptive requirements from the IgCC for a 10% decrease in the IECC U-factors. To apply an arbitrary reduction as a percentage to the IECC U-factors is inappropriate for the following reasons:

A 10% U-factor decrease is not the same as a 10% increase in performance.

-This introduces an inconsistent standard whereby assemblies with different U-factors in the IECC will be required to meet a higher incremental level of performance in the IgCC simply because their U-factors in the IECC are higher than other assemblies.

The 10% U-factor decrease is discriminatory against some building materials due to the differences in their costs of construction versus other materials. As stated above, this creates a different "standard" for performance for some materials versus others compared to the base IECC document.

NOTE: This version of the code change proposal has been updated to include all reported errata.

If the IECC is based on an optimized design that balances life cycle costs with performance, there is no rationale to support more stringent U-factors in the IgCC. Even a "green" code or standard should be based on some level of cost-effectiveness. There is no such substantiation provided to support an arbitrary 10% decrease in U-factors. In warmer climate zones, there will be little to no energy savings from the U-factor increases.

Cost Impact: Will not increase the cost of construction.

GEW2-14: CHAPTER 6-NOWAK993
