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Update on the 2015 International Energy Conservation Code

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Commercial Energy Provisions

Building Thermal Envelope

(Exterior walls, windows, doors)

Exterior Thermal Envelope

Wall R-Values

- IECC to become more stringent for exterior walls
- R-Values increased to levels of ASHRAE 90.1
- Increase of 20-25% depending on climate zone

Garage Doors

- Allows use of a new standard to determine fenestration product rating for garage doors:
  - ANSI/DASMA Standard 105 (Door and Access Systems Manufacturer's Association)
  - Fenestration product rating is the door U-Factor, and Air Infiltration
- ANSI/DASMA Standard 105 provides a test method for testing doors larger than 7' by 7'.
- Replaces standard NFRC 100

Total UA Alternative

- Allows an alternative method for component performance.
- Brings more flexibility to the design of the building exterior thermal envelope

Steel Stud Wall Assemblies

- A needed method for determination of R-Values for steel stud wall assemblies has been provided
- This replaces a more simplistic prescriptive approach in the code.
- Therefore increases opportunity for more flexibility in the design of the thermal envelope.

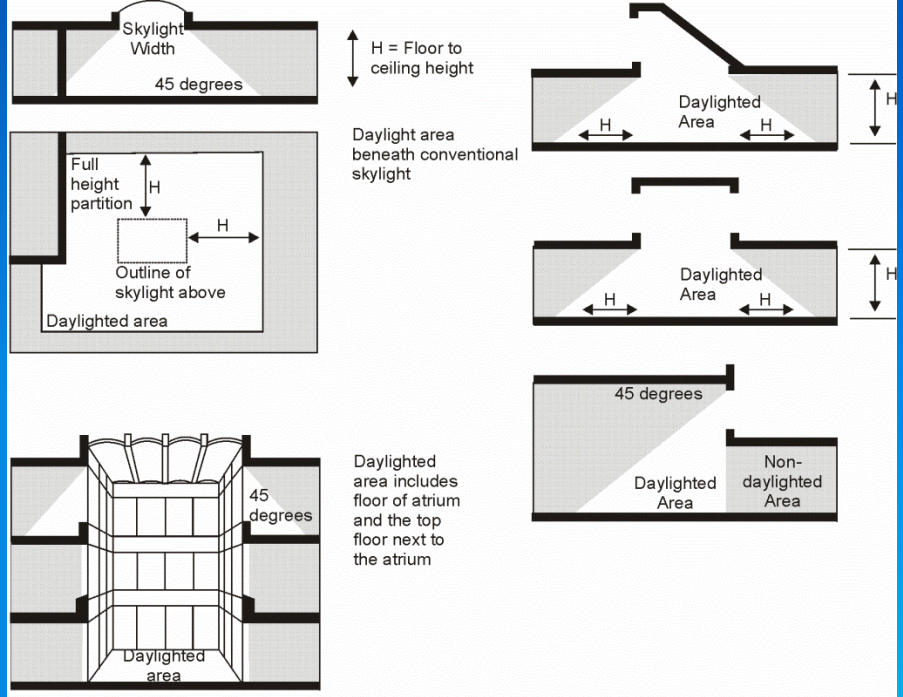
Minimum Skylight Area for Daylight Zone

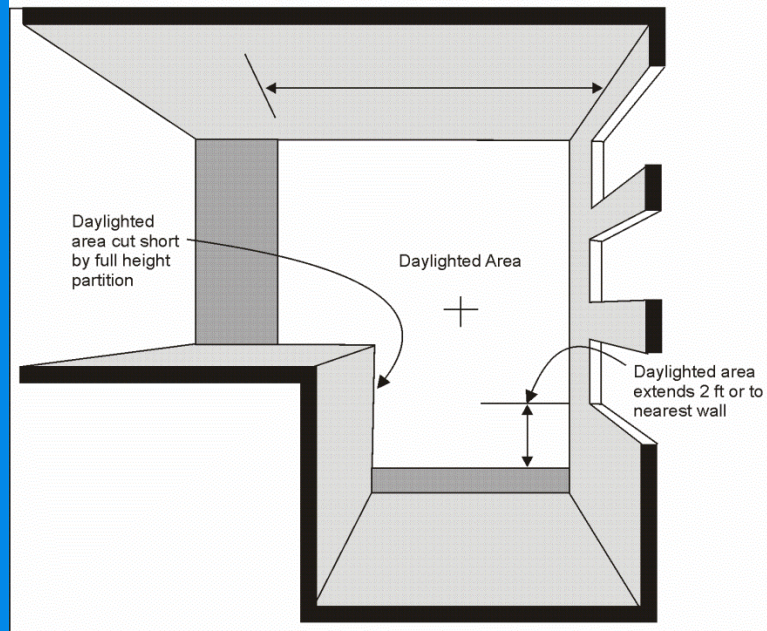
2012 IECC

- Requires a daylight zone under a skylight in enclosed spaces greater than **10,000 square feet**

2015 IECC

- Requires a daylight zone under a skylight in enclosed spaces greater than **2,500 square** feet


Skylight Width
45 degrees
H = Floor to ceiling height
Daylight area beneath conventional skylight
Full height partition
H
H
Outline of skylight above
Daylighted area
Daylighted Area
H
H
H
Daylighted Area
H
H
45 degrees
Daylighted Area
Non-daylighted Area
45 degrees
Daylighted area
Daylighted area includes floor of atrium and the top floor next to the atrium


Daylighted area cut short by full height partition
Daylighted Area
Daylighted area extends 2 ft or to nearest wall

Vertical Fenestration Area with Daylight Responsive Controls

- The 2015 Code provides incentives to install more daylight zones in a building.
- A daylight zone is, quite simply, the portion of a building that is illuminated by daylight. The issue is the use of daylight response controls to lower indoor lighting when possible.

Vestibules

- The code now allows an alternative to vestibules:

  An air curtain tested in accordance with ANSI/AMCA 220

HVAC Systems

Zone Isolation

- Zone isolation areas are required to control an HVAC system in each isolation area when:
  - A floor area served by a single HVAC system over 2500 square feet.
  - The HVAC system serves more than one story.

Zone Isolation (cont'd)

- Each isolation area equipped with devices and controls:
  - Configured automatically to shut off air supply to the isolation area.
  - Automatic time clock or programmable, capable of starting and stopping the system for 7 different daily schedules per week.

Refrigerated Warehouse Coolers and Freezers

- Automatic door closers to close doors that have been closed to within 1 inch of full closure
- Doorways have strip doors, curtains, or spring hinged doors to minimize infiltration when doors are open
- Insulation:
  - R25 for Coolers
  - R32 for Freezers

Refrigerated Warehouse Coolers and Freezers

- Freezers have floor insulation of R-28
- Freezer windows and transparent reach-in doors have triple pane glass, either fill with inert gas or with heat-reflective treated glass
- Cooler windows and transparent reach-in doors shall be double-pane or triple-pane, inert gas filled heat reflective treated glass.

Refrigerated Warehouse Coolers and Freezers

- Fan motors:
  - Evaporator < 1 hp and < 460 V: Electronically commutated motors, brushless direct-current motors, or 3-phase motors.
  - Condenser < 1 hp: : Electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.

Refrigerated Warehouse Coolers and Freezers

- Anti-sweat heaters without anti-sweat heater controls: Total door rail, glass and frame heater power draw of not more than 7.1W/s.f.
- Where anti-sweat heater controls provided:
  - must reduce energy use of the heater as a function of relative humidity of air o.s. door or the condensation on the inner glass pane

Refrigeration Equipment

- Regulations for refrigeration equipment efficiency:
  - New tables include tables for commercial refrigeration equipment and refrigerators and freezers
  - Requirements depend on type of equipment, equipment class, and operating mode

Exhaust and Ventilation Systems

- The code now contains new regulations for:
  - Kitchen exhaust systems
  - Enclosed parking ventilation controls

Other new regulations

- Heated water supply—to speed delivery of heated water
- Boiler turndown—requirements on turndown ratio for boilers
- Drain water heat and recovery units:
  - Standards provided for systems
  - Allow credit for these in Performance Method

Additional Energy Efficiency Package Options

- Buildings are required to comply with at least one of the energy efficiency packages:
  - Enhanced HVAC Equipment Performance
  - Reduced lighting power density
  - Enhanced digital lighting controls
  - On-site renewable energy
  - Dedicated outdoor air system
  - Reduced energy use in service water heating

Enhanced HVAC Equipment Performance

- Equipment exceed basic code requirements by 10%
- Equipment not listed in the Code tables limited to 10% of total capacity of building system
- Variable refrigerant flow systems exceed ASHRAE 90.1 by 10%

Reduced lighting power density

- Total building interior lighting power to be 90% of the basic code allowable total building power

Enhanced digital lighting controls

- Luminaires capable of continuous dimming
- Luminaires addressed individually
- No more than 8 luminaires controlled together in a daylight zone

Enhanced digital lighting controls (cont.)

- Fixtures controlled through a digital control system:
  - Control reconfiguration based on digital addressability
  - Load shedding
  - Individual user control of general illumination
  - Occupancy sensors reconfigured
- Construction documents include sequence of operations
- Functional Testing of lighting controls

On-site renewable energy

- Provide not less than 0.50 Watts per square foot of conditioned floor area
- Provide not less than 3% of the energy used for building mechanical, service water heating, and lighting

Dedicated outdoor air system

- Independent ventilation system to supply not less than the minimum 100% outdoor air to each individual space, as specified in the *International Mechanical Code*

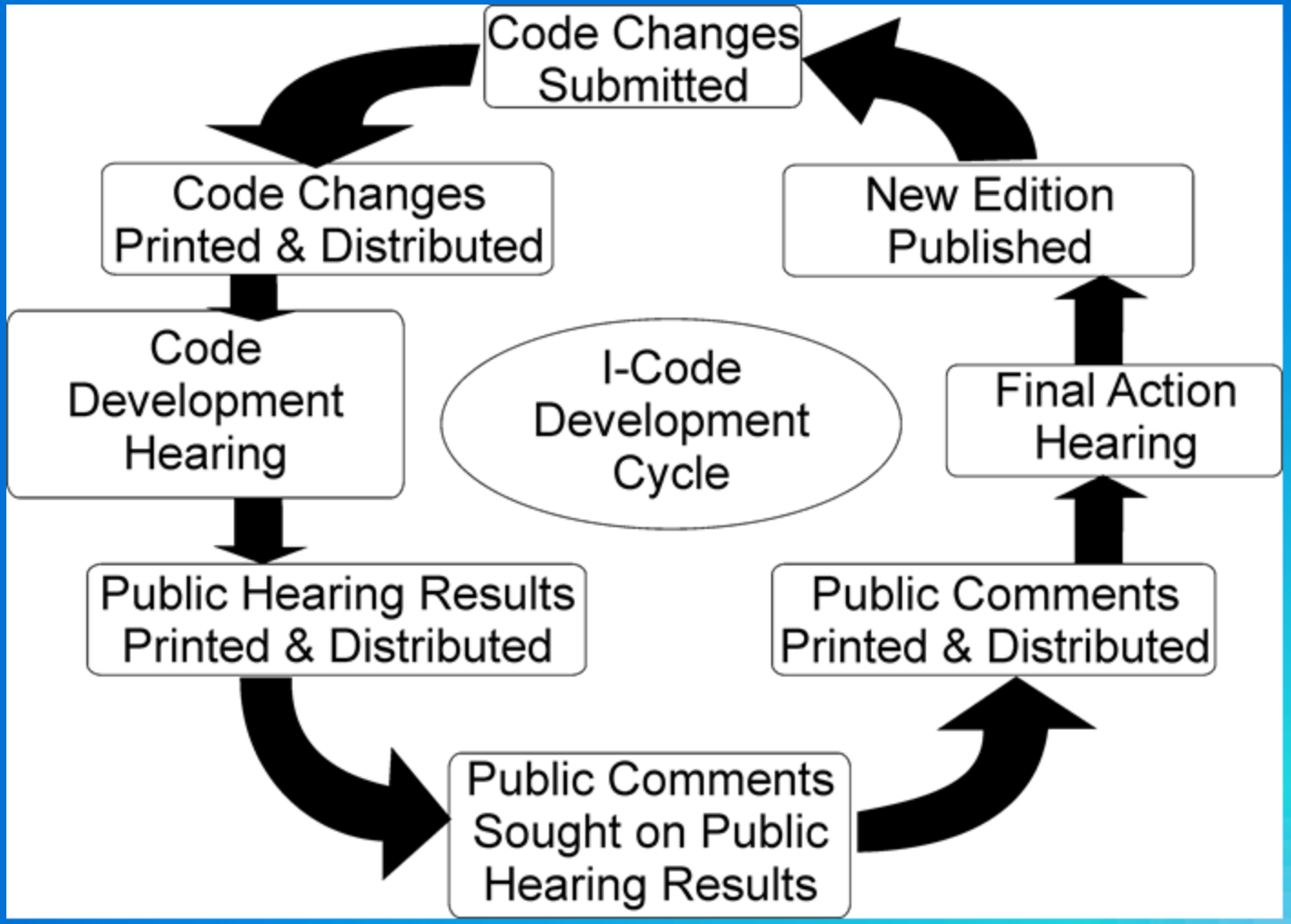
- Reduced energy use in service water heating
  - I-1, I-2, A-2, F, R-2, A-3
  - Option not available in Group M

Existing Buildings

- Code provisions related to existing buildings are consolidated into one chapter
  - Additions
  - Alterations
  - Repairs
  - Change of occupancy or use
  - Historic buildings

The ICC Code Change Process

- Anyone can submit a code change proposal.
- Code change proposals submitted online through cdpACCESS at www.cdpaccess.com
- IECC is in the 2016 Code Development Cycle for the development of the 2018 Codes
  - Submittal deadline is January 11, 2016


Code Changes Submitted
Code Changes Printed & Distributed
Code Development Hearing
Public Hearing Results Printed & Distributed
Public Comments Sought on Public Hearing Results
Public Comments Printed & Distributed
Final Action Hearing
New Edition Published
I-Code Development Cycle