



CADMUS



## 2018 IECC Commercial Code Development Results

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Cadmus

11/3/2016

# Cadmus Codes and Standards Services

*“We are committed to delivering cross-disciplinary services and solutions that help our clients achieve their goals and, in doing so, create social and economic value and improve people’s lives.”*

**- Cadmus Philosophy**

Market	Development	Adoption	Implementation/ Compliance	Evaluation	Related
Domestic	✓		✓	✓	✓
International	✓	✓	✓	✓	✓

# Code Development Process



# Code Development Process





# Types of Code Change Proposals



- Increased the stringency of code
- Clarified code change and increased compliance with the code



- Decreased the stringency of code



# Major Proposal Categories



2016 GROUP B COMMITTEE ACTION HEARINGS

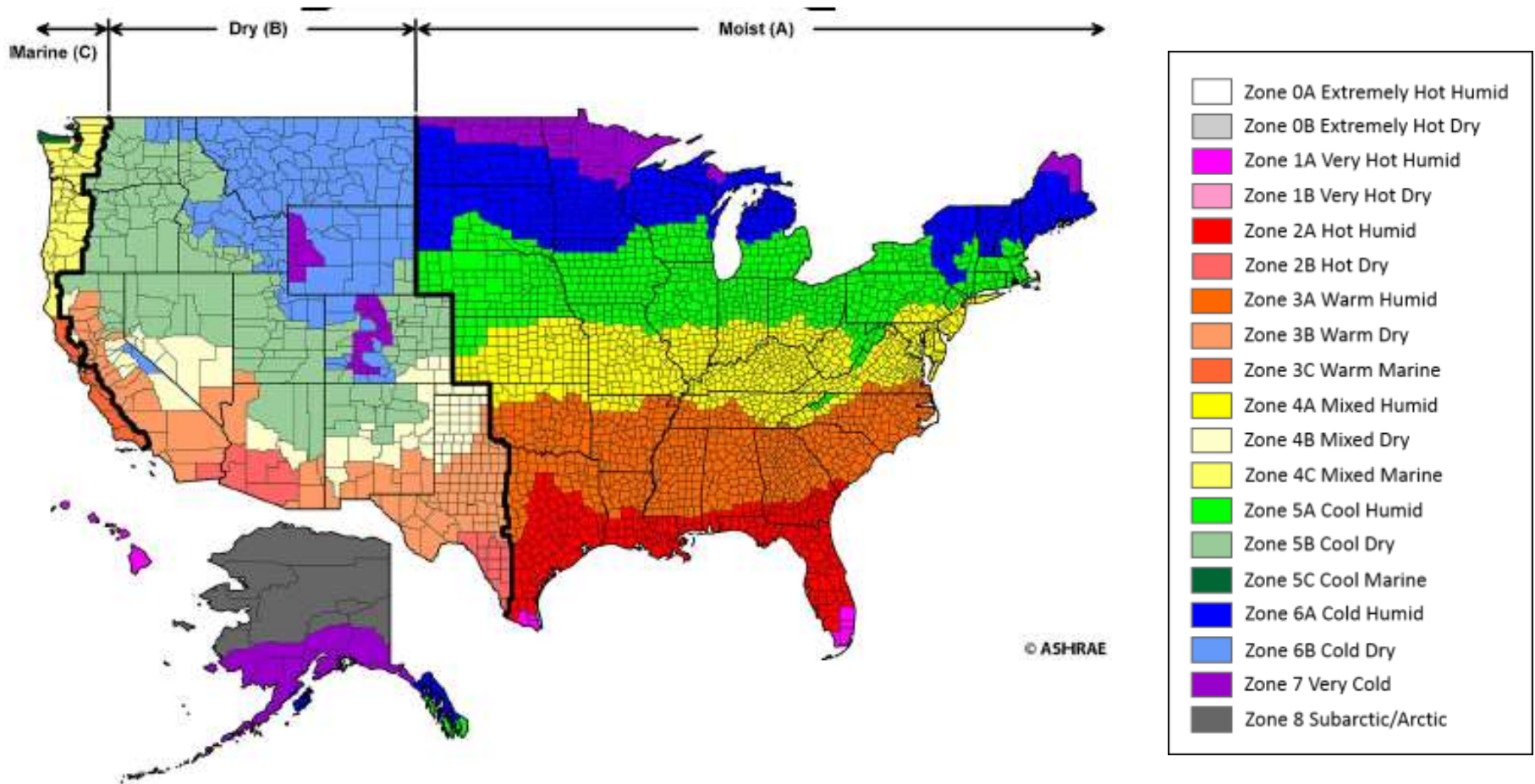
APRIL 17, 2016 – APRIL 27, 2016  
KENTUCKY INTERNATIONAL  
CONVENTION CENTER  
LOUISVILLE, KY



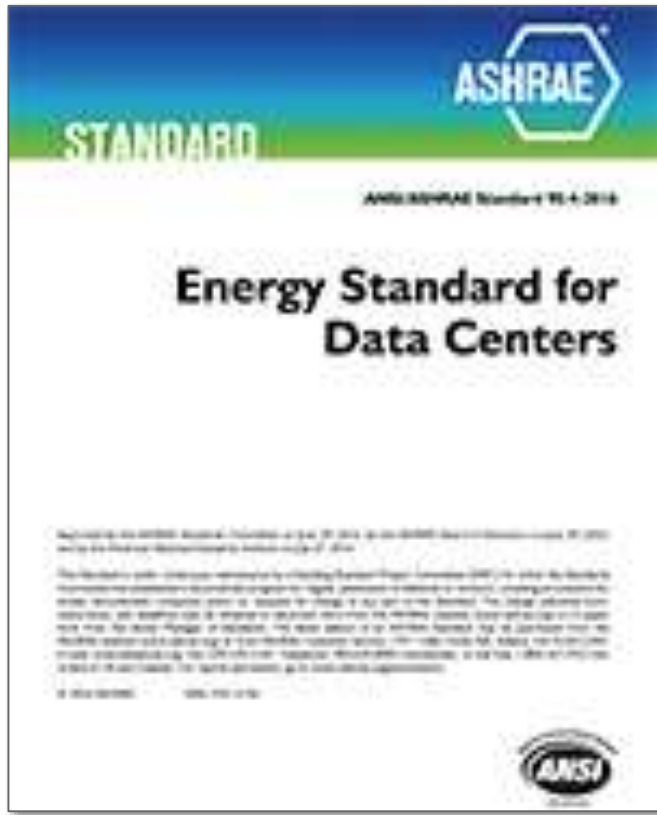
- Scope and Application
- Building Envelope
- HVAC Systems
- Water Heating
- Lighting Systems
- Options Packages
- Commissioning
- Renewables



# Climate Zone Modifications (ASHRAE)



# New ASHRAE Standard



- ASHRAE Standard 90.4 Energy Standard for Data Centers and Telecommunications Buildings
- Includes performance approach that is designed around data centers





# Building Envelope Changes

- Mandatory air leakage testing (DOE)

TABLE C402.5.1.2  
MINIMUM BUILDING SIZE REQUIRING AIR LEAKAGE TESTING

Occupancy Groups R & I		All Other Occupancy and Use Groups	
<u>Climate Zone</u>	<u>Building Floor Area, Ft<sup>2</sup> (m<sup>2</sup>)</u>	<u>Climate Zone</u>	<u>Building Floor Area, Ft<sup>2</sup> (m<sup>2</sup>)</u>
5A, 6A, 7	6,000 (600)	5A, 6A, 7	40,000 (3,700)
4A, 6B	9,000 (800)	0A, 1A, 4A, 6B	75,000 (7,000)
0A, 1A, 8	17,500 (1,600)	5B, 8	200,000 (18,600)
0B, 1B, 3A, 5B	25,000 (2,300)	0B, 1B, 2A, 3A	350,000 (32,500)
2A, 3B, 4C	50,000 (4,600)	2B, 3B, 3C, 4B, 4C, 5C	NR
4B	60,000 (5,600)		
2B, 3C, 5C	NR		

NR = Not Required



# Building Envelope Changes

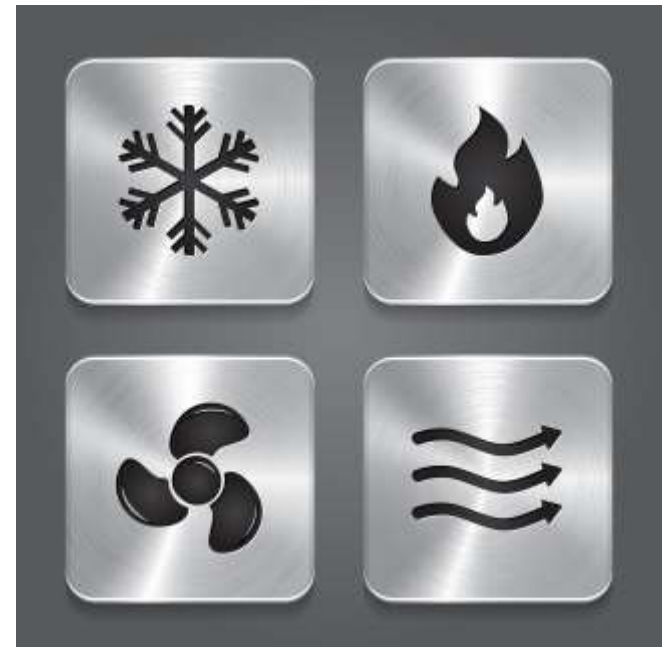
- SHGC modifications in colder climate zones (Glazing Industry Code Committee)

CLIMATE ZONE	1		2		3		4 EXCEPT MARINE		5 AND MARINE 4		6		7		8	
SHGC																
Orientation <sup>a</sup>	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N	SEW	N
PF	0.25	0.33	0.25	0.33	0.25	0.33	<u>0.40</u> <u>0.36</u>	<u>0.53</u> <u>0.48</u>	<u>0.40</u> <u>0.38</u>	<u>0.53</u> <u>0.51</u>	0.40	0.53	0.45	NR	0.45	NR
0.2 ≤ PF	0.30	0.37	0.30	0.37	0.30	0.37	<u>0.48</u> <u>0.43</u>	<u>0.58</u> <u>0.53</u>	<u>0.48</u> <u>0.46</u>	<u>0.58</u> <u>0.56</u>	0.48	0.58	NR	NR	NR	NR
PF > 0.5	0.40	0.40	0.40	0.40	0.40	0.40	<u>0.64</u> <u>0.58</u>	<u>0.64</u> <u>0.58</u>	<u>0.64</u> <u>0.61</u>	<u>0.64</u> <u>0.61</u>	0.64	0.64	NR	NR	NR	NR



# HVAC Systems

- Complete restructuring of HVAC provisions (SEHPCAC)
  - Grouped HVAC provisions together
    - Controls
    - Dampers
    - Variable Air Volume
    - Fan systems
    - Exhaust systems



# HVAC Systems

- Update equipment efficiency tables (ASHRAE)

TABLE C403.2.3 (1)  
Minimum Efficiency Requirements: Electrically Operated Unitary Air Conditioners and Condensing Units

EQUIPMENT TYPE	SIZE CATEGORY	HEATING SECTION TYPE	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY		TEST PROCEDURE <sup>a</sup>
				Before 1/1/2016	As of 1/1/2016	
Air conditioners, air cooled	<65,000 Btu/h <sup>b</sup>	All	Split System, <u>three phase</u>	13.0 SEER	13.0 SEER	AHRI 210/240
			Single Package, <u>three phase</u>	13.0 SEER	14.0 SEER <sup>e</sup>	
Through-the-wall (air cooled)	<30,000 Btu/h <sup>b</sup>	All	Split System, <u>three phase</u>	12.0 SEER	12.0 SEER	
			Single Package, <u>three phase</u>	12.0 SEER	12.0 SEER	
Small-duct high-velocity (air cooled)	<65,000 Btu/h <sup>b</sup>	All	Split System, <u>three phase</u>	11.0 SEER	11.0 SEER	
	> 65,000 Btu/h and	Electric Resistance (or None)	Split System and Single Package	11.2 EER 11.4 IEER	11.2 EER 12.89 IEER	
		All other	Split System and Single Package	11.0 EER 11.2 IEER	11.0 EER 12.67 IEER	



# Water Heating

## WaterSense®



- Reduce flow rate of fixed and handheld showers to 2.0 gpm at 80 psi. (Floyd)





# Lighting Systems

**Table C405.4.2(1) Interior Lighting Power allowances: Building Area Method**

Building Area Type	2015 LPD (w/ft <sup>2</sup> )	2018 LPD (w/ft <sup>2</sup> )
Dining: Cafeteria/fast food	0.9	0.79
Dining: Family	0.95	0.78
Fire Station	0.67	0.53
Hospital	1.05	1.05
Hotel/Motel	0.87	0.75
Manufacturing Facility	1.17	0.90
Office	0.82	0.79
Parking Garage	0.21	0.15
Penitentiary	0.81	0.75
Religious Building	1.0	0.94
Retail	1.26	1.06
School/University	0.87	0.81
Warehouse	0.66	0.48
Workshop	1.19	0.90

Lighting power density (IALD)



# Lighting Systems (DOE)

Additional Interior Lighting Power		
Building Area Type	2015 LPD (w/ft2)	2018 LPD (w/ft2)
	500 W +	300 W +
Retail Area 1: All products not listed in Retail Area 2, 3 or 4	0.06	0.36
Retail Area 2: Sale of vehicles, sporting goods and small electronics	0.06	0.36
Retail Area 3: Sale of furniture, clothing, cosmetics and artwork	1.4	0.84
Retail Area 4: Sale of jewelry , crystal and china	0.25	1.87



# Lighting Systems (DOE)

- Exterior Lighting Power Allowances
  - Reduction in Base Site Allowance for all zones
  - Reduction for:
    - Uncovered parking areas
    - Building grounds
    - Building entrances and exits
    - Sales canopies
    - Outdoor sales
    - Non-tradeable surfaces



# Options Packages (NWECEG)

## Enhanced envelope performance

UA of thermal envelope is 15% below the UA of code compliant thermal envelope

## Reduced air infiltration

Tested air leakage no greater than 0.25 cfm/ft<sup>2</sup>



# Commissioning

**Require commissioning compliance checklist for preliminary commissioning report (Medina)**

Checklist ensures that commissioning has been executed for all required systems

Checklist requires information on when follow-up testing will occur





# Renewables (SEIA)

- Require solar ready zone
  - Minimum roof area for solar
  - Roof loads and documentation
  - Interconnection pathway
  - Electrical service reserved space
  - Construction documentation certificate



# Code Change Process



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- Electronic voting will start in two weeks
- Voting will end two weeks after the start





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