Fast Forward

2019 DOE Energy Codes Conference
Denver, CO

Image: Jonlin
IECC: Maybe half survived this round

- Commercial + residential: 1,220 pages, pretty impressive results this time
- Some “approved” proposals will die in online voting
- “Disapproved” proposals could reappear w/ 2/3 vote
- But, will states adopt a really strong energy code?
ASHRAE: “Continuous maintenance”

- 90.1 committee meets four times a year
- Long hours in subcommittees
- Then full committee debates and votes
- Then, public comments & responses
- Then more votes...
- Rinse and repeat
Scope

• “Sites” in both IECC and ASHRAE (maybe)
• So, parking lot lighting, fountain pumps...
• Some scope changes failed:
  • “Life safety code”
  • energy conservation
  • “Human comfort” only
• Use of code for business & politics
Definitions and more Admin proposals

• Next 30 proposals: Most failed
  • Attempts to sneak new requirements into definitions
• But a few did pass:
  • Change “accessible” to “with ready access”
  • Adopt new ASHRAE climate zone map (finally)
  • List “mandatory” & “prescriptive” in C407
  • ASHRAE: opaque door not “fenestration” 3.1
Renewable energy

• ASHRAE: 0.25 watts/sf of 3 largest floors
  • Except shaded or congested roof
• IECC: Similar proposal failed
  • Sunk by technical problems
  • A “learning opportunity”? 
• “Storage-ready” proposal failed
Building Envelope

- IECC: Misc U-values from ASHRAE
  - Cherry-picked the values lower than IECC
- ASHRAE: Weaker fenestration U-values
  - for non-metal frames
  - But IECC already does it this way
- Failed: “Dynamic shades” replace SHGC
- IECC: Mandatory air barrier testing
- ASHRAE, “verified” OK instead of tested
- Testing routine for apartments allows sampling of units
  - But, is this about energy?
- ASHRAE: Complicated thermal bridge rule
  - Allows extensive concrete balconies

Tired of making energy savings that’ll keep the landlord happy but don’t make your building good!

Air Barrier Verification

Official-looking 10-page Report

We’ll put your project name and address right on the front. Includes responsible-looking corrections, written by a recovering building official.
https://www.cdpaccess.com/live/cah/
Look ‘em up for yourself
Mechanical: Examples

- IECC: Data centers use *modified* 90.4 **108**
- ASHRAE: Data centers use 90.4 straight up
- Sensible little controls changes:
  - Exempt VRF from economizers **124**
  - Changed supply air reset rules **125**
  - Clarified garage ventilation detectors **129**
  - Change fan metric from FEG to FEI **139**
- IECC & ASHRAE: ERV required for apts **133**
- FDD required over 100,000 sf **110**
- Removable protection for ext pipe insul **150**
  - Is this a sales pitch?
More mechanical from ASHRAE

- Commissioning required if over 10,000 sf and combined heat/cool/SHW over 960 KBTU/h
- Hotel guest room temp setbacks***
  - This also made it into IECC
- “Occupied standby” controls:
  - Expand deadband 1 degree up & down
  - Shut off ventilation air
- Exhaust air ERV bypass for economizer

Award

Worst Code Language of the Year

“The HVAC setpoints in the unrented and unoccupied guest room modes shall be initiated within 16 hours of the guest room being continuously unoccupied or within 20 minutes of the guest room being continuously unoccupied where a networked guest room control system indicates the guest room is unrented.”
Large-scale refrigeration

• Good clean-up to rules for
  • Packaged coolers & freezers
  • Site-built walk-in coolers & freezers
  • Refrigerated and frozen warehouses
• Several competing proposals merged
  • Kumbaya
A public service announcement from the New Buildings Institute:

22.6

...OR DIE
“That which exists, must be possible.”
Mark Frankel, NBI
Interior lighting: Great clarifications

Mostly from Jack Bailey and Glenn Heinmiller, representing IALD

- Untangles occ sensor & daylight sensor 170
- Untangles rules for open-plan office 171 & 172
- Clarifies stepped dimming rules 181
- Occ sensors required for corridors 169
  - turn lights down 50% after 20 minutes
- Reduce lighting power per ASHRAE 206 & 208
- “Horticultural” lighting standard 209
- ASHRAE: Nifty table (9.2.2.3) consolidates all the rules for lighting power and controls
Daylighting

- **Continuous dimming** req’d in all daylight zones 185
- Daylighting language cleanup & diagrams 187
- Zone extends 1/2 window height to sides 191
- Add exception for deep overhangs 192
- Clarify daylight zone in atriums 196
Exterior lighting

- Specify “façade and landscape” lighting, not “decorative” 197
- Parking lot lights – reduce 50% after 15 minutes 198
  - Where light poles are max 24 feet high
  - Retails might not like this
- Spell out exterior lighting power calculation rules 211
Power! Try, try again

- **Electrical metering & sub-metering 215**
  - Similar to Seattle code
  - 6 submetering categories
  - Exempts apartments

- **Controlled receptacles 216**
  - Similar to Seattle code
  - 50% of outlets
  - Split receptacle or within 12”

- **EV-ready parking 217**
  - 2 spaces “EV ready” (wire and receptacle)
  - 20% of spaces “EV capable” (conduit only)
  - Doesn’t differentiate residential
Points by occupancy & CZ 218
- Get 10 credits total
- Great work by Reid Hart of PNNL
- With NW Energy Codes Group

Plus additional credits:
- Dwelling units lighting 226
- Metering where not req’d 237
- FDD where not req’d 239
- Commercial kitchen equip 240
And finally...

- Most C407 (performance path) changes voted down 244 – 248
  - Except a couple of clarifications
- Most Chapter 5 (existing buildings) changes voted down 250 – 265
  - Except a couple of clarifications
- The “Zero Code” Appendix survived 264
  - From AIA & Architecture 2030
  - Optional appendix for ambitious cities
  - Requires RE (on or off-site) to offset energy
  - Strange values in EUI table
  - Attempt to handle off-site procurement
  - Will your city adopt this?

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