SIGNIFICANT Changes to the 2021 IECC – COMMERCIAL Provisions

Chapter C1 - Admin Provisions

103.2 Information on Construction Documents: Added energy compliance path and the location of the air barrier to list of details that must be on the plans.

Chapter C2 Definitions

New Definitions	Revised Definitions
Bio Gas	Onsite Renewable Energy
Biomass Waste	Change "Accessible" to "Access to"
Data Center	Demand Recirculation Water System
Data Center Systems	General Lighting
Direct Digital Control (DDC)	Greenhouse
~~Electric Vehicle Supply Equipment (EVSE)~~	Network Guestroom Control System
Enthalpy Recovery Ratio	Skylights
~~EV Capable Space~~	Wall, Above Grade
~~EV Ready Space~~	
Fan Array	
Fan Energy Index FEI	
Fan Nameplate Electrical Input Power	
Fan System Electrical Input Power	
Fan, Embedded	
Fault Detection and Diagnostics (FDD) System	
Information Technology Equipment (ITE)	
Internal Curtain System	
Large-Diameter Ceiling Fan	
Renewable Energy Resources	

Testing Unit Enclosure Area
Thermal Distribution Efficiency (TDE)
Vegetative Roof
Visible Transmittance, Annual (VT annual)

Chapter C3 General Requirements

301.1 General: Revised Climate Zones in Figure C301.1 and TableC301.1 to update the climate zones to correspond with the release of ASHRAE Standard 169-2013".

303.1.2 Insulation Mark Installation: Revised language to require an insulation certificate on site if the R value label for insulation is not visible.

Chapter C4 Energy Efficiency

Chapter 4 items listed as (Mandatory): the word mandatory was removed throughout the entire chapter. Mandatory always meant that that specific item could not be traded off if someone used a trade-off path of compliance. Instead of saying "mandatory", a table of "required" items has been placed in the

Performance Path Section of C407 to list those items that cannot be traded off in that pathway. Otherwise, all items not listed as (Performance) are required if using the prescriptive approach.

401.2.1 International Energy Conservation Code: One of the changes to these sections simply clarifies that there is a prescriptive path, a performance path, and then a separate Section 401.2.2 for the option of ASHRAE 90.1. The Sections tell you which code sections to comply with in each instance. Exempts out existing buildings that comply with Chapter C5. (no technical changes, only cleanup of layout)

401.2.1 #1 Prescriptive Compliance: Allows dwelling and sleeping units in R-2 buildings over 3 stories with systems that do not serve multiple units are to not be required to comply with the commercial chapter of the IECC as long as they comply with R406 Energy Rating Index path of the residential chapter.

401.3 Thermal Envelope Certificate: Adding new section to require a permanent certificate to commercial buildings that will record basic information related to the building thermal envelope like the certificate required in residential buildings.

402.1.1 Low Energy Buildings and Greenhouses: Adding the term "greenhouse" to the title of the section and removing it as an exception so that they now must comply with the code.

402.1.1.1 Greenhouses: Adding new section for conditioned greenhouses. Adding skylight and vertical fenestration U factor table to section. Provides exception for low energy use or unconditioned greenhouses.

402.1.2 Equipment buildings: Increasing sq ft of exempt buildings from 500 to 1200 sq ft. and clarifying that it is for electric equipment.

Table 402.1.3 Insulation R value Table: (appropriate matching changes made to U/C/F factor table)

Climate Zones 0 and 1: Changing R value of insulation for Joist/framing in floors from NR to R13

Climate Zone 2: no significant changes

Climate Zone 3: Changes slab edge insulation for unheated slabs from NR to R10 for 24" depth (group R)

Climate Zone 4 Except Marine: Changing R value of attic insulation from R38 to R49; Changing R value of wall insulation in metal buildings from R13 + R13 to R13 + R14; Changing R value of insulation for below grade walls from R7.5 to R10 (group R); Changing R value of insulation for mass floors from R10 to R14.6; Changing R value of insulation for mass floors from R12.5 to R16.7 (group R); Changing slab edge insulation for unheated slabs from R10 to R15.

Climate Zone 5 and Marine 4: Changing R value of attic insulation from R38 to R49 (all other occupancies), Changing R value of wall insulation in metal buildings from R13 + R13 to R13 + R14 (group R); Changing R value of insulation in metal framed buildings from R13 + R7.5 to R13 + R10; Changing R value of insulation in wood framed walls from R13 + R3.8 or R20 to R13 + R7.5 or R20 + R3.8; Changing R value of insulation for below grade walls from R7.5 to R10 (Group R); Changing R value of insulation for mass floors from R10 to R14.6; Changing R value of insulation for mass floors from R12.5 to R16.7 (group R); Changing slab edge insulation for unheated slabs from R10 to R15 and from R10 to R20 (Group R).

Climate Zone 6: Changing R value of insulation for metal building roofs from R25 + R11 to R30 + R11 (group R only); Changing R value of wall insulation in metal buildings from R13 + R13 to R13 + R14; Changing R value of insulation in metal framed buildings from R13 + R12.5; Changing R value of insulation for below grade walls from R7.5 to R10; Changing R value of insulation for Joist/framing in floors from R30 to R38; Changing R value of

insulation for mass floors from R12.5 to R16.7; Changing slab edge insulation for unheated slabs from R10 to R20 and depth to 48" for Group R only

Climate Zone 7: Changing R value of attic insulation from R49 to R60; Changing R value of wall insulation in metal buildings from R13 + R13 to R13 + R17; Changing R value of insulation in metal framed buildings to R13 + R12.5; Changing R value of insulation for below grade walls from R10 to R15; Changing R value of insulation for Joist/framing in floors from R30 to R38; Changing R value of insulation for mass floors from R15 to R20.9; Changing slab edge insulation for unheated slabs from R15 to R20

Climate Zone 8: Changing of R value of metal roof buildings to R24 + R11 + R11 LS. Changing R value of attic insulation from R49 to R60; Changing R value of wall insulation in metal framed and wood framed buildings to R13 + R18.8; Changing R value of insulation for below grade walls from R10 to R15; Changing R value of insulation for Joist/framing in floors from R30 to R38; Changing R value of insulation for mass floors from R15 to R23; Changing slab edge insulation for unheated slabs from R15 to R20 or R25 (Group R)

Table 402.1.3 Footnote g: Revised wording to add "full under" slab.

Table 402.1.4 Insulation U factor Table: Deleted multiple f factors for heated slabs and changed to one F factor to make it easier to use COMcheck.

Table 402.1.4 Footnote h: Add new footnote to require swinging door U factors to be determined in accordance with NRFC-100.

Table 402.1.4 Footnote i: Add new footnote to require specific U factors for garage doors having a single row of fenestration.

402.2.4 Slabs-on-grade: Separates out the slab on grade insulation requirements into two paragraphs. One is prescriptive and addresses R-Values that can be traded off. C402.2.4.1 now addresses the mandatory requirements of how the insulation must be installed. Removed the words "perimeter insulation" from the title because there may be requirements in some climate zones for insulation to be under the full slab as well. Exception for slab-on-grade floors greater than 24 inches is clearly stated now rather than in the body of the code.

402.2.7 Airspaces: **If** using an airspace in part or your R-Value calculation of a wall assembly, this section has been changed to mandatory so that the requirements must be followed. It does not make air spaces mandatory.

402.3 Roof Solar Reflectance and Thermal Emittance: Option #1 1.3 Added vegetative roofs.

Table 402.4 U factor & SHGC fenestration table: lowered most of the U factor and SHGC values for fixed and operable windows and entrance doors in climate zones 1-8. Lowered U factor and/or SHGC values for skylights in climate zones 0-3 and 7-8. Also changed SHGC values to be dependent on whether the fenestration is fixed or operable instead of by orientation.

402.4.2 Minimum Skylight Fenestration: Exception #6 added storm shelters complying with ICC 500.

Add new standard as follows.

ICC 500: ICC/NSSA Standard for the Design and Construction of Storm Shelters

402.5 Air Leakage: Brings in the requirement for dwelling and sleeping unit enclosure testing for all buildings containing group R and I Occupancies with the exception of buildings in CZ 2B, 3C, and 5C. Another change brings

in the requirement for all other buildings, other than those containing group R and I occupancies, to get building thermal envelope tested. There are also exceptions for buildings in CZ 2B, 3B, 3C and 5C to not be tested and for buildings larger than 5,000 square feet in CZ 0B, 1, 2A, 4B and 4C to not be tested and then buildings between 5,000 and 50,000 square feet in CZ 0A, 3A and 5B to not be tested. The language in C402.5.1.2 is confusing because it says that those buildings that did not test must meet the Materials or Assembly option, making it sound like you do not really have to test. It really means that those that are exempt from testing through any of the exceptions, must do either the Materials or Assembly option for the air barrier requirements. Brought in the option for another testing standard: ASTM E3158.

Add new standard as follows.

ASTM E3158-18: Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building

402.5.1.5 Building Envelope Performance Verification: Brings in the requirement that all air barriers be verified or "commissioned", and a final commissioning report be provided to the owner and code official. Verification can by the code official, designer, or approved agency and they must verify air barrier details on the plans, inspection of air barrier and the final report.

402.5.11 Operable openings Interlocking: Creating new section that requires the heating and cooling systems to be set back automatically when occupancies utilize doors larger than 40 sq ft to be opened to the outdoors (such as roll up doors now being used at restaurants). There are exceptions for main entrance doors that are part of a vestibule or for warehouse overhead doors, if approved by the code official, and for certain separately zoned areas associated with food preparation.

Mechanical

403.1 General: Exempts data centers from the controls and economizer sections of the code. Brings in new Section C403.1.2 for the requirements of Data Centers, basically making them comply with Sections 6 & 8 of ASHRAE 90.4, with a few exceptions. For lighting requirements for the data centers, see Section C405.1.

403.2.3 Fault Detection and Diagnostics: Brings in a new Fault Detection and Diagnostics (FDD) section into the mechanical system design provisions, so that buildings with HVAC systems that serve 100,000 square feet or more of gross conditioned floor area must include the FDD system to monitor the HVAC system's performance and automatically identify faults. **Exempts out R-1 and R-2 Occupancies.**

403.3.2 HVAC Equipment Performance Requirements: Correlating equipment and efficiencies between the IECC and ASHRAE. Removing Tables 403.3.2.(1)-403.3.2(9). Replacing with Tables 6.8.1-1 through 6.8.1-19 of ASHRAE 90.1.

403.4.1.1 Heat Pump Supplementary Heat: Revising wording to call out specific times when a heat pump can limit supplemental heat operation. Added 4 specifics.

403.4.2.3 Automatic Start and Stop: Clarifies that it's the auto start controls that must be configured to automatically adjust the daily start time of the HVAC system and that the Automatic stop controls only have to be provided for HVAC systems with DDC of individual zones.

403.4.3.3.2 Heat Rejection: Revised option #3 to add "closed circuit" cooling towers to the requirements for heat rejection when they are used in conjunction with a separate heat exchanger to isolate the open-circuit cooling tower from the heat pump loop.

403.4.3.3.3 Two Position Valve: Revised wording to add requirement that automatic valves shall be interlocked to shut off the water flow when the compressor is off.

403.5 Economizers: Added new exception to the economizer requirements for VRF systems installed with a dedicated outdoor air system.

403.6.1 Variable air volume and multiple zone systems: Added Direct digital control to option #1 because it just said DDC but did not say what that was.

403.6.5 Supply air temp reset controls: Revised wording to add controls shall be "capable of and configured to". Also added "Controls that adjust the reset based on zone humidity are allowed in Climate Zones 0B, 1B, 2B, 3B, 3C and 4 through 8. HVAC zones that are expected to experience relatively constant loads, shall have maximum airflow designed to accommodate the fully reset supply air temperature." Revised Exception #3 by changing peak supply air quantities of 300 cfm to systems with less than 3000 cfm of design outside air for climate zones 0a, 1a, and 3a. Added new exception #4 for systems in climate zone 2a with less than 10,000 cfm of design outside air. Added new exception #5 for systems in climate zones 0a, 1a, 2a, and 3a with not less than 80% OA that has exhaust air energy recovery.

403.6.5.1 Dehumidification Control Interaction: Added new section to say "In Climate Zones 0A, 1A, 2A, and 3A, the system design shall allow supply air temperature reset while dehumidification is provided. When dehumidification control is active, air economizers shall be locked out."

403.7.1 Demand control ventilation: added that all single-zone systems required to comply with the economizer provisions of C403.5 through 403.5.3 must also meet the DCV provisions. Revised cfm in exception 3 from 1200 to 750 cfm of design outdoor airflow but clarified that it was only multiple-zone systems that met this exception. Revised exception 4 for spaces that have more than 75% of their design outdoor airflow being required for makeup air that is exhausted or transfer air that is needed for makeup air. Deleted existing exception #5 that exempted out ventilation provided for process loads. Added new exception for spaces with one of the following occupancy classifications as defined in the IMC: correctional cells, education laboratories, barber, beauty and nail salons, and bowling alley seating areas.

403.7.2 Enclosed parking garage ventilation controls: Clarified that contamination sensing devices is now carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Revised exception 1 by changing cfm of total exhaust capacity from less than 22,500 to less than 8,000 and adding the need for occupant sensors to activate the full required ventilation rate in order to meet the exception.

403.7.4 (and subsections) Energy Recovery Systems: Prescriptively requires specific ERVs for nontransient dwelling units, offering 4 exceptions to the requirement. All other spaces to meet the current requirements for ERV systems, with a minor change to provide an enthalpy recovery ratio of not less than 50 percent and adds definition for the enthalpy recovery ratio.

403.7.6.1 Temperature setpoint controls: Revised section to add that controls shall be configured with three modes of temp control. Revised option #1 to add "guest rooms rented but not occupied". Revised option #2 to add time restrictions for guest rooms unrented and unoccupied. Added new option #3 to add HVAC setpoints for occupied guestrooms.

403.8.2 Motor nameplate horsepower: Added two new exceptions as follows; Exception #1 for fans equipped with electronic speed control devices that vary fan inflow. Exception #2 for fans less than .89kw

403.8.5 Low capacity ventilation fans: Adding new section and exceptions to introduce exhaust fan efficacies to the commercial IECC. Adding Table 403.8.5 to reference efficacy of low capacity ventilation fans. Also adding language that efficacy shall be listed, and ventilation rates/efficacy are required at "ducted" systems. Brings it into alignment with the residential provisions.

403.9 Large-diameter ceiling fans: Requires large fans (greater than 7 feet in diameter) to be tested and labeled in accordance with AMCA 230.

Service Water Heating C404

404.2.1 High input service water heating systems: Revised percentage of thermal efficiency from 90 to 92 for a singular piece of water heating equipment that serves the entire building and the input rating of the equipment is 1,000,000 Btu/h or greater.

404.5.2.1 Water volume determination: Allows option of going to table E202.1 Internal Volume of Various Water Distribution Tubing in the IPC (now table C404.5.2.1) instead of using the current Table C404.5.1 of the IECC for determine the volume in water piping.

404.6.1 Circulation systems: Removed the wording that controls shall start the pump based on demand for hot water. Removed Item #2 in 404.6.1.1 regarding the controls limiting the temperature of entering code water piping to not greater than 104 degrees and added it to this section so that it applies to all circulations systems, not just demand recirculating systems.

Lighting C405

405.1 General: Adds that transformers, uninterruptable power supplies, motors and electrical power processing equipment in data center systems must comply with Section 8 of ASHRAE 90.4 in addition to the IECC requirements. Adds Data Centers to Table C405.3.2(2) Interior Lighting Power Allowance: Space by Space Method, so that it is found with the computer rooms in that table.

405.1.1 Lighting for dwelling units: Not new requirements but just took them out of the large general section and placed it into its own section for less confusion. And instead of referring to the residential provisions it just tells you what the requirement is in this location.

405.2.1.1 Occupant sensor control function: Added requirement for manual controls. Revised exception to clarify that the fully automatic-on controls does not mean a manual control and that auto control will be permitted in corridors, interior parking areas, stairways, restrooms, locker rooms, lobbies, library stacks and areas where manual operation would endanger occupants.

405.2.1.2 Occupant sensor control function in warehouse storage areas: Clarifies the controls required for lighting in warehouse storage areas to ensure that lighting in each aisleway is controlled separately from other aisleways and open areas, the occupant sensors automatically reduce the lighting power by 50% within each controlled area within 20 minutes of occupants leaving the area, lights that aren't turned off by occupancy sensors are turned off by a time-switch control, and a manual control is provided to allow occupants to turn the lights off themselves.

405.2.1.3 Occupant sensor control function in open plan office areas: In spaces over 300 square feet a requirement was added to only allow general lighting in control zones that are not occupied to turned on to no more than 20 percent of full power or remain off and that the general lighting in occupied control zones turn off or reduce lighting to no more than 20 percent within 20 minutes of occupants leaving the zone, but controls must

turn the lighting to their previous setting if occupancy is detected within 30 seconds of being turned off. There is a new exception added that lets you out of the requirement for the occupancy sensors in each zone if the general lighting is turned off by time-switch control. Further requirements focus on the fact that a space may also be controlled with daylight responsive controls so it is pointed out that the power used shall not exceed the lesser of either requirement.

405.2.1.4 Occupant sensor control function in corridors: Clarifies that occupancy sensors shall be required to turn the lights off within 20 minutes of occupants leaving and excepts out corridors provided with less than two foot-candles of illumination on the floor at the darkest point with all lights on.

405.2.2.2 Light-reduction controls: Clarifies that light reduction controls must reduce lighting by not less than 50 percent, have an intermediate step in addition to full on/off or with continuous dimming.

405.2.3 Daylight responsive controls: Removed Equation 4-9 Adjusted interior lighting power allowance as one of the exceptions from the daylight responsive control requirements.

405.2.3.1 Daylight responsive control function: Requires that where daylight responsive controls are used they must dim lights continuously from full light to 15 percent of full light, which only applied to offices, classrooms, labs and library reading rooms before but will now apply to everywhere they are required.

405.2.4.2 Sidelit daylight zones: Added "secondary sidelit zone" requirements to the daylight responsive control requirements so that there are additional control requirements that extend past the sidelit daylight zone. Modified the measurement of the sidelit zone by changing the longitudinal measurement from 2 feet out from the edge of the fenestration to now ½ the height from the floor to the top of the window – out longitudinally.

Better illustrated as:

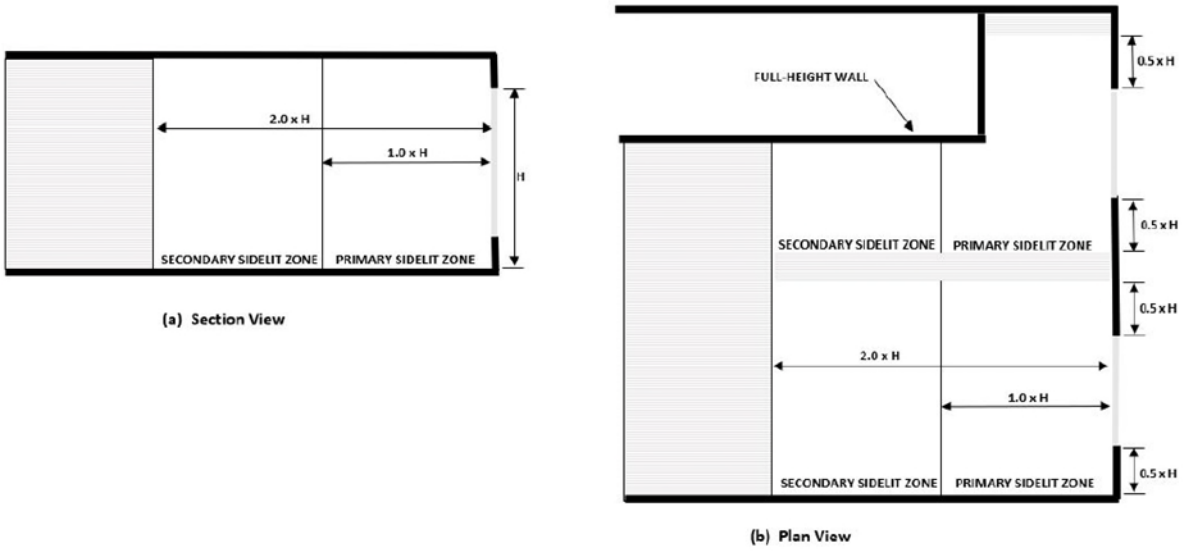

FIGURE C405.2.3.2
SIDELIT DAYLIGHT ZONE

405.2.4.2 Sidelit daylight zones (continued): Also modified how to measure the original sidelit zone to make it more restrictive, requiring more daylighting controls, where buildings or geological formations are next to the fenestration and blocking some of the access to daylight by cutting the distance from the bottom of the fenestration to the top of the building or formation next-door in half. An exception was created to the

requirement for the daylight zones for windows with deep overhangs, by stating that the daylight zone is not established if the exterior overhang is too deep. It varies based on orientation. Measuring sidelit zones when utilizing rooftop monitors is also included in this completely reworked code section.

405.2.4.4 Atriums: New section for daylight zones in atriums.

405.2.7.3 Lighting setback: Added requirement that luminaires serving outdoor parking areas and having a rated input wattage of greater than 78 W and a mounting height of 24 feet or less above ground must have controls that automatically reduce wattage by at least 50% during any time activity isn't detected for 15 minutes or more and no more than 1,500 W of lighting power can be controlled together.

405.2.8 Parking garage lighting control: New section requires occupant sensor control or automatic time-switch shutoff, light reduction by not less than 30% when no activity detected within 20 minutes, lighting zones of no more than 3,600 sq ft, lighting used for eye adaptation at covered vehicle entrances and exits must be controlled separately by controls that automatically reduce lighting by 50% from sunset to sunrise, power to luminaires within 30 feet of the perimeter wall openings must automatically reduce in response to daylight by 50%. Exceptions where certain window to wall ratios are less than 40%, where openings are obstructed by permanent screens or architectural elements that restrict daylight from entering, and an exception similar to the sidelit daylight zone when measuring the distance when you have a building or obstruction next-door.

405.3.1 Total connected Interior lighting power: Add new exception #20 for antimicrobial lighting.

405.3.2 Interior lighting power allowance: Revised section to add requirement that unfinished spaces or projects that only involve portions of a building must use the space by space method for calculating lighting power density allowances.

405.3.2.1 Building Area method: Revised section to include a step by step method to calculate LPD allowance using the building area method.

Table 405.3.2(1) Interior lighting power allowances building area method: Revised all LPD watts per sq ft to be more in line with what is in space by space method. most wattage allowances were decreased, while a few were increased.

405.3.2.2 Space by space method: For unfinished spaces that must use the space by space method, the LPD allowance shall be the total connected lighting power or .2 watts per square foot, whichever is less. Also, like 405.3.2.1, this section was revised to include a step by step method to calculate LPD allowance using the space by space method.

Table 405.3.2(2) Interior lighting power allowances space by space method: Revised LPD watts to increase stringency/reduce wattage in most space types

405.4 Lighting for plant growth and maintenance: New section requiring that at least 95% of the permanently installed luminaires used for plan growth and maintenance have specific higher efficiency lighting as defined in accordance with ANSI/ASABE S640.

405.5.2 Exterior lighting power allowance: This section was revised to include a step by step method to calculate LPD allowance for exterior lighting.

405.9.2 Escalators and moving walks: Requirement for automatic controls that reduce speed is as permitted in accordance with ASME A17.1/CSA B44 and applicable local codes and removes the dependency for whether they are conveying passengers or not.

405.9.2.1 Energy Recovery: Revised title of section from "regenerative drive" to "energy recovery". Revised language to require escalators to be designed to recover, on average, more power than is consumed by the energy recovery feature of its motor controller system where a traffic analysis indicates that an escalator application will have sufficient periods in down direction with passengers whose combined weight exceeds 750 pounds.

405.11 Automatic Controlled Receptacles: Enclosed offices, conference rooms, rooms used primarily for copy or print functions, breakrooms, classrooms, and individual workstations, including those installed in modular partitions and module office workstation systems shall be required to have at least 50% of all 125 V, 15 and 20 amp receptacles be "controlled receptacles" either split controlled (top receptacle controlled) or shall be located within 12 inches of each uncontrolled receptacle and those controlled receptacles must turn the receptacle power off by either a scheduled basis using time-of-day operations, an occupancy sensor control that shuts the receptacle off within 20 minutes of occupants leaving the space, or an automated signal from another control or alarm that tuns receptacles off within 20 minutes of determining the space is unoccupied. Controls must be permanently marked, and plug-in devices do not comply. Exception for receptacles specifically designated for equipment requiring continuous 24/365 operation or where automatic control would endanger safety or security of occupants or building.

405.12 (and subsections) Energy Monitoring: Added new mandatory requirement to measure/monitor/record/report energy consumption in new buildings with gross conditioned floor area of 25,000 square feet or larger. Added exceptions for R-2 occupancies and individual tenant spaces that have their own utility services and meters and have less than 5000 square feet of conditioned floor area.

C406 Additional Efficiency Package Options

406 Additional Efficiency Package Options: Completely redid this entire section of the code to make it into a point-based system, requiring new buildings to achieve a total of 10 credits from the various tables. If a building has multiple uses then the floor area must be weighted by the area of each group to determine the weighted average of credits. Points are based on climate zones and use of the building, giving more weight to more efficient cooling equipment, for instance, in hotter, cooling dominated climates, while more credit for better heating strategies in colder climates. There are points for things like renewables, renewable credits, lighting, air leakage, better envelopes, efficient kitchen equipment, and water heating as well. Spaces not required to have energy monitoring or fault detection and diagnostic (FDD) may get points for providing some or all of them, however, if you are required to have one of those requirements per a different section of this code then you will not be allowed to get the point credit here. Tenant spaces are required 5 credits if the core building did not have to comply.

C407 Performance

Section 407 was revised to add a new table that specifies all the code sections that must be complied with and cannot be traded off (formerly known as Mandatory). The word mandatory was removed from the code and this table was put in place in the only place you could trade things off anyway – the performance section.

C407.2 Mandatory requirements: Energy cost of the proposed building must be less than or equal to 85% of the annual energy cost of the standard reference design. Added Data system prices and expenditures reports to charging statement.

Table 407.4.1(1) Specs for the standard reference design: Correlating equipment and efficiencies between the IECC and ASHRAE. For the heating system efficiencies, removing Tables C403.3.2(4) and C403.3.2(5) and replacing with tables specified in Section C403.3.2. For cooling system efficiencies, removing Tables C403.3.2(1) - C403.3.2(3) and replacing with tables specified in Section C403.3.2. Removed mass walls and steel framed walls from the standard reference design so that all walls are looked at as proposed, to take away extra credit given to wood framed walls.

Chapter C5 – Existing Buildings

Chapter C5 was reworked to clarify that existing buildings were meant to comply with the provisions of the existing buildings chapter and its appropriate section, depending on whether the project is an addition, alteration or repair, and not be brought into compliance with the full code.

Significant changes to note:

- **C502.2**Changes in space conditioning shall comply with Section C502 and not the whole code
- C502.3.3New mechanical systems or lighting systems must comply with C408 commissioning requirements where applicable.
- C503.2.1In no case shall the R-value of the roof insulation be reduced, or the U-factor of the roof assembly be increased as part of a roof replacement.

Appendix CB – Solar Ready

CA103.6 Interconnection pathway: Revised wording to add electrical energy storage system area.

CA103.7 Electrical energy storage system-ready area: Added new section and requirements for not less than a 2ft by 4ft area for electrical energy storage system-ready area and correlate with IFC on location.

CA103.8 Electrical service reserved space: Revised wording to add dual-pole circuit breaker for future electrical energy storage system installation.

Appendix CC – Zero Energy Commercial Building Provisions

Created a new appendix that gives jurisdictions the option of having a path to Zero energy, like the zEPI that is in the 2015 IgCC. It is meant to supplement the IECC and require renewable energy systems of adequate capacity to achieve net zero carbon. It is not a requirement unless specifically adopted by a jurisdiction.