

# 2021 International Energy Conservation Code: Significant Changes “Commercial”

## Building Envelope

- Increased insulation requirements
- Clarifying language for roof and ceiling assembly insulation
- Reduced fenestration U-factors and SHGCs
- Extended requirements for envelope air leakage testing and verification
- New provisions for operable openings interlocking and mandatory controls

## Air Leakage –Thermal Envelope: C402.4

- Dwelling unit air leakage testing required for Group R and Group I occupancies
- Required air leakage testing for occupancies other than Group R and I
- Performance verification requirement for buildings exempt from testing

## Commercial Significant Changes: Mechanical

- Refinement of controls
- Updated equipment efficiency requirements
- Refinement of energy recovery ventilation requirements
- Updated fan efficiency metric

## Fan Efficiency –C403.8.3

- Fan Energy Index (FEI) replaces Fan Efficiency Grade (FEG) metric
- FEI is defined; FEI >1.00 for covered fans; ratings from approved third-party lab
- FEI includes effects (losses) of motors and drives, if sold with fan; otherwise, FEI ratings for bare fan include default motor/drive losses
- Sizing / selection window eliminated
- “15 percentage points from peak total efficiency “---difficult to enforce
- Exemption removed for powered roof ventilators (PRVs)
- Refined exemptions for fans sold (embedded) within packages
- Lower-size limit reduced from 5 HP to 1 HP

## FEI Origin and Future Fan Efficiency Index

- Derived from DOE fan-efficiency regulation
- 2021 IECC, IGCC
- Proposed: California Title 24-2022

## Commercial Significant Changes: Electrical Power and Lighting Systems

- Increased lighting efficacy and decreased lighting power density requirements
- New provisions for plant growth lighting
- New provisions for automatic receptacle control
- New provisions for energy metering and monitoring

## **Energy Monitoring: C405.12**

- Applies to new buildings 25,000 ft<sup>2</sup> or larger
- Must be equipped to measure, monitor, record and report energy consumption data
- Exception:** R-2 occupancies and individual tenant spaces if the space has its own utility services and meters and has less than 5,000 ft<sup>2</sup>

## **Commercial Significant Changes: Additional Efficiency Requirements**

- Revised structure of C406
- Points-based
- 10 points required
- Equity of efficiency options across climate zones
- Expanded options
- 11 options total, 3 new

## **Additional Efficiency Requirements: C406**

- More efficient HVAC performance
- Reduced lighting power
- Enhanced lighting controls
- On-site supply of renewable energy
- Dedicated outdoor air systems
- High-efficiency service water heating
- Enhanced envelope performance
- Reduced air infiltration
- Energy monitoring system*
- Fault detection and diagnostics*
- Efficient kitchen equipment*

## **Commercial Significant Changes: Appendices**

- New Board of Appeals appendix
- New provision for system-ready area for electrical energy storage added to Solar-Ready Zone appendix
- New Zero Energy Commercial Building Provisions appendix

Note: This list is a high-level compilation of the changes and are for reference only, please refer to the 2021 IECC for detailed regulations.