INTERNATIONAL ENERGY CONSERVATION CODE PLAN CHECK

2021 IECC: Commercial Buildings (CE)

For this code, **commercial buildings** are those not included in the definition of "residential building," which is defined as a detached one- or two-family dwelling, multiple single-family dwelling (townhouse), or Group R-2, R-3 or R-4 building three stories or less in height above grade plane.

INSTRUCTIONS: Determine compliance option (A or B) below used for the submitted plan and then verify plan compliance based on requirements for the identified compliance option. Refer to **Energy Code Plan Check & Inspection Resources** at continuousinsulation.org/plan-review to help facilitate effective plan checking and inspections.

OPTION A: Section C401.2.1(1) Prescriptive Compliance

The **Prescriptive Compliance** option requires compliance with Sections C402 through C406 and Section C408. Dwelling units and sleeping unites in Group R-2 buildings without systems serving multiple units shall be deemed to be in compliance with this chapter, provided they comply with Section R406.

1. Per **Section C402.1** (Item 1), check and follow the applicable prescriptive compliance option used for the opaque portions of the proposed building thermal envelope shown on the submitted construction plan (see **Section C103** Construction Documents):

   - **C402.1.3** Insulation R-value Approach – Verify compliance with insulation R-values of Table C402.1.2 based on building type (Group R or All Other) and Climate Zone for the specified construction type and insulation method.

     ☐ Pass ☐ Fail ☐ More information required

   - **C402.1.4** Assembly U-factor Approach – Verify compliance with U-factors of Table C402.1.3 using methods consistent with ASHRAE 90.1 Appendix A or other approved methods appropriate for the assembly type and insulation method proposed. Request documentation and needed to verify compliance.

     ☐ Pass ☐ Fail ☐ More information required

   - **C402.1.5** Component Performance Approach – Verify envelope assembly trade-offs (if any) comply with calculations and requirements of Section C402.1.5 by adequate documentation of analysis and comparison to measures shown on submitted construction plans for building envelope (see Section C103 Construction Documents). Generally, a COMcheck analysis and report (or similar) provides means for verification.

     ☐ Pass ☐ Fail ☐ More information required

   Note: **Section C303.1** gives the code official authority to evaluate any material, system, or component to determine if it is identified "in a manner that will allow a determination of compliance with the applicable provisions of this code." For evaluation of material R-values where the basis is questionable, refer to this Quick Guide: R-value Compliance Determinations.

2. Per **Section C402.1** (Item 2), verify roof solar reflectance and emittance comply with Section C402.3 (Climate Zones 0 through 3 only) ☐ Pass ☐ Fail

3. Per **Section C402.1** (Item 3), verify that specified fenestration as shown on construction documents complies with **Section C402.4** including fenestration area limits (also see **Section C303.1.3 Fenestration product rating**).

   ☐ Pass ☐ Fail

   Note: If **Section C402.1.5** is used for prescriptive compliance for the overall building thermal envelope, fenestration should be addressed in that method and may vary from requirements in Section C402.4.

4. Per **Section C402.1** (Item 4), verify that air leakage of building complies with **Section C402.5** following either prescriptive air barrier construction requirements or whole building air leakage testing where required based on building type and size, as applicable to the climate zone and submitted construction documents. ☐ Pass ☐ Fail

Note: If testing is used as the optional or required basis of compliance verify compliant testing is indicated on the construction documents and verify results when completed later in the construction process.

5. Verify compliance with **Section C403 Building Mechanical Systems**, including submitted heating and cooling load calculations, ventilation, equipment efficiencies, and equipment sizing. ☐ Pass ☐ Fail

6. Verify compliance with **Section C404 Service Water Heating**, including equipment performance, insulation of piping, supply piping, and others as applicable. ☐ Pass ☐ Fail

7. Verify compliance with **Section C405 Electrical Power and Lighting Systems**, including lighting efficacy, controls, daylighting, lighting power requirements and allowances, metering, transformers, elevators and escalators, wiring (conductor) voltage drop, automatic receptacle control, and energy monitoring for buildings with condition floor area of 25,000 sqft or greater. ☐ Pass ☐ Fail

8. Verify compliance with **Section C406 Additional Efficiency Requirements** with one or more of the 11 additional efficiency measures included on plan to achieve at least 10 credits. ☐ Pass ☐ Fail

9. Verify compliance with **Section 408 Maintenance Information and System Commissioning**, including provision of building operations and maintenance information, manuals, and reports as required within 90 days of data of receipt of certificate of occupancy. ☐ Pass ☐ Fail

10. Verify compliance with **Section C401.3 Thermal Envelope Certificate** by a permanent certificate installed in the building indicating all of the listed energy efficiency measures employed in compliance with the code and the approved construction documents. ☐ Pass ☐ Fail

Note: Verification activities 9 and 10 occur near the end of the construction project and should be verified prior to occupancy.

OPTION B: Section C401.2.1(2) Total Building Performance

The **Total Building Performance** option requires compliance with Section C407.

Refer to **Section C407** and submitted whole building simulation documentation (**Section C407.3**) to determine plan compliance with the proposed design as modeled. At a minimum:

☐ Verify modeling software tool used for compliance meets requirements of **Section C407.5** as addressed in submitted documentation (**Section C407.3**).

☐ Verify that mandatory requirements of the table in **Section C407.2** have been satisfied by the modeling documents and included on the proposed construction plans and that the reported energy cost of proposed design is not greater than 80% [85% is an error in first printing corrected by errata] of the energy cost of the standard reference design.

☐ Verify that the submitted construction plan contains measures and features consistent with the proposed design as described in the submitted documentation per **Section C407.3**.

☐ Where the building does not comply with prescriptive requirements (see Option A), verify that required performance is provided by other means (e.g., improved HVAC efficiency, improved lighting, improved air leakage control, improved building thermal envelope, or other measures as applicable).

FOR ADDITIONAL RESOURCES VISIT: continuousinsulation.org/plan-review