Xcel Energy® Submittal Documents for 2021 Commercial IECC Compliance Paths

Building Codes Support Program

Construction Documents Required for Every Submittal 2021 IECC

1. Energy Compliance Path
2. Insulation materials and their R-values
3. Fenestration U-factors and SHGC
4. Area-weighted U-factors and SHGC calculations (If applicable)
5. Mechanical system design criteria
6. Mechanical and service water heating system and equipment types, sized and efficiencies
7. Economizer description
8. Equipment and system controls
9. Fan motor hp and controls
10. Duct sealing, duct and pipe insulation, and location
11. Lighting fixture schedule with wattage and control narrative
12. Location of primary and secondary daylight zones on floor plans
13. Air barrier and air sealing details, including the location of the air barrier
14. Building thermal envelope depiction

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Commercial – Prescriptive (3 options)

R-value Based Method

1. Provide R-value of insulation in the thermal envelope that meets Table C402.1.3. To include slab edge insulation, if applicable.
2. Provide vertical fenestration area and skylight area and include projection factor
3. Provide an NFRC certification and/or Compliance Certificate from manufacturer
4. Provide calculation for heating and/or cooling loads
5. Documentation for mechanical ventilation
6. Provide documentation for HVAC equipment performance
    - This could be a mechanical COMcheck
7. Provide documentation for service water heating equipment performance
    - This could be a mechanical COMcheck
8. Provide interior lighting power and exterior lighting power building method and calculations
    - This could be a lighting COMcheck
9. Provide commissioning plan for mechanical, lighting, and service water heating, if applicable. This will include the building operations and maintenance documents. Will need to provide evidence of commissioning and completion of service water heating and mechanical and will also need to provide functional testing of lighting controls.
10. Provide options for additional efficiency packages.
    - This can be provided on each COMcheck.
    - All COMcheck documents must reference the same options chosen to meet the required number of points

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Assembly U-factor, C-factor, or F-factor Method

1. Provide calculations showing the proposed assembly does not exceed the maximum U, C, and F-factors in table C402.1.4
2. Provide U-Factor for the assemblies in the thermal envelope that meets Table C402.1.4.
3. Provide vertical fenestration area and skylight area and include projection factor
4. Provide an NFRC certification and/or Compliance Certificate from manufacturer
5. Provide mechanical load calculations for heating and/or cooling loads
6. Documentation for mechanical ventilation
8. Provide documentation for HVAC equipment performance
    - This could be a mechanical COMcheck
9. Provide documentation for service water heating equipment performance
    - This could be a mechanical COMcheck
10. Provide interior lighting power and exterior lighting power building method and calculations
    - This could be a lighting COMcheck
    - Also, provide documentation for light reduction controls
11. Provide commissioning plan for mechanical, lighting, and service water heating, if applicable. This will include the building operations and maintenance documents. Will need to provide evidence of commissioning and completion of service water heating and mechanical and will also need to provide functional testing of lighting controls.
12. Provide options for additional efficiency requirements.
    - This can be provided on each COMcheck.
    - All COMcheck documents must reference the same options chosen to meet the required number of points

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Component Performance Alternative (COMcheck)

1. The thermal envelope must show the location of insulation. The wall assembly that represents the thermal envelope must meet the requirements of the U-Factor method shown in Chapter 4.
   a. To calculate the U-factor for the assembles used for the thermal envelope, provide an envelope COMcheck.
   b. The COMcheck allows the option to input “other” in assemblies. If you chose “other” you must provide documentation that shows how the assembly meets the U-factor you manually put in the software.
2. Provide vertical fenestration area and skylight area and include projection factor
3. Provide an NFRC certification and/or Compliance Certificate from manufacturer
4. Provide mechanical load calculations for heating and/or cooling loads
5. Documentation for mechanical ventilation

. Provide documentation for HVAC equipment performance

- This could be a mechanical COMcheck

8. Provide documentation for service water heating equipment performance

- This could be a mechanical COMcheck

9. Provide interior lighting power and exterior lighting power building method and calculations

- This could be a lighting COMcheck
- Also, provide documentation for light reduction controls

10. Provide commissioning plan for mechanical, lighting, and service water heating, if applicable. This will include the building operations and maintenance documents. Will need to provide evidence of commissioning and completion of service water heating and mechanical, and will also need to provide functional testing of lighting controls.
11. Provide options for additional efficiency requirements.

- This can be provided on each COMcheck.
- All COMcheck documents must reference the same options chosen to meet the required number of points

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Performance Method

1. Provide third party report that shows the building envelope values and fenestration areas are determined by the equation shown in Chapter 4. Will also need to verify that the methods and accuracy of compliance software tools conform to the provisions of the IECC and must be provided to the code official.
    a. The compliance report must show the address of the building, an inspection checklist, name of individual completing report, and name and version of compliance software tool.
    b. The code official can require documentation of the building component characteristics of the standard reference design, thermal zoning diagrams of floor plans, input and output reports from the energy analysis simulation program, a certification signed by the builder, and/or documentation of the reduction in energy use associated with on site renewable energy.
2. Provide mechanical load calculations for heating and/or cooling loads
3. Documentation for mechanical ventilation
    - In addition, will need documentation for Demand Control Ventilation, ERV, or HRV.
4. Provide documentation for HVAC equipment performance
5. Provide documentation for service water heating equipment performance
6. Provide interior lighting power and exterior lighting power building method and calculations
7. Provide commissioning plan for mechanical, lighting, and service water heating, if applicable. This will include the building operations and maintenance documents. Will need to provide evidence of commissioning and completion of service water heating and mechanical and will also need to provide functional testing of lighting controls.