Reference: 2022 Denver Energy Code (DEC) Sections C401.2.1(1) and C401.2.1(2)

Scope: This policy clarifies compliance with the 2022 Denver Energy Code for commercial projects that incorporate multiple new buildings, shared site amenities, or shared central utility plant(s), also known as a campus approach. The terms central utility plant, purchased heat and chilled water, district heating and cooling, and campus thermal energy or equivalent are used interchangeably in this document.

This policy applies to projects that are associated because of the property, development, shared central utility plant, common permit set or other factors. This policy does not apply to projects that span multiple code cycles of the Denver Building and Fire Code.

Using a campus approach is optional. Buildings, site amenities, or central utility plant(s) may show compliance individually with the 2022 Denver Energy Code.

A project can modify or withdraw from a campus approach if the project can instead demonstrate that all the building(s), site amenities, or central utility plant(s) are able to comply as a modified campus project or separate stand-alone project(s). This shall be documented with modified drawings including energy code compliance via prescriptive or performance path(s). After appropriate reviews and inspections confirm compliance with the energy code, the Certificate of Occupancy will be issued.

Policy:

Compliance by C401.2.1(1) - Prescriptive Compliance

To use the campus approach for compliance via C401.2.1(1) Prescriptive Compliance:

- Each building, site amenity, and central utility plant must comply individually with the requirements in C402, C403, C404, C405, and C408.
- Energy compliance documentation shall:
  - Include a cover letter signed by the architect of record with the following, if multiple permit sets are submitted:
    - All of the associated buildings, names, addresses, areas
    - A description of all site amenities
    - An overview of the energy compliance documentation approach (individual or grouped)
  - Include the Planning Tool for C406.1 2022 Denver Energy Code Additional Energy Efficiency Credit Requirements for New Construction and C502 Additions with each permit set, and
  - Include a proposed construction order for all the buildings, site amenities, and central utility plants. Community Planning and Development generally prefers that the more efficient parts of the project are built before the less efficient parts.
Because campus compliance evaluates performance as a whole,
  o The performance of systems or components that are not designed or are using a deferred
    submittal shall match minimum allowed performance in the energy code unless additional
    documentation is provided. To recognize improved performance of systems or components
    that are not designed or are using a deferred submittal, the performance improvement must
    be included in the construction drawings signed and sealed by the architect or engineer of
    record or in a letter provided with the permit application from the owner, and
  o Plan approval may be delayed until the full campus project information is reviewed, and
  o Design updates shown in modified drawings shall also include updates to the Planning Tool
    for C406.1 when applicable.

Compliance by C401.2.1(2) - Total Building Performance for C407 Energy Cost and Appendix SE Site Energy

To use the campus approach for compliance via C401.2.1(2) Total Building Performance for C407 Energy Cost and Appendix SE Site Energy:

  • Each building, site amenity, and central utility plant must comply individually with the mandatory
    requirements per 2022 Denver Energy Code C407.2.
  • Energy compliance documentation shall:
    o Include a cover letter signed by the architect of record with the following, if multiple permit
      sets are submitted:
      ▪ All of the associated buildings, names, addresses, areas, a table ranking the efficiency
        of each building from most efficient to least efficient based on the energy use
        intensity (kBtu/sf) of the proposed design
      ▪ A description of all site amenities
      ▪ An overview of the energy model documentation approach (grouped or separate)
    o Include a proposed construction order for all the buildings, site amenities, and central utility
      plants. Community Planning and Development generally prefers that the more efficient parts
      of the project are built before the less efficient parts.
  • Because campus compliance evaluates performance as a whole,
    o The performance of systems or components that are not designed or are using a deferred
      submittal shall match minimum allowed performance in the energy code unless additional
      documentation is provided. To recognize improved performance of systems or components
      that are not designed or are using a deferred submittal, the performance improvement must
      be included in the construction drawings signed and sealed by the architect or engineer of
      record or in a letter provided with the permit application from the owner, and
    o Plan approval may be delayed until the full campus project information is reviewed, and
    o Design updates shown in modified drawings shall also include updates to the energy modeling
      documentation when applicable.
Energy Modeling Guidance

- Per ASHRAE 90.1-2019 Table 3.1, all loads “within and associated with the building” must be included in the energy model. This includes but is not limited to site amenities such as site lighting, parking, parking garages, pools, fire pits, and renewable energy.
- The performance in the proposed design for systems that are not designed or are using a deferred submittal shall match the performance of the mandatory requirements.
- Energy modeling documentation shall:
  o Be provided as either a single set of documentation or multiple sets of documentation and can use a combination of grouped and separated approaches:
    ▪ **Grouped with multipliers for energy model results.** Energy model documentation can use multipliers for energy model results when the buildings are the same type, use, orientation, geometry, and proposed and baseline parameters
    ▪ **Grouped with individual energy model results.** Energy model documentation shall sum energy model results from separate energy models when the buildings are different types, uses, orientations, geometries, or proposed or baseline parameters
    ▪ **Separated for part of the campus.** If separate energy model documentation sets are used to show results for parts the campus instead of the whole, the site amenities must be allocated consistently to the buildings in the whole campus. The method of allocation shall be documented in the cover letter and can be by occupied building area, occupant count, or other parameter.
  o Modeling for central utility plant or district energy system (DES) shall comply with generally accepted practices such as those documented in the “Treatment of District or Campus Thermal Energy system in LEED v2 and 2009 – Design and Construction” for topics such as
    ▪ Purchased energy
    ▪ Direct accounting for the efficiency of the district or campus energy source
    ▪ Virtual energy rate and virtual DES rate
    ▪ Default equipment efficiencies, part-load performance, and thermal distribution losses
    ▪ Virtual plant average efficiency via monitoring or modeling on an annual basis or other timeframe.