



CU Boulder Buildings Decarbonization Standard

I. INTRODUCTION

This standard describes climate goals for new CU Boulder buildings and major renovations to align design and construction efforts with the goals mapped out in the 2024 Climate Action Plan (CAP). The CAP calls for a 50% reduction in scope 1, 2 and 3 GHG emissions by 2030 from a 2019 baseline and net zero emissions by 2050. By 2030, the majority of CU Boulder's Scope 1 and 2 GHG emissions will be from the combustion of fossil fuels (e.g. natural gas) for buildings. This standard will ensure that no new Scope 1 emissions are being added to the CU Boulder footprint, other than when connected to the main campus central plant, for which a decarbonization plan will be developed consistent with the CAP. These standards should be communicated to all development and design partners to ensure appropriate planning and budgeting.

This standard builds upon existing campus protocols such as our LEED Gold Certification requirement by addressing operational and embodied carbon sources through non-combustion-based systems, reduction in embodied carbon, use of Low-GWP refrigerants, and onsite renewable energy.

II. APPLICABILITY

This standard applies to:

- CU-owned buildings on any Boulder campus (i.e. Main Campus, East Campus, North Boulder Creek, Will Vill, and CU South)
- Off-campus locations that may take place in conjunction with third-party developers, including ground leases (e.g., CO Ave, Cinebarre site, etc.).
- All new construction projects that exceed \$2,000,000 in total project cost.
- All major renovation or new addition projects that:
 - Exceed \$2,000,000 in total project cost
 - The cost of the renovation exceeds 25% of the current value of the property (aligning with the State's High Performance Certification Program)
 - Address or impact a majority (>50%) of the building in question (i.e., not just a tenant space, single floor, or small addition)
 - Include renovation of the following base building systems:
 - Central HVAC (e.g., air handlers, steam-to-hot water heat exchangers, centralized distribution piping and duct work; not just local distribution)
 - Building envelope (walls, roof, windows)
 - Recent examples include Hellems and Farrand Hall
- Projects that begin design after 7/1/2026.

III. REQUIREMENTS

1. **No onsite combustion:** All new construction projects shall eliminate Scope 1 emissions from standard building operations – including direct emissions from space heating and cooling, water heating, cooking, and laundry. No fossil fuels (e.g. natural gas) shall be combusted onsite (within or adjacent to the building).
 - **Pathways to meet the goal:** Multiple combustion-free pathways exist including, most commonly, through all-electric solutions or connecting with the central heating plant, for which there is a decarbonization plan in place.
 - **Exclusions:**
 - Backup power: This requirement does not extend to backup power for fire-life-safety requirements or to accommodate extended outages (e.g. backup diesel generators that are not used for demand response).
 - Process loads that use onsite combustion (e.g. natural gas). Process loads may include specific research activities or manufacturing, industrial, and commercial processes.
 - Process loads do not include energy consumed for maintaining comfort and amenities for the occupants of the building (including space conditioning for human comfort or water heating).
 - **Exceptions:**
 - In cases where full electrification is not life-cycle cost effective, the use of gas boilers for *peaking* needs is allowable provided fossil fuels are used to meet less than 10% of the total annual energy use and there is an electrification plan in place that would fully eliminate fossil fuels by 2050.
 - For projects that will connect to a future district energy system (e.g., on East Campus) for which there is a decarbonization plan in place, projects may install temporary gas boilers provided these are intended to be used for less than 10 years of the project's life.
2. **Energy Efficiency and Load Reduction:**
 - All projects will meet one of the following code compliance options:
 - A 10% improvement over ASHRAE 90.1-2019 or IECC 2021.
 - Meet ASHRAE 90.1-2022 or IECC 2024
 - Note:
 - The Colorado Model Energy Code references IECC 2024.
 - LEED v5 references both ASHRAE 90.1-2019 and -2022.
 - Local jurisdictions including Boulder and Denver currently reference IECC 2021.
 - This requirement will be updated every three years to mirror the code update cycle.
 - Emphasis should be places on both efficiency (energy) and peak load reduction to reduce the capacity and associated first costs of HVAC systems and plant components needed to meet the demand.
 - Passive load reduction measures such as high-performance envelope, thermal mass, and passive ventilation should be considered as part of the design process, in addition to active systems such as lighting, controls, and HVAC system efficiencies.
3. **Embodied Carbon:**
 - All applicable projects should meet the requirement of Buy Clean Colorado (BCCO) Global Warming Potential (GWP) thresholds as a minimum design requirement. This includes submitting the relevant Environmental Product Declarations (EPDs) and completing the BCCO requirements/paperwork.
 - All applicable projects should conduct a whole-building life cycle analysis to support Scope 3 emissions accounting and to measure reductions achieved at the project level.

- Projects should use the methodology and meet the requirements of one of the following LEED credits using the Whole Building Life Cycle approach:
 - LEED v4.1 “Building Life-Cycle Impact Reduction.” Meet Option 2, Path 2 (5% reduction) and target Option 2 Path 3 (10% reduction)
 - LEED v5 “Reduce Embodied Carbon”. Meet Option 1, achieve 2 points (meeting the baseline or industry average), and target 3 points (a 10% reduction in GWP).
 - This requirement supports compliance with the State’s Buy Clean Colorado program (which applies to projects >=\$500,000 in cost) and supports market transformation.
 - Pathways to meet the goal:
 - Explore opportunities to preserve existing materials prior to demolition
 - Explore the use of mass timber construction
 - Research and evaluate market-ready options for low carbon products and materials (especially concrete and steel) as they become available. The intent is to eventually go beyond current best practices of using supplemental cementitious materials (SCM) such as fly ash in cement and purchasing recycled content steel.
4. **Low GWP Refrigerants:** All applicable projects that include new HVAC systems will eliminate the use of high GWP refrigerants in high volume applications (e.g., variable refrigerant flow (VRF) systems).
- Projects should demonstrate compliance with the LEED v4.1 or LEED v5 Enhanced Refrigerant Management credit.
 - In addition, project teams should use the LEED calculation to compare the annual GHG emissions from refrigerant leakage to the operational and embodied carbon emissions to inform a more holistic carbon reduction approach.
5. **Solar PV and energy storage:** All applicable projects will be evaluated for the inclusion of solar photovoltaics and energy storage (thermal and electrical). Solar and storage projects shall be implemented where there is a positive Net Present Value (including available incentives) without impacting the project goals (e.g. number of housing units), and where there is significant GHG or resilience impacts. Whether solar PV is implemented during construction or not, all projects will be designed to be solar-ready, including the layout of roof penetrations and rooftop equipment with future solar in mind, to allow for optimal layout for future additions.
6. **No unbundled renewable energy credits (RECs) or offsets:** RECs and offsets are prohibited as a means of demonstrating GHG reductions, per the Campus Climate Action Plan (CAP) published in 2024. Offsite renewable energy may be allocated to individual building projects to enable the claim of Zero Carbon.

IV. RELATED POLICIES, FORMS, GUIDELINES, AND OTHER RESOURCES

1. [2024 Campus Climate Action Plan](#)
2. [Facilities Construction Standards](#)
3. [Energy Master Plan](#)

V. HISTORY

- Adopted: June 24, 2026
- Revised: N/A