

## MISSOULA COUNTY

# ENERGY EFFICIENT BUILDING POLICY

### Purpose

This policy seeks to improve the energy efficiency of Missoula County buildings by establishing requirements for the construction and major renovation of county buildings. This policy supports the county's goal of carbon neutrality in government operations by 2035 (Resolution 2019-019).

### Scope

This policy is applicable to all County departments and entities. Departments may apply additional requirements if they are equal to or more restrictive than these standards.

### Administration

The Missoula County Facilities Use Group is responsible for implementation of this policy. The County Sustainability Program shall be available as a resource upon request to advise county departments on the administration of this policy. Any exceptions to this policy must be approved by the Board of County Commissioners.

### Definitions

*Embodied Carbon:* The greenhouse gas emissions (primarily carbon dioxide) associated with the construction of a building, including extracting, manufacturing, transporting, and installing building materials.

*Energy Use Intensity (EUI):* A measure of the energy used per square foot of a building, typically reported in units of thousands of British thermal units per square foot per year (kBtu/ft<sup>2</sup>/yr).

*Major Renovation:* Rehabilitation of an existing building that involves major work to heating, ventilation, and air conditioning (HVAC) systems, the building envelope, and/or the building interior. Typically, the extent and nature of the work is such that the primary function space cannot be used for its intended purpose while the work is in progress.

### Policy

The new construction and major renovation of county buildings shall be required to meet the standards outlined below. Solicitations for architecture, engineering, and construction services shall reflect these requirements.

### Energy Use

New and renovated buildings must achieve a specified reduction in energy use intensity (EUI), as shown in the table below, relative to a baseline defined as a typical building of the same type normalized by climate zone.

<b>Year of Completion of Construction/ Major Renovation Project</b>	<b>New Construction: Minimum EUI Reduction from Baseline</b>	<b>Major Renovation: Minimum EUI Reduction from Baseline</b>
2021-2024	40%	25%
2025-2029	50%	30%
2030-2034	60%	40%
2035 and beyond	75%	50%

Building-specific EUI targets for new construction/major renovation projects shall be determined using the Zero Tool ([zerotool.org](http://zerotool.org)) or an equivalent methodology, based on the appropriate EUI reduction from baseline listed in the table above. A baseline EUI is calculated by the Zero Tool based on median nationwide energy consumption data from the 2003 Commercial Building Energy Consumption Survey conducted by the U.S. Energy Information Administration, normalized by climate, weather, building type, size, and occupancy.

### ***Renewable Energy***

The feasibility of incorporating on-site renewable energy generation, such as rooftop solar, shall be investigated and documented for all new construction and major renovation projects. On-site renewable energy generation shall be incorporated into all projects for which it is determined to be feasible, and may be used to help achieve the EUI target described above. This can be accomplished by calculating the building's EUI as purchased energy per square foot, excluding renewable energy generated on-site.

### ***Electrification***

Achieving the county's carbon neutrality goal will require a shift away from the use of natural gas and propane in buildings. As such, for both new construction and major renovations of county buildings, the feasibility of substituting or replacing natural gas or propane heating and water heating systems with all-electric systems shall be investigated and documented. All-electric systems shall be incorporated into all projects for which it is determined to be feasible. In cases where full electrification is determined to be infeasible, systems shall be designed to accommodate future building electrification (for example, sizing heating coils for the low temperature hot water service characteristic of electric heat pump systems).

### ***Embodied Carbon***

To reduce embodied carbon, the county encourages the renovation of existing buildings when feasible as an alternative to new construction. In addition, both new construction and major renovation of county buildings shall strive to minimize embodied carbon through the reuse of building materials and the selection of low-carbon materials. Quantification of embodied carbon is encouraged, though not required, and may be accomplished using a tool such as the Embodied Carbon in Construction Calculation (EC3) available at [buildingtransparency.org](http://buildingtransparency.org).