



# DENVER AMENDMENT PROPOSAL FORM FOR PROPOSALS TO THE 2019 DENVER BUILDING CODE AMENDMENTS AND THE 2021 INTERNATIONAL CODES

**DENVER**  
THE MILE HIGH CITY

## 2021 CODE DEVELOPMENT CYCLE

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2) One proposal per this document is to be provided with clear and concise information.

Is a separate graphic file provided ( "X" to answer):  Yes or  No

3) Highlight the code and acronym that applies to the proposal

<u>Acronym</u>	<u>Code Name</u>	<u>Acronym</u>	<u>Code Name</u>
DBC-AP	Denver Building Code–Administrative Provisions	IPC	International Plumbing Code
IBC	International Building Code	IRC	International Residential Code
IECC	International Energy Conservation Code	IFGC	International Fuel Gas Code
IEBC	International Existing Building Code	IMC	International Mechanical Code
IFC	International Fire Code	DGC	Denver Green Code

Please provide all the following items in your amendment proposal.

**Code Sections/Tables/Figures Proposed for Revision:**  
**Instructions:** If the proposal is for a new section, indicate (new), otherwise enter applicable code section.  
 (New) Chapter 901.3.4.5 Benchmarking for High Performance Building Operation  
 (New) Chapter 10.X

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**Proposal:**  
**Instructions:** Show the proposal using ~~strikeout~~, underline format.  
**Place an "X" next to the choice that best defines your proposal:**  Revision  New Text  Delete/Substitute  Deletion

*To be incorporated into Table 101.4.1: Project Elective. Applicable to nonresidential occupancy projects including Commercial New Construction, Additions, Tenant Improvement and Adaptive Reuse. Multi-family Residential*

*(NEW CHAPTER 9)*  
**Chapter 901.3.4.5 Compost.** There shall be areas that serve the entire building and are dedicated to the collection and storage of compostable materials. Educational signage indicating which materials may be placed in compost receptacles including acceptable bag or containment materials shall be permanently posted. These materials include food scraps, non-recyclable paper, yard and landscaping debris, and wooden implements such as chopsticks and stir sticks. The minimum compost collection area shall be not less than 25% of that required for trash/refuse collection, be located in close proximity to other trash/refuse and recycling areas and be of comparable access and convenience as other waste streams.

**901.3.4.5a Location of compost receptacles shall include at minimum equivalent central and localized collection areas.**  
Equivalent central collection may be located in a basement. Additional localized collection area shall include a tripart or third chute instead of bipart if dual trash and recycling chutes are provided. If no chute(s) are provided, trash pick up must be frequent enough to ensure food waste does not cause odor, spills, or unsafe conditions.

*(NEW CHAPTER 10)*  
**1001.X Benchmarking Operational Water and Waste.** Project Elective. This section specifies items to be included in plans for operation of a building project, to be developed and delivered prior to occupancy. The plan shall meet the requirements specified in Sections 1001.X.X through 1001.X.X and be turned over to the owner prior to building occupancy, transferred to any subsequent owner(s) upon sale or lease of the building, and a copy provided to the AHJ.

**1001.X.1 Water use efficiency.** The plan for operation shall specify water use *verification* activities for *building projects* to track and assess building and site (full property) potable and non-potable water consumption. The plan shall describe the procedures needed to comply with the requirements outlined below.

**1001.X.1.1 Initial Measurement & Verification (M&V).** Use the water measurement devices and collection/storage infrastructure specified in Section 601.3.4 (6.3.4) to collect and store water use data for each device, starting no later than after building *FPT* has been completed and certificate of occupancy (or Temporary Certificate of Occupancy) has been issued.

**1001.X.1.2 Track and assess water use.** The plan shall specify the procedures for tracking and assessing the *building project* water use and the frequency for benchmark comparisons. The initial assessment shall be completed after 12 months but no later than 18 months after a certificate of occupancy (or Temporary Certificate of Occupancy) has been issued. Ongoing assessments shall be completed at least every three years. The plan shall include the following:

- a. **Water use reports.** Develop a plan for collecting *building project* water use data for water sources and subsystems measured in Section 601.3.4 (6.3.4).
- b. **Benchmark water performance.** Develop a plan to enter building operating characteristics and water use data into a program or tool such as the ENERGY STAR Portfolio Manager. For building parameter inputs into the program (*Informative Note:* e.g., number of occupants, hours of operation, etc.), use actual average values.
- c. **Assess water use performance.** Develop a plan, a copy of which shall be maintained on-site and made available to the AHJ upon request, to assess *building project* water use efficiency.

**1001.X.1.3 Documentation of water use.**

All documents associated with the M&V of the building project's water use shall be retained by the *owner* for a minimum of three years.

**1001.X.1.4 Occupant Education and Engagement.**

- a. The plan shall identify how (in what form and through what means), and frequency by which, water use data and efficiency evaluations will be shared with project occupants. Frequency shall not be less than twice per year.
- b. The plan shall identify strategies to be implemented by the project ownership team to engage project occupants and: increase awareness of regional water considerations; consider options and opportunities collectively together to lower total project water consumption; and pursue individual actions resulting in lowered aggregate water demands.

**1001.X.2 Waste Diversion.** The plan for operation shall specify waste diversion *verification* activities for *building projects* to track and assess building operational waste diversion. The plan shall describe the procedures needed to comply with the requirements outlined below.

**1001.X.2.1 Waste Management Policy.** Develop a policy that identifies types of waste that will be produced on site, processes to segregate wastes into separate waste streams and defines appropriate treatment, storage, or disposal facilities. Policy shall define procedures to document waste (tracked by weight or volume) with a goal to divert 75% or greater overall diversion from landfill, incineration (waste-to-energy or WTE) and the environment for solid, non-hazardous wastes. Diversion strategies shall include but are not limited to

- a. **Reduction.** Discover upstream waste opportunities in daily operations.
- b. **Reuse.** Reuse or repurpose items to avoid disposal.
- c. **Composting.** Organic matter may be collected to be decomposed by micro-organisms into a soil amendment.
- d. **Recycling.** Collect materials that can be converted into manufacturing feedstock material and used in creation of new products (excludes use as fuel substitute or for energy production)
- e. **Anaerobic Digestion.** Organic matter may be collected to be broken down by microorganisms into a soil amendment in the absence of oxygen (byproducts must be recovered for productive use in nature)

**1001.X.2.2 Initial M&V.** Use the waste weight measurements defined in ENERGY STAR® Portfolio Manager, or similar equivalent program or tool based on collection/storage infrastructure capacities specified in Section 901.3.4 (9.3.4) to collect and store waste use data for each storage receptacle starting no later than six months after building *FPT* has been completed and Temporary Certificate of Occupancy has been issued. If waste weight measurements cannot be estimated per the program or tool due to mixed contents, a waste audit shall be conducted to calculate average waste weights by material type.

**1001.X.2.3 Track and assess waste diversion.** The plan shall specify the procedures for tracking and assessing the *building project* waste diversion by weight and the frequency for benchmark comparisons. The initial assessment shall be completed after 12 months but no later than 18 months after a Certificate of Occupancy (or Temporary Certificate of Occupancy) has been issued. Ongoing assessments shall be completed at least every three years. The plan shall include the following:

- a. **Waste Diversion reports.** Develop a plan for collecting *building project* waste diversion based on weight measurements
- b. **Benchmark waste diversion performance.** Develop a plan to enter building operating characteristics

and waste diversion data into the ENERGY STAR® Portfolio Manager, or similar equivalent program or tool. For building parameter inputs into the program or tool(*Informative Note*: e.g., number of occupants, hours of operation, etc.), use actual average values.

c. Assess waste diversion performance. Develop a plan, a copy of which shall be maintained on-site and made available to the AHJ upon request, to assess building project rate of waste diversion.

#### **1001.X.2.4 Documentation of waste diversion.**

All documents associated with the M&V of the building's waste diversion shall be retained by the owner for a minimum of three years.

#### **1001.X.2.5 Occupant Education and Engagement.**

- a. The plan shall identify how (in what form and through what means), and frequency by which, waste diversion data and evaluations of opportunities for improvement will be shared with project occupants. Frequency shall not be less than twice per year.
- b. The plan shall identify strategies to be implemented by the project ownership team to engage project occupants and: increase awareness of waste reduction impacts and opportunities; consider specific options and opportunities collectively together to increase diversion rates from the project; and pursue individual actions resulting in lowered aggregate waste production.

#### **Supporting Information:**

All proposals must include a written explanation and justification as to how they address physical, environmental, and/or customary characteristics that are specific to the City and County of Denver. The following questions must be answered for a proposal to be considered.

- Purpose: What does your proposal achieve?

This proposal provides a framework to conserve use of finite materials by reducing overall usage through water use reduction techniques and closing waste stream loops to divert materials that still have use potential from entering landfills or being incinerated.

- Reason: Why is your proposal necessary?

Waste generation per capita per day continues to rise, with total amount of waste entering landfills increasing from 145.3M tons in 1990 to 146.1M tons in 2018.

“Trash can travel throughout the world's rivers and oceans, accumulating on beaches and within gyres. This debris harms physical habitats, transports chemical pollutants, threatens aquatic life, and interferes with human uses of river, marine and coastal environments.” U.S. EPA

Water saving techniques divert less water from rivers, bays estuaries and can also reduce burden on water and wastewater treatment facilities thereby saving energy used to treat, pump and heat water.

Substantiation: Why is your proposal valid? (i.e. technical justification)

This proposal was developed referencing the EPA ENERGY STAR® Portfolio Manager framework, IgCC language to track benchmark water use performance, and GBCI's TRUE Zero Waste Certification program to define achievable targets for tracking, benchmarking and assessing high performance building operational effectiveness beyond energy use.

#### **Bibliography and Access to Materials** (as needed when substantiating material is associated with the amendment proposal):

Compost materials accepted by City and County of Denver: <https://www.denvergov.org/Government/Agencies-Departments-Offices/Recycle-Compost-Trash/Compost#section-2>

EPA Current National Picture of Municipal Solid Waste: <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation>

EPA Impacts of Mismatched Trash: <https://www.epa.gov/trash-free-waters/impacts-mismatched-trash>

EPA Saving Water Helps Protect Our Nation's Water Supplies:  
[https://www.energystar.gov/products/saving\\_water\\_helps\\_protect\\_our\\_nations\\_water\\_supplies](https://www.energystar.gov/products/saving_water_helps_protect_our_nations_water_supplies)

Energy Star Water Metrics: <https://energystar-mesa.force.com/PortfolioManager/s/topic/0TOt00000008fKLGAY/water-metrics>

Energy Star Waste Measurements: <https://energystar-mesa.force.com/PortfolioManager/s/topic/0TOt00000008fKOGAY/waste-measurements-meters>

*IgCC 2021 Section 1001.9.2 Water Use Efficiency*

*TRUE (Total Resource Use and Efficiency) Zero Waste Certification Program:*  
[https://true.gbci.org/sites/default/files/resources/TRUE\\_RatingSystemGuide\\_02.10.2021.pdf](https://true.gbci.org/sites/default/files/resources/TRUE_RatingSystemGuide_02.10.2021.pdf)

**Other Regulations Proposed to be Affected**

**\*For proposals to delete content from the 2019 Denver Green Code in conjunction with adding it to other mandatory Denver codes and/or regulations, only.**

Please identify which other mandatory codes or regulations are suggested to be updated (if any) to accept relocated content.

**Referenced Standards:**

List any new referenced standards that are proposed to be referenced in the code.

**Impact:**

How will this proposal impact cost and restrictiveness of code? ("X" answer for each item below)

Cost of construction:     Increase    \_\_\_ Decrease    \_\_\_ No Impact

Cost of design:         \_\_\_ Increase    \_\_\_ Decrease     No Impact

Restrictiveness:        Increase    \_\_\_ Decrease    \_\_\_ No Impact