



## City of Boulder Sustainable Deconstruction Plan

**Required for full demolition permits and Level 4 Alterations (residential and commercial).**

**PURPOSE:** Boulder is creating a zero-waste community. Projects are expected to deconstruct and properly manage building materials for landfill diversion. This plan establishes how the general contractor will manage the deconstruction materials recycling from the property. These requirements align with the 2020 City of Boulder Energy Conservation Code to reuse and recycle building materials.

**REQUIREMENTS:** 75% of this project's materials must be reused, donated, or recycled and a minimum of three material types (from the building structure) must be diverted from the landfill to comply with the city's ordinance. Weight tickets for all materials must be provided. Pictures and destinations/intended reuse must be provided for materials *without* weight tickets.

<b>Applicant:</b>	<b>Date:</b>
<b>Property Address:</b>	<b>Phone:</b>

**PROJECT DESCRIPTION:** Include all exterior alterations proposed for the property.

<b>General Contractor:</b>	<b>Phone:</b>
	<b>Email:</b>
<b>Property Owner:</b>	<b>Phone:</b>
	<b>Email:</b>
<b>Building Type:</b> <input type="checkbox"/> Single Family Detached <input type="checkbox"/> Single Family Attached <input type="checkbox"/> Multi-Family (Attached) <input type="checkbox"/> Commercial / Non-Residential	
<b>Year Built:</b>	<b>Accessory Structure:</b> Y/N _____
<b>Full Structure Deconstruction – Y/N:</b> _____ <b>If yes, Deconstruction:</b> _____ sq. ft.	
<b>Level 4 Alteration (Building Permit) – Y/N:</b> _____ <b>If yes, Alteration/Remodel:</b> _____ sq. ft.	
<b>Project Description:</b>	

### DECONSTRUCTION ASSESSMENT:

<b>Deconstruction Professional (self OK)</b>	
Performs deconstruction evaluation and provides deconstruction waste recycling plan.	
<b>Name:</b>	<b>Company Name:</b>
<b>Email:</b>	<b>Phone:</b>
<b>Signature:</b>	<b>Date:</b>

**ESTIMATED DIVERSION:** Complete the table below by estimating the diversion rate for this project by indicating the material types and estimated weights (in pounds) of building materials that you plan to reuse or recycle. This project must achieve a diversion rate of 75% by weight, including aggregates and divert at least three (3) different material types from the building structure itself to comply with the ordinance requirements.

<b>Material Type</b> (3+ material types from the building structure must be diverted from the landfill)	<b>Estimated Pounds (lbs) Diverted (Reuse / Recycle)</b>	<b>Intended Material Destination</b> (e.g., name of aggregate recycler, BCRC, CHaRM, Craigslist, on-site, scrap metal, Western Disposal, etc.*)
Aggregates (asphalt; concrete; masonry: bricks; ceramics/porcelain); for recycling		
Electronics (for recycling only)		
Landscape Material (boulders/rocks/stone, dirt, pavers, shrubs, trees, yard waste, etc.)		
Metal (appliances, copper, corrugated metal, scrap, copper, steel, etc.; for recycling, not reuse)		
Other <sup>1</sup> : _____ (write in for consideration)		
Salvage Material for Donation/Reuse (appliances, bricks, cabinets, carpet squares, ceiling tiles, doors, electronics, fixtures, flooring, metal, sinks, toilets, windows, wood – structural for reuse, windows, etc.)		
Structural Wood (for organics mulch only; not reuse)		
	=	Total Pounds (lbs) Diverted (Reuse/Recycle)
	÷	Total Pounds (lbs) Project Waste (Estimate)
	%	Diversion Rate

<sup>1</sup> Any other materials that come up during deconstruction that the contractor would like to have considered to be included in the project diversion, must be approved by the City of Boulder. Please contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov).

Notes in parenthesis are examples; others may exist. If you have questions regarding any materials for reuse, recycling or the three (3) building material requirement, please contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) before proceeding.

**Note:** At project completion, **you must provide weight tickets for all materials that have been brought to a recycling, reuse, or landfill facility**; this *includes* Aggregates. Not providing a weight ticket may result in the forfeit of your deposit. Most aggregate recycling locations have a scale house, and it is your responsibility to ensure your drivers/haulers utilize the scale house to obtain a weight ticket.

If no weight ticket is provided, you must obtain the city's prior approval prior to taking the items to the location for reuse, donation, or recycling. If there is no weight ticket, you must provide other documentation – see FAQ.

- Approved locations (not requiring city approval):

- Boulder County Recycle Center, Bud’s Warehouse, CHaRM, Craigslist, deconstruction contractor owned resale/refurbish facility, National Center for Craftsmanship, ReStore, person-to-person sale, reuse in the new structure, and Resource Central.
- For other materials, you must provide pictures of the material and state its intended end-use on the [Construction and Demolition Waste Diversion Tracking](#) spreadsheet.

If your estimated Diversion Rate is less than 75% for deconstruction and/or if only one or two materials can be diverted, provide justification why the project cannot meet the diversion requirement.

**DECONSTRUCTION PLAN AGREEMENT:**

*I agree to submit all required materials and documentation within 60 days of completing the project. I agree to complete the “Construction and Demolition Waste Diversion Tracking” spreadsheet and include all hauler weight tickets, necessary pictures, facility sign-offs/invoices and other documentation. I will upload these items to the Customer Service portal and place them in the permit sleeve prior to final inspection.*

**Dates of Deconstruction:** \_\_\_\_\_

**Estimated Date of Completion:** \_\_\_\_\_

**Submitted by (Signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Printed Name:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**CLIMATE INITIATIVES DEPARTMENT APPROVAL:**

This plan has been reviewed and approved by the City of Boulder Climate Initiatives team.

**Signature:** \_\_\_\_\_

## APPENDIX A

### FAQ

#### 1. How do I calculate my diversion rate?

Your diversion rate is all the diverted waste divided by the total waste of the project. Here is a formula you may use to calculate your diversion.

$$\frac{\begin{array}{c} \text{Diverted Waste} \\ \text{(Recycled Materials + Items} \\ \text{Donated/Reuse/Repurposed)} \end{array}}{\begin{array}{c} \text{Total Waste} \\ \text{(Recycled + Donated + Landfill)} \end{array}} = \text{Project Diversion Percentage}$$

#### 2. What if I can't achieve a 75% diversion rate?

Not all projects can achieve a 75% diversion rate due to certain conditions and materials recyclability. If your project can not achieve a 75% diversion rate, you must contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) with documentation substantiating your request. Together we will determine if an exemption will be granted, and the city will authorize an "Achievable Diversion Rate". This agreed upon "Achievable Diversion Rate" will become the required amount for that specific project in order to be eligible for a full refund.

#### 3. How are material types applied?

Each of the Material Types listed in the table on Page 2 of the Sustainable Deconstruction Plan is one distinct material type. For example, 'Aggregates' is one 'material type' and it include different materials within this category, such as asphalt, concrete, masonry, etc. The City of Boulder will accept Aggregates as one material type/category; however, asphalt, concrete, masonry, etc. on their own do does not count as separate material types. At least three different material types from the building structure itself must be diverted from the landfill. If you have questions or need clarification, contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov).

#### 4. What do I do if I encounter unexpected materials or items that I believed could be diverted from the landfill, but now don't believe can, after I start the deconstruction of the building?

If there are concerns the recyclability or reusability of materials that were originally identified in your Sustainable Deconstruction Plan or if you encounter other materials during the course of deconstruction that you believe will adversely affect your diversion rate, you must contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) to discuss the concerns and make any determinations together before proceeding. If you do not contact Climate Initiatives, then you will be held to the original diversion percentage required.

#### 5. How does the City of Boulder plan to manage non-friable, non-regulated or trace asbestos?

Any ACM, non-friable, non-regulated and/or trace asbestos, remaining in the building following abatement must be discussed with the City prior to starting any deconstruction activities. The City reserves the right to require abatement such that deconstruction of the building can occur in order to maximize the reuse and recycling of other building materials. If a contractor combines any ACM, non-friable, non-regulated and/or trace asbestos with other non-ACM building materials and the building materials are subsequently manifested, this material shall be counted as landfill and count towards the

project's total weight.

Any nonfriable asbestos waste remaining in the building must be discussed with the City prior to starting any deconstruction activities. The City reserves the right to require abatement such that deconstruction of the building can occur in order to maximize the reuse and recycling of other building materials.

Any trace asbestos remaining in the building after abatement must be discussed with the City prior to starting any deconstruction activities. The City reserves the right to require abatement of trace asbestos such that deconstruction of the building can occur to maximize the reuse and recycling of other building materials.

In any of these cases, you must contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) for review and consideration before proceeding with your deconstruction and management of materials.

**6. My project contains or has encountered Asbestos, Mold, or Lead-Based Paint materials after abatement that changes our ability to reach the required diversion percentage. I now don't think I can follow my original Deconstruction Plan. What must I do?**

Unforeseen environmental factors can pose difficulties. If you encounter any of these issues at any point in your project, you must contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) for review and consideration. The City may approve an updated "Achievable Diversion Rate" and amend the Sustainable Deconstruction Plan, project dependent. If you do not contact Climate Initiatives, then you will be held to the original diversion percentage required and no special waste exemption will be granted.

**7. What is the City of Boulder's expectation for how aggregates will be managed for diversion?**

Aggregates shall not be mixed with or contaminated by any other wastes or debris. If the material came from a structure, ensure that a state demolition permit was issued and that all suspect asbestos containing materials (including all non-friable materials) were tested and do not contain asbestos. If there is rebar in your concrete and concerns you about the recyclability, you must contact both an aggregate recycler and the City at [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) to make a plan prior to deciding where to take this material. Aggregates taken to an aggregate recycler or other location approved by the City of Boulder will count towards recycling diversion.

To comply with CDPHE's beneficial use for asphalt, brick and concrete, the City of Boulder will only accept contractors managing these aggregate materials in accordance with <https://oitco.hylandcloud.com/CDPHERMPop/docpop/docpop.aspx>.

If a contractor wants to take these aggregate materials to a private property or a non-registered facility, the contractor must obtain prior approval from the City of Boulder prior to processing the materials in this manner; otherwise, the materials may be counted as landfill. With the City's approval, aggregate processed in this manner will be counted towards recycling under the "Aggregate" category; not as Salvage Materials for Donation/Reuse.

**8. What do I need to submit to show that I followed my Sustainable Deconstruction Plan?**

You need to submit a completed [C&D Waste Diversion Tracking](#) form, all weight tickets from the project and any other documentation showing proof of donation, reuse or recycling.

**9. How does the City of Boulder count Alternative Daily Cover (ADC) with respect to the diversion rate calculation?**

The City of Boulder does not accept landscape materials as ADC at a landfill as it does not constitute diversion. Additionally, organics processing/composting options for organic landscape materials are readily available in the area. If a contractor would like a material to be used as ADC and count towards

the project's total diversion rate, the contractors must contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) to obtain approval *prior* to managing materials as ADC. Without prior City approval, ADC will count as landfill when calculating the total project weight.

**10. If no weight tickets are provided, how do I estimate the weight of materials that were diverted from the landfill?**

If materials do not have weight tickets, you must provide:

- Pictures of each load of the actual materials loaded in the truck
- State the approximate amount or volume, e.g., cubic yard, etc.
  - Use this [volumetric weight conversion](#) as a substitute for the weight ticket
  - Aggregates without weight tickets will be calculated as 1 cubic yard (cy) = 2,025 lbs.
    - A maximum of 15 cy will be allowed for a 5-axel truck, so a total of 30,375 lbs. If there are questions, please contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov)
    - Number of axels of the truck that hauled the load
    - Number of loads included in the total
- State where the material is taken (destination) to and its intended use
- For person-to-person donation/reuse, provide an email receipt from the recipient or a letter with signature and date – both of which includes a detailed description of the material received and its intended use.

**11. What are the requirements for showing that electronics are properly recycled?**

Electronics must be processed for recycled at a certified electronics recycler to be accepted for diversion. Proof of electronics recycling is required, e.g., receipt from the recycler for these materials to be counted towards diversion.

Any electronics for reuse must be discussed, documented, and approved by the City ([CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov)) for reuse prior to removal/transfer to a new location. Reuse in the new building at the same location is allowed with documentation of installation.

**12. What are the City's requirements for proof of reuse or recycling (including organics) of materials at a private property?**

If a contractor will take any material to a private property, the contractors must obtain approval from [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov) prior to taking items to the location. The City of Boulder shall require the contractor to share the address and allow the City to verify the materials for reuse, repurposing, recycling, or other proper management. If the City is unable to verify, then this material shall be counted as landfill.

**13. How are materials left in place at the property counted in the diversion calculation?**

Materials that are left in place during a deconstruction or Level 4 Alteration, that are outside the scope of the project, do not count towards diversion. Here are a few examples:

- If there are landscape materials such as trees that will not be removed as part of the demolition, the weight of those trees cannot be counted towards your diversion rate.
- If the foundation or driveway/parking lot is going to remain in place and not be removed, it is considered outside the scope of the project and cannot be counted towards your diversion rate.

Only materials removed as part of the scope of the project and then processed either for reuse or recycling/organics management are accepted for diversion. The contractor shall not count materials that remain in their original place towards their diversion rate calculation. If you have questions or need clarification, contact [CDWastePermits@bouldercolorado.gov](mailto:CDWastePermits@bouldercolorado.gov).

## APPENDIX B

### DEFINITIONS

**“Aggregates”** mean materials that contains only weathered (cured) asphalt pavement, bricks and concrete masonry unit (CMU) and attached mortar normally used in construction, or concrete that may contain rebar.

**“Alternative Daily Cover” (“ADC”)** means at least three inches of earthen material or other suitable material placed over the exposed solid waste at the end of each operating day, or at such frequencies as needed to prevent or minimize nuisance conditions.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT411R0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT411R0/view).

**“Asbestos”** means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), amosite (cummingtonite-grunerite), anthophyllite, actinolite and tremolite.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT411R0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT411R0/view).

**“Asbestos-containing material” (“ACM”)** means any material that contains more than one percent (1%) asbestos.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT411R0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT411R0/view).

**“Asbestos-containing waste material” (“ACWM”)** means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this Regulation. This term includes, but is not limited to, asbestos waste from control devices, friable asbestos-containing waste material, spill debris, disposable equipment and containment components and clothing, and bags or other similar packaging contaminated with commercial asbestos fibers. As applied to deconstruction and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT411R0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT411R0/view).

**“Asphalt Shingles Waste Disposal”<sup>1</sup>** means all asphalt shingles waste generated must be disposed of at an appropriate permitted solid waste disposal site and facility (i.e., permitted landfill).

Refer to <https://cdphe.colorado.gov/swguidance>.

**“Beneficial Use”** means the use of solid waste as an ingredient in a manufacturing process, or as an effective substitute for natural or commercial products, in a manner that does not pose a threat to human health or the environment. Avoidance of processing or disposal cost alone does not constitute beneficial use.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT411R0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT411R0/view).

**“Deconstruction”** means the systematic dismantling of structural and non-structural building components in the opposite order it was constructed, to maximize the salvage and recovery of materials for reuse.

Deconstruction includes the preference of donation/reuse over salvaging materials for recycling, energy recovery, or sending the materials to the landfill. Typically, material is removed by hand and processed (e.g., source separated) on site. Deconstruction prevents valuable materials from being landfilled from demolition. This conserves natural resources, reduces greenhouse gases, and encourages a circular economy.

**“Deconstruction Contractor”** means a contractor experienced in deconstruction techniques that can maximize the preservation of materials to retain their reuse value as a donation. This is the person designated by the

property owner or demolition permit applicant who will be responsible for implementing and overseeing the Sustainable Deconstruction Plan.

**“Demolition”** means the partial or complete destroying, tearing down, or wrecking of any building or structure during the process of removal. Demolition results in limited reusability and results in significant physical damage to materials which prevents salvage and reuse. Demolition is assumed to be taken to a landfill.

**“Electronics”** means a waste electronics and computers from residential and non-residential sources cannot be disposed of in solid waste landfills in Colorado. Waste electronics contain heavy metals like lead, and other harmful constituents that have the potential to contaminate soil and groundwater if not managed and disposed of properly.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#) definition of “electronic device”; refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT41IR0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT41IR0/view).

**“Friable asbestos-containing material” (“Friable ACM”)** means any material that contains asbestos and when dry can be crumbled, pulverized, or reduced to powder by hand pressure and that contains more than one percent asbestos by weight, area, or volume. The term includes non-friable forms of asbestos after such previously non-friable material becomes damaged to the extent that when dry it can be crumbled, pulverized, or reduced to powder by hand pressure as determined in the field by a CABI.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT41IR0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT41IR0/view).

**“Landfill”** means a discrete area of land or an excavation where solid wastes are placed for final disposal, which is not a land application unit, waste impoundment, or waste pile. Landfills include, but are not limited to, ash monofills, construction and demolition landfills, industrial landfills, sanitary landfills, tire monofills and similar facilities where final disposal occurs.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT41IR0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT41IR0/view).

**“Landscape Materials”** means any plant material that is either separated at the point of generation and will be mulched or composted. Landscape materials shall not be landfilled.

**“Material Types”** means the categories of materials as outlined in the Sustainable Deconstruction Plan.

**“Nonfriable asbestos waste”** means any asbestos waste other than friable asbestos waste that is manifested as nonfriable asbestos waste.

The City of Boulder intends this definition to be consistent with CDPHE [Regulation 8, Part B, 6 CCR 1007-2 Part 1, Section 5](#); refer to [https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh\\_vT41IR0/view](https://drive.google.com/file/d/1nV3TG7KEqCFH9eqKGFGV06mh_vT41IR0/view).

**“Recycling”** means the processing of waste materials into new products or material feedstock for products. Materials that can be recycled include but are not limited to concrete and metal.

**“Regulated asbestos-containing material (RACM)”** means (a) friable asbestos-containing material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this regulation.

**“Private Property”** means taking materials for application, use, or storage at a non-public property such as a private residence, ranch, etc.

**“Salvage Materials for Donation/Reuse”** means the utilization of a product or material that was previously installed for the same or similar function to extend its life cycle. Materials salvageable for reuse include but are

not limited to cabinets, doors, hardware, fixtures, flooring, siding, and framing lumber. This includes the sale, direct reuse, or donation of items, but does not include recycling.

**“Sustainable Deconstruction Plan”** means the City of Boulder form that is completed by the demolition permit applicant where they identify the project scope and outline the plan to divert a minimum of seventy-five (75) percent of materials, by weight, and three building structure material types from the landfill.

**“Trace Asbestos”** means any material that contains detectable asbestos at 1% or less, including but not limited to composite drywall materials that contains asbestos or ACM in the joint compound. See “Asbestos containing material” (“ACM”) definition.

**“Weight Ticket”** means an official certificate stating the weight of a vehicle and its contents and the site the materials were taken. The documentation shall include the net weight of the materials and a description of those materials.