APPENDIX 7-B
CONSTRUCTION AND DECONSTRUCTION (C&D)
WASTE REDUCTION/RECYCLING

OVERVIEW

All new buildings and major renovations on campus are built to a LEED™ Gold Certification; however, we are broadening our efforts and are including small projects in the university’s overall goal to achieve zero waste by 2020. Over the past year, many contractors have participated in the Construction and Deconstruction (C&D) Materials Recycling pilot program. This program tracked the amount and type of construction waste diverted from the landfill. With the work of our standing order contractors and other contractors, the university aims to accomplish record breaking diversion rates.

Why a construction and demolition materials recycling program?

• To implement the university’s campus-wide zero waste plan and goals by 2020;
• To more closely mirror city and county actions;
• To meet the State of Colorado’s mission to reduce construction waste to zero;
• To reduce the volume and percent of recyclable construction materials sent to the landfill;
• To generate any available revenue from materials sold and/or recovered for re-use, and
• To reduce and avoid the environmental effects of manufacturing new building products.

Section 1 – Process for Recycling C&D Materials

1. General contractors working under the SOC program will be required to participate in the campus construction and deconstruction (C&D) recycling program. Additional information is available here: http://www.colorado.edu/facilitiesmanagement/pdc/construction/cdrecycle.html.

The following materials are currently considered recyclable. This list will change with technological improvements and changes in recycled material markets. Updates to the list will be provided on the C&D recycling website:

<table>
<thead>
<tr>
<th>Adhesives</th>
<th>Flooring - vinyl</th>
<th>Paper - high grade</th>
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</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Flooring - wood</td>
<td>Paper - mixed</td>
</tr>
<tr>
<td>Appliances</td>
<td>Framing materials - engineered lumber,</td>
<td>Paper - unsorted office paper</td>
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<tr>
<td>Asphalt concrete</td>
<td>LPI joists, etc.</td>
<td>Paper - white ledger</td>
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<tr>
<td>Asphalt shingles</td>
<td>Glass</td>
<td>Paper – office pak</td>
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<tr>
<td>Backfill materials</td>
<td>Insulation</td>
<td>Partitions - bathroom</td>
</tr>
<tr>
<td>Batteries - rechargeable</td>
<td>Interior walls</td>
<td>Partitions - office</td>
</tr>
<tr>
<td>Blueprints</td>
<td>Maps</td>
<td>Plastics</td>
</tr>
<tr>
<td>Cardboard</td>
<td>Metal - other</td>
<td>Roofing</td>
</tr>
<tr>
<td>Carpet</td>
<td>Metal - ferrous metals</td>
<td>Sheathing</td>
</tr>
<tr>
<td>Carpet padding</td>
<td>Metal - non-ferrous metals</td>
<td>Smoke detectors</td>
</tr>
<tr>
<td>Ceiling tiles</td>
<td>Metal - copper wire</td>
<td>Stone</td>
</tr>
<tr>
<td>Ceramic/porcelain</td>
<td>Metal - steel</td>
<td>Structural alternatives to wood framing</td>
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<tr>
<td>Concrete</td>
<td>Metals - strategic</td>
<td>Theater sets, Odyssey, etc.</td>
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<tr>
<td>Concrete - recycled</td>
<td>Non-asphalt waterproofing</td>
<td>Thermometers/thermostats</td>
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<tr>
<td>Drywall</td>
<td>Packing materials</td>
<td>Tile</td>
</tr>
<tr>
<td>Fiberglass insulation</td>
<td>Paint - low VOC</td>
<td>Wood - dimensional lumber</td>
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<tr>
<td>Finishes</td>
<td>Paint - recycled content</td>
<td>Wood - scrap</td>
</tr>
<tr>
<td>Fire extinguishers</td>
<td>Paint - water-based finishes</td>
<td>Yard trimmings</td>
</tr>
<tr>
<td>Flooring systems</td>
<td>Pallets</td>
<td></td>
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</tbody>
</table>
The link below provides the most up-to-date information regarding specific companies and the materials each company accepts. The items and prices for materials will vary with volumes, and local and national markets. Please check with specific companies prior to dropping off a load for the most up to date information. Additionally, this brochure provides assistance and helpful hints for managing commonly recycled construction materials.


2. All contractors will be required to submit a budget proposal that will include recycling costs and a C&D Material Management Plan.
   a. For projects under $25k and awarded directly to an SOC general contractor, the contractor will need to include recycling costs in the proposal budget and complete a C&D Material Management Plan at the time of proposal submittal.
   b. For projects over $25K and bid to at least 3 SOC general contractors:
      i. At the pre-bid meeting, all contractors will be reminded of the C&D recycling program and the mandatory C&D requirements. General contractors providing bids will need to include the costs of recycling within their bids, as to avoid change orders later.
      ii. The winning contractor will be required to provide a C&D Material Management Plan prior to release of permits.

3. C&D Material Management Plan should include the following:
   a. Waste Management Goals – Identify project recycling goals.
   b. Communications Plan – provide an explanation of the training for contractor employees and subcontractors, clarification about responsibilities for ensuring conformance with recycling requirements, and posting of signage on containers master list of acceptable/non-acceptable materials, and provide a map with any necessary text explaining how the job site will be set-up for recycling.
   c. Expected Project Waste, Disposal, and Handling Methods – provide a breakout of information for each of the construction materials with estimated quantities, specific disposal methods, handling procedures, and determine the need for roll-offs and any assistance with developing and/setting up staging areas.
   d. Management/Administration/Subcontractor Involvement Procedures
      i. Contractor will be responsible for contacting waste management company with project name/number to receive CU contract discounted pricing for roll-offs.
      ii. Contractors will be responsible for obtaining roll-offs, organizing drop off and pick up, and coordinating with CU for project staging needs.
      iii. Contractors will be responsible for obtaining hauling report and providing the information to the project PM/PC by way of the Materials Tracking Spreadsheet. (http://www.colorado.edu/facilitiesmanagement/pdc/construction/cdrecycle.html)
      iv. Contractor will be provided with a hard copy of the Materials Tracking Spreadsheet as part of the permit package, with the understanding that it must be submitted electronically at the end of the project.
v. The contractor will work throughout the project to track recycled materials. The tracking sheet may be filled out and submitted as each material is recycled or the completed sheet may be submitted prior to project close out.

vi. Additional documentation of the construction waste management plan may occur through job site photos of recycling activities and methods.

vii. If information/data about any of the materials that must be salvaged, recycled, diverted, reused or sent to the landfill is unobtainable, the contractor must fill out an exemption form explaining the reasons for a lack of hauling ticket, receipt or report.

viii. Contractors or subcontractors who opt to recycle/reuse their own waste are required:
   1. to submit this information electronically using the Materials Tracking Spreadsheet, and
   2. to provide receipts of any and all quantities of such materials to the project PM/PC.

ix. Contractors and subcontractors who are caught throwing unacceptable materials into recycled material-only bins will be required to remove the unacceptable material from the bin and dispose of it properly.

4. Project Reporting
   At project completion contractor must submit the Materials Tracking Spreadsheet electronically to the project PC, prior to final acceptance being issued. Report will be incorporated in a training/orientation program for building occupants highlighting environmental features of the project and its contractors.

   Within the next 6-12 months (by July 2013), campus OIT will finalize the new C&D Recycling website. This website will include an online materials tracking form that contractors will be required to fill out in replacement of the Materials Tracking Spreadsheet. When this change occurs, all contractors, PM/PC staff and individuals involved in C&D Recycling will be notified and provided with training.

Section 2 – Resources for Additional Information

CU Recycling’s Web Site: http://ecenter.colorado.edu/recycling
Phone: 303-492-8307
E-mail: cure@colorado.edu. This e-mail address is being protected from spambots. You will need JavaScript enabled to view it.
US Mail: CU Recycling, 207 UCB, Boulder, CO 80309

For Facilities Management collections service, contact 303-492-5321.
For Housing Department environmental information, contact 303-735-3013.

Center for ReSource Conservation: http://conservationcenter.org/

C&D Recycle Construction and Demolition Debris:
Boulder County Construction and Demolition

City of Boulder Green Building and Green Points Guideline Booklet

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