



City of Oakland
C& D Debris Recycling Program

Sample Specifications

Including waste reduction and recycling provisions in your contract

Work environments change. Times change. Building codes change. Many communities throughout California are making recycling of construction and demolition debris mandatory. The following specifications can be of assistance to builders and contractors doing business in Oakland (and other cities that have these requirements).

These Construction & Demolition Debris Recycling specifications are for use in contracts and other construction documents. You may alter these specifications to suit your particular project.

The first set of specifications (*EXAMPLE #1*) is a City of Oakland construction project involving both demolition and new construction. The specifications provide detailed requirements for recycling and salvaging debris generated from both phases of the project. The specifications include definitions and defined responsibilities for meeting the City's waste reduction and recycling requirements.

The second set of specifications is adapted from *Resourceful Building*, published by the Alameda County Waste Management Authority and Recycling Board (www.stopwaste.org). This document contains two sections: one for demolition and deconstruction (*EXAMPLE #2*), the other for construction (*EXAMPLE #3*).

EXAMPLE #1

SECTION 01505

CONSTRUCTION AND DEMOLITION DEBRIS MANAGEMENT

1.01 SUMMARY

- A. Section specifies diversion of construction and demolition debris from landfill.
- B. Related requirements specified elsewhere include:
 - 1. Submittals to accompany requests for payment - Section 01290, Payment Procedures.
 - 2. General requirements for meetings - Section 01310, Project Management and Coordination
 - 3. General requirements for submittals - Section 01330, Submittal Procedures
 - 4. Definition of general environmental terms - Section 01420, References
 - 5. General requirements for demolition operations - 01735, Selective Removal and Repair
 - 6. Sitework - Demolition / Dismantling / Salvage; Section 02050

1.02 SYSTEM DESCRIPTION

- A. Performance Requirement: Divert a minimum of **75** percent of construction and demolition debris from landfill.

1.03 DEFINITIONS

- A. "Conversion Rate" means the rate set forth in the Conversion Rate Table approved by the City of Oakland for use in estimating the weight of materials identified in the Waste Reduction and Recycling Plan.
- B. "Divert" means to use material for any purpose other than disposal in a landfill or transfer facility.
- C. "Good faith" per the City of Oakland's Construction and Demolition Debris Waste Reduction and Recycling Ordinance Section 15.34.070 (b-2)
- D. "Net cost" means that the following have been subtracted from the cost of separating and recycling:
 - 1. Revenue from the sale of recycled or salvaged materials
 - 2. Landfill tipping fees saved due to diversion of materials from the landfill.
- E. "Recycling Service" means an off-site service that provides processing of material and diversion from landfill.
- F. "Hauler" means the entity who transports construction and demolition debris to either a landfill or a recycling service.

1.04 SUBMITTALS

- A. Submit specified Waste Reduction and Recycling Plan, Appendix A of this Section, to indicate how waste will be diverted from landfills.
- B. Submit completed Waste Reduction and Recycling Summary Reports forms, Appendix A of this Section, at the completion of the demolition work and at 50 and at 100 percent completion of the construction work.

1.05 QUALITY ASSURANCE

- A. Regulatory requirements
 - 1. Comply with City of Oakland's Construction and Demolition Debris Waste Reduction and Recycling Ordinance.
 - 2. Approval of the Waste Reduction and Recycling Plan by the City of Oakland is required before issuing a demolition and building permit and beginning of demolition and on-site mobilization work.
- B. Recycling service company qualifications; any of the following:
 - 1. Listed in the Alameda County Waste Management Authority's "Builders' Guide to Reuse and Recycling, A Directory for Construction and Demolition Materials", latest edition
 - 2. Listed in the California Integrated Waste Management Boards, Construction and Demolition Recyclers Database
 - 3. Any recycling service that will certify in writing that accepted construction and demolition debris will be diverted from landfill, not dumped illegally, or dumped at sea.

1.06 WASTE REDUCTION AND RECYCLING PLAN

- A. Plan Development: Develop a plan for diverting 75% of construction and demolition debris from landfill. Include in plan how construction and demolition debris will be diverted from landfills.
 - 1. Submit the plan with the building permit application or prior to any waste removal, whichever occurs sooner.
 - 2. Propose means and methods for collecting and separating each type of debris deemed reusable or recyclable.
 - 3. Identify the off-site Recycling Service and Hauler of each designated debris item, who have agreed to accept and divert that item from landfill, and the proposed quantities. Schedule each item and list off-site Recycling Service and Hauler company name, telephone number, address, and person contacted.
 - 4. Include estimate of each type of construction and demolition debris that would be generated. Submit with calculations based upon weight of each material. The following items are subject to the estimate and diversion requirement:
 - a. Asphalt and concrete
 - b. Brick/Masonry/Tile
 - c. Building Materials (doors, windows, fixtures, etc)
 - d. Carpet
 - e. Carpet Padding/Foam
 - f. Cardboard
 - g. Ceiling Tile (acoustic)
 - h. Drywall (used)

- i. Drywall (new, unpainted sheets or scrap)
 - j. Landscape Debris (brush, trees, stumps, etc)
 - k. Scrap Metal
 - l. Unpainted Wood and Pallets
 - m. Recycled Mixed Debris
 - n. Other (do not include dirt)
5. Calculate quantities, and convert volume measurements to weights in accordance with the defined Conversion Rate.

B. Plan Implementation

1. Maintain log of each load, of each category item diverted from landfill. Log in separately debris sent to a Class III and/or Class II landfills and materials sent to recycling facilities.
 - a. Include in log, type of load, load weight, name of hauling service; recycling service or landfill, and date accepted by recycling service or by landfill.
 - b. Owner reserves the right to audit the log at any time, retain and make available, all weight tickets, copies of receipts and invoices.
2. Material handling
 - a. Separation facilities
 - 1) Designate a specific on site area or areas to facilitate separation of materials for potential salvage or reuse, recycling, and return.
 - 2) Keep waste bins and pile areas neat and clean. Clearly mark bins for each category of waste. Do not mix non-recyclable waste with materials designated for reuse or recycling.
 - b. Environmental controls during handling, storage, or transport: Do not permit designated materials to become contaminated or to contaminate site or surrounding areas.
3. Training and coordination
 - a. Furnish copies of the Waste Reduction and Recycling Plan to all on-site supervisors, each subcontractor, the Owner, and the Architect.
 - b. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage or reuse, and return methods to be used by all entities at the appropriate stages of the Project.
 - c. Meetings: Include construction and demolition debris management on the agenda of meetings. At a minimum, discuss waste management goals and issues at the following meetings:
 - 1) Pre-bid meetings.
 - 2) Pre-construction meeting.
 - 3) Regularly scheduled job-site meetings.

EXAMPLE #2

SECTION 02050

DEMOLITION / DISMANTLING / SALVAGE

PART 1 - GENERAL

1.01 ENVIRONMENTAL CONSIDERATIONS

A. Recommendations:

1. Minimize demolition, re-use existing buildings (conserves resources, diverts material from landfill).
2. Maximize salvage, recycling of materials (conserves resources, diverts material from landfill).
3. Protect and restore natural habitats.

1.02 RELATED SECTIONS

- A. Section 01505 - Construction Waste Management.

1.03 SUMMARY **EDIT TO SUIT PROJECT**

- A. Dismantle, move or demolish designated buildings on site. If buildings are to be demolished, salvage the items listed in 2.01 of this Specification section before demolishing:
- B. Remove / salvage designated existing construction.
- C. Demolish and remove foundations and slabs-on-grade.
- D. Disconnect, cap and remove identified utilities.
- E. Sort the following materials for re-use / recycling.
PROVIDE LIST OF MATERIALS TO BE RECYCLED
- F. Dispose of the following materials.
PROVIDE LIST OF MATERIALS TO BE DISPOSED OF
- G. Store removed materials.
PROVIDE LIST OF MATERIALS TO BE STORED

1.04 CODES AND REQUIREMENTS

- A. Conform to applicable codes for demolition work, dust control, products requiring electrical disconnection and re-connection.
- B. Conform to procedures applicable when hazardous or contaminated materials are discovered. Separate hazardous materials.

1.05 SUBMITTALS

- A. Submit Waste Reduction and Recycling Plan for review before start of job. **MAY BE PART OF BID PACKAGE.**
- B. Submit receipts for tipping and handling fees.

PART 2 - PRODUCTS

2.01 DEMOLITION MATERIALS **EDIT TO SUIT PROJECT**

The Builders' Guide to Reuse and Recycling lists various vendors and facilities that accept demolition/deconstruction materials for salvage and/or recycling. The City of Oakland's C&D Debris Waste Reduction and Recycling Requirements Information Packet contains an insert titled: Instructions & Worksheet for Mixed Debris Recycling, which contains information on local facilities that accept mixed C & D debris for recycling.

- A. Concrete: Crush and grade for use as rip rap, aggregate, sub-base material or fill. Neutralize alkalinity if planting above or haul to recycling center for reprocessing.
- B. Brick/concrete masonry: Salvage whole bricks, crush pieces for sub-base material or fill.
- C. Land clearing wood: Chip or shred for use as ground cover, mulch, compost, pulp or process fuel.
- E. Asphalt material: Sort by type and recycle for asphalt paving.
- F. Wood: Sort by type and size for salvage. Wood unsuitable for salvage may be used to manufacture particleboard and other composite wood products. Chip or shred wood for use as ground cover, mulch, compost, pulp or process fuel; **DO NOT chip or shred stained, painted or treated wood.**
- G. Building components and fixtures - Windows, doors, cabinets, hardware, electrical and plumbing fixtures: Salvage, or crush porcelain plumbing fixtures for fill.

- H. Metal: Salvage structural steel. Separate metals for recycling.
- I. Gypsum Board: Ask wholesale supplier to take back clean scrap or grind up and use as soil amendment; do not use painted gypsum board. See *The Builders' Guide to Reuse and Recycling* for other options.

PART 3 - EXECUTION

3.01 REMOVAL

- A. Where required by the Drawings or specifications and when so directed to be salvaged and/or reused, existing materials shall be removed in the most careful manner possible to avoid damage; and, if damaged, such items shall be restored to conditions satisfactory to the Owner's Representative.

3.02 WASTE MANAGEMENT

- A. Separate and recycle waste materials in accordance with the Waste Reduction and Recycling Plan and to the maximum extent feasible.

EXAMPLE #3

SECTION 01505

CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.01 WASTE MANAGEMENT GOALS FOR THE PROJECT

- A. The Owner has established that this Project shall minimize the creation of construction and demolition waste on the job site. Factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination, shall be minimized. Of the inevitable waste that is generated, the maximum quantity (for each material type) as is feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.
- B. Diversion Goals: A minimum _____% (**70% suggested**) of total project waste shall be diverted from landfill. The following waste categories, at a minimum, shall be diverted from landfill:

[EDIT TO SUIT PROJECT (Note: some items may be listed as bid alternates)]

City of Oakland Material Categories (as listed on Waste Reduction and Recycling Plan form)

1. Asphalt & Concrete,(including Concrete Masonry Units (CMU)
2. Brick/Masonry/Tile (ceramic and porcelain)
3. Building Materials (doors, windows, fixtures, etc.)
4. Carpet
5. Carpet Padding/Foam
6. Cardboard
7. Ceiling Tile (Acoustic)
8. Drywall (Used)
9. Drywall (New, unpainted sheets or scrap)
10. Landscape Debris (brush, trees, stumps, etc.)
11. Scrap Metal
12. Unpainted wood & pallets (clean, untreated only)
13. Garbage/Trash
14. Other (do not include dirt)
15. Recycled Mixed Debris (see City of Oakland C&D Debris Waste Reduction and Recycling Requirements Information Packet for information about facilities that recycle mixed debris)

Examples of Other Materials That Can Be Recycled Locally (See Builders' Guide for facilities)

- Asphalt roofing shingles
- Cardboard, paper, packaging
- Cement fiber products (shingles, panels, siding)
- Foam (rigid only)
- Glass
- Paint
- Plastics, including beverage containers
- Plywood, OSB, particleboard and other engineered lumber

1.02 REFERENCES, RESOURCES

- A. City of Oakland, Environmental Services Division recycling@oaklandnet.com or (510) 238- SAVE (7283)
- B. Builders Guide to Reuse and Recycling, published by the *Alameda County Waste Management Authority and Source Reduction Board(ACWMA)*. This pamphlet lists (by material type) many local facilities that recycle and/or salvage discarded building materials. Copies available at the City of Oakland Building Permit Counter and Green Building Resource Center (both located on the 2nd Floor, 250 Frank H. Ogawa Plaza). Visit the City of Oakland's website at www.oaklandrecycles.com to view online or to download a copy or call (510) 238-SAVE.
- C. At minimum, the following materials will be recycled or salvaged.

EDIT TO SUIT PROJECT (Note: some items may be listed as bid alternates)

1. **Cardboard, paper, packaging**
Responsible Party: _____
- a. Designated Vendor/Facility: _____
(Select from *Builders Guide to Reuse and Recycling*, phone book, or other source.)
2. **Wood & Pallets** (clean, untreated, dimensional only)
Responsible Party: _____
- a. Designated Vendor/Facility: _____
(Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

3. **Usable Pallets**
 General Contractor, Responsible Party: _____
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

4. **Metals** (from banding, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze)
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

5. **Carpet and Carpet Padding/Foam**
 Recycling: Return to manufacturer; see *Builders Guide to Reuse & Recycling*
 Reuse: Donate large usable remnants to a non-profit (e.g. Habitat for Humanity)
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

6. **Paint**
 a. Designated Vendor/Facility: _____
 (Contact local paint recyclers or the Alameda County Household Hazardous Waste Management Program (800) 606-6606).

7. **Insulation**
 Recycling Options - Check with manufacturer or installer for take-back programs. Donate large usable remnants to non-profit organization (e.g. Habitat for Humanity).
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

8. **Beverage containers**
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

9. **Concrete** (including CMU's, asphalt, cement fiber siding and shingles)
 a. Designated Vendor/Facility: _____
 (Select from *Builders Guide to Reuse and Recycling*, phone book or other source)

1.03 WASTE REDUCTION AND RECYCLING PLAN

- A. Waste Reduction and Recycling Plan: Within 10 calendar days after receipt of Notice of Award of Bid, or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the Owner and Architect a Waste Reduction and Recycling Plan. The Plan shall contain the following:
1. Estimate of total project waste to be generated, name of the landfill(s) where Project waste would normally be disposed of, tipping fees, and estimated cost of disposing of project waste in landfill(s). Refer to previous projects or the Waste Estimating Guidelines from Appendix A.
 2. Estimate of total tons of waste materials to be diverted from landfill **(SELECT MATERIALS TO SUIT PROJECT FROM LIST 1.01 B)**. Refer to previous projects or the Waste Estimating guidelines provided in Appendix A. To convert volume (e.g. feet, square yards, gallons, etc.) to tons, use the Materials Conversion Worksheet provided in the Construction and Demolition Waste Reduction and Recycling Requirements Information Packet
 3. Estimate of net cost savings or additional costs resulting from separating and recycling (versus landfilling) each material. "Net" means that the following have been subtracted from the cost of separating and recycling:
 - a. Revenue from the sale of recycled or salvaged materials
 - b. Landfill tipping fees saved due to diversion of materials from the landfill.

1.04. WASTE REDUCTION AND RECYCLING PLAN IMPLEMENTATION

- A. Plan Distribution: The Contractor shall provide copies of the Waste Reduction and Recycling Plan (WRRP) to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.
- B. Instruction: The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.
- C. Meetings: Contractor shall conduct Construction Waste Management meetings. Meetings shall include subcontractors affected by the Waste Reduction and Recycling Plan. At a minimum, waste management goals and issues shall be discussed at the following meetings:
1. Pre-bid meetings.

2. Pre-construction meeting.
 3. Regularly scheduled job-site meetings.
- D. Separation facilities: The Contractor shall designate a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid co-mingling (mixing) of materials. Bins shall be protected during non-working hours from off site contamination.
- E. Materials Handling Procedures: Materials to be recycled shall be protected from contamination, and shall be handled, stored and transported in a manner that meets the requirements set by the designated facilities for acceptance.
- F. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials. Provide an estimate of how often bins will need to be emptied.
- G. Hazardous wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
- H. Application for Progress Payments: The Contractor shall submit with each Application for Progress Payment a Summary of the project waste generated. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall contain the following information:
1. The amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid at the landfill, and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
 2. For each material recycled, reused, or salvaged from the Project, include the amount (in tons or cubic yards, pounds, feet, square yards, gallons, etc.), the date removed from the job site, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts and/or invoices.

1.05 QUALITY ASSURANCE

A. Regulatory requirements

1. Comply with City of Oakland's Construction and Demolition Debris Waste Reduction and Recycling Ordinance.
2. Approval of the Waste Reduction and Recycling Plan by the City of Oakland is required before issuing a demolition and building permit and beginning of demolition and on-site mobilization work.

B. Recycling service company qualifications; any of the following:

1. Listed in the Alameda County Waste Management Authority's "Builders' Guide to Reuse and Recycling, A Directory for Construction and Demolition Materials", latest edition
2. Listed in the California Integrated Waste Management Boards, Construction and Demolition Recyclers Database
3. Any recycling service that will certify in writing that accepted construction and demolition debris will be diverted from landfill, not dumped illegally, or dumped at sea.