

SECTION 01 74 50

MATERIAL REDUCTION AND RECOVERY PLAN
(Rev. 3/23/2021)

PART 1 - GENERAL

1.1 SUMMARY

- A. This section governs the recovery of construction and demolition debris.
- B. In October 16, 2006, the San Francisco Mayor issued Executive Directive 06-05 requiring all Construction Contracts to divert 75% of construction and demolition debris from landfill disposal sites. This directive is supported by existing policies that require reuse, recycling, and management of construction and demolition debris. Some of these policies are described below.
- C. The City and County of San Francisco adopted an ordinance (No. 27-06) that creates a mandatory program to maximize the recovery of all construction and demolition debris.
 - 1. The Ordinance requires that mixed construction and demolition debris material be transported off-site by a Registered Transporter and taken to a Registered Facility.
 - 2. Material source separated at the job site should be taken to a facility that reuses or recycles such material.
 - 3. This ordinance applies to all construction projects within the City and County of San Francisco, such as new construction, remodels, tenant improvements, additions, repairs, and full and partial demolitions.
 - 4. This ordinance prohibits any construction and demolition debris from being placed in trash or sent directly to a landfill.
- D. Contractor shall perform all work and meet all requirements in this Section at no additional cost to the City.
- E. Related Requirements:
 - 1. Section 01 50 00 -Temporary Facilities and Controls
 - 2. Section 01 77 00 - Closeout Procedures

1.2 REFERENCES

- A. Mayor's Executive Directive 06-05, Recycling and Resource Conservation, October 16, 2006.
- B. [San Francisco Environment Code](#)
 - 1. Chapter 5, Resource Conservation Ordinance for City Departments.
 - 2. Chapter 7, Green Building Requirements for City Buildings.
 - 3. Chapter 14, Construction and Demolition Debris Recovery Ordinance.
 - 4. Chapter 16, Food Service and Packaging Waste Reduction Ordinance.
 - 5. Chapter 19, Mandatory Recycling and Compositing Ordinance.
- C. Title 24 California Building Code Standard part 11, CALGreen:

<https://law.resource.org/pub/us/code/bsc.ca.gov/>

- D. [California Integrated Waste Management Act of 1989](#) (California Public Resources Code 40000 et. seq.) - Assembly Bill 939.
- E. Universal Waste information from the following website:
<https://www.calrecycle.ca.gov/HomeHazWaste/uwaste>
- F. Treated Wood Waste Fact Sheet from the following website:
<https://dtsc.ca.gov/toxics-in-products/treated-wood-waste-information-and-fact-sheets/>
- G. San Francisco Board Of Supervisors Resolution Nos. 530-04 and 679-02 establishing a zero waste goal.
- H. Food Service Waste Reduction Ordinance as set forth in San Francisco Environment Code Chapter 16.
- I. Refuse Collection and Disposal Ordinance, adopted November 8, 1932.

1.3 DEFINITIONS

- A. Alternative Daily Cover (ADC): Materials, other than soil, that have been approved by the California Department of Resources Recycling and Recovery ("CalRecycle") or a successor agency for use as a temporary overlay on an exposed landfill face.
- B. Beneficial Reuse: The reuse of material at a landfill that does not include ADC but does include use of materials for the following purposes: alternative intermediate cover; final cover foundation layer; liner operations layer; leachate and landfill gas collection system; construction fill; road base; wet weather operations pads and access roads; and, soil amendments for erosion control and landscaping. "Beneficial reuse" shall not include disposal of material at a landfill.
- C. City-Owned Facility: Any building owned by the City and County of San Francisco. "City-owned Facility" includes City-owned facilities or portions thereof that the City leases to non-City entities.
- D. City Leasehold: A building or portion thereof owned by others where the City and County of San Francisco is a tenant.
- E. City Representative: The employee of San Francisco who oversees the construction and/or demolition process for a City construction and/or demolition project and is responsible for ensuring that the contractor complies with all aspects of the contract documents.
- F. Compostable: Any material that can be broken down into, or otherwise become part of, usable compost (e.g., soil-conditioning material) in a safe and timely manner as accepted in San Francisco's compostables collection program, such as food scraps, soiled paper and plant trimmings.
- G. Construction and Demolition Debris or C&D Debris: Building materials and solid waste generated from construction and demolition activities including, but not limited to, fully cured asphalt, concrete, brick, rock, soil, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, fixtures, plastic pipe, metals, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction, deconstruction, demolition or land developments. This term does not include refuse regulated under the 1932 Refuse Collection and Disposal Initiative Ordinance or sections of the Municipal Code that implement the provisions of

that ordinance or materials from the public right-of-way. Hazardous material, as defined in California Health and Safety Code section 25100, et seq., as amended, is not construction and demolition debris.

- H. Construction Project: Any building, planning or construction activity, including demolition, new construction, major alteration, or building additions by a City department at a City-owned Facility or a City Leasehold.
- I. Contractor: The company or person to whom the City awards a contract for a construction and/or demolition project. The Contractor is responsible for complying with all aspects of this Specifications Section and for ensuring that all subcontractors, lower-tier subcontractors and suppliers also comply.
- J. Disposal: The final deposition of material at a legally operating permitted landfill that does not include beneficial reuse or at a permitted transformation facility. A legally operating, permitted landfill includes Class III landfills and inert fills. Disposal of inert materials at inert fills or inert backfill sites does not constitute recycling.
- K. Diversion: Use of material for any purpose other than disposal in a landfill or transformation facility, such as source reduction, reuse, recycling, and composting activities that do not result in material being disposed at permitted landfills and transformation facilities.
- L. Hazardous Material: Hazardous material is a waste with properties that make it potentially dangerous or harmful to human health or the environment. The universe of hazardous materials is large and diverse. Hazardous materials can be liquids, solids, or contained gases. They can be the by-products of manufacturing processes, discarded used materials, or discarded unused commercial products, such as cleaning fluids (solvents) or pesticides. In regulatory terms, a hazardous material is a waste that appears on one of the four RCRA hazardous materials lists (the F-list, K-list, P-list, or U-list) or that exhibits one of the four characteristics of a hazardous material - ignitability, corrosivity, reactivity, or toxicity. However, materials can be hazardous materials even if they are not specifically listed or don't exhibit any characteristic of a hazardous material. For example, "used oil," products which contain materials on California's M-list, materials regulated pursuant to the mixture or derived-from rules, and contaminated soil generated from a "clean up" can also be hazardous materials. The State Department of Toxic Substances Control offers assistance on this complex topic through its Regulatory Assistance Office. Call 1-800-728-6942 (from within California) or (916) 255-3618 (from out-of-state) or email RAO@dtsc.ca.gov.
- M. Landfill: A facility that (i) accepts for disposal in or on land non-hazardous material such as household, commercial, and industrial waste, and waste generated during construction, remodeling, repair and demolition operations, and (ii) has a valid current solid waste facilities permit from the California Department of Resources Recycling and Recovery (CalRecycle).
- N. Mixed Construction and Demolition Debris Material or Mixed C&D Debris Material: Construction and demolition (C&D) debris or C&D debris that are combined on the project site and hauled away for sorting.
- O. Person: A natural person, a firm, joint stock company, business concern, association, partnership or corporation or, to the extent permitted by law, governmental entity, including the City and County of San Francisco and its departments, boards and commissions for projects within the nine counties surrounding the San Francisco Bay, and its or their successors or assigns.
- P. Recover or Recovery: Any activity, including source reduction, deconstruction and

salvaging, reuse, recycling, composting, or anaerobic digestion which causes materials to be recovered for use as a resource and diverted from disposal. Recovery shall not include engineered municipal solid waste conversion.

- Q. Recyclable Material: Any material or product that can be sorted and reconstituted, for the purpose of using the altered form in the manufacture of a new product, as accepted in San Francisco's recycling collection program, such as paper, bottles and cans. Recycling does not include burning, incinerating, converting, or otherwise thermally destroying solid waste.
- R. Recycling: The process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. Recycling does not include burning, incinerating, or thermally destroying solid waste, nor shall it include disposal.
- S. Recycling Facility: An operation or person that collects and processes materials for recycling.
- T. Registered Transporter: Anyone who is hired to remove Mixed Construction and Demolition Debris Material from a construction and/or demolition site in San Francisco, using a vehicle with more than two axles or two tires per axle (such as a large pickup truck with four tires on the rear axle or three-axle dump trucks) and is hauling at least one (1) cubic yard of Mixed Construction and Demolition Debris Material and holds a valid registration from the City and County of San Francisco pursuant to Chapter 14 of the Environment Code. A Registered Transporter is obligated to take all mixed material only to a Registered Facility.
- U. Registered Facility: Any facility that accepts Mixed Construction and Demolition Debris Material for processing and recycling and holds a valid registration issued by the City and County of San Francisco pursuant to Chapter 14 of the Environment Code.
- V. Reuse: Using an object or material again either for its original purpose or for a similar purpose without significantly altering the physical form of the object or material.
- W. Source Reduction: Any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce waste tonnage generated, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials.
- X. Source Separated Materials: Materials that have been separated or kept separate from the solid waste stream, at the point of generation, for the purpose of reuse, recycling or composting in order to return them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.
- Y. Solid Waste: Materials designated as non-recyclable and discarded for the purposes of disposal.
- Z. Universal Waste (CCR Title 22, Division 4.5, Chapter 23): Certain specified hazardous materials that are more common and pose a lower risk to people and the environment than other hazardous materials. Universal wastes are handled with reduced management requirements. Examples of universal waste: batteries, fluorescent tubes (lamps),

electronic devices (cell phones, computers, televisions), cathode ray tubes (CRTs), mercury wastes (thermometers and toys), and non-empty aerosol cans.

- AA. Treated Wood Waste (CCR Title 22, Division 4.5, Chapter 34): Dimensional lumber and other wood products which have been removed from service and were treated with preserving chemicals that protect the wood from insect attack and fungal decay during its use. Examples include fence posts, sill plates, landscape timbers, pilings, railroad ties, guardrails, and decking. Treated Wood Waste is a hazardous material in California and must be managed according to specific regulations.
- BB. Waste Diversion: a management activity that disposes of waste through methods other than incineration or landfilling. Examples include reuse and recycling.

1.4 GENERAL REQUIREMENTS

- A. Recovery Goal: In order to meet the City's zero waste goal, the goal for this contract is to recover no less than 75% of the construction and demolition debris material from landfill disposal through waste prevention, reuse, and recycling. If a construction site contains hazardous materials and/or universal wastes, the 75% minimum recovery requirement should pertain to all non-hazardous material. No construction and demolition debris material shall be disposed in garbage or taken directly to landfill.
- B. In order for construction and/or demolition debris to be considered hazardous, such as containing asbestos or lead, it shall be evaluated and determined to be hazardous by an independent professional such as a Cal/OSHA Certified Asbestos Consultant. The waste determination and other verification shall be included with the C&D Debris Management Plan (refer to Paragraph 1.5 below), together with a list of hazardous materials found at the project site and plans for proper disposal.
- C. All Hazardous Materials, including Universal Wastes and Treated Wood Waste, shall be documented separately, and a summary of all manifests or other disposal documentation, including material description and weights, shall be provided to the City Representative.
- D. Highest and Best Use: The Contractor shall employ the following hierarchy of highest and best use for handling construction and demolition debris as follows:
 - 1. Implement reduced material usage or reuse of materials before any recycling;
 - 2. Implement recycling or reuse of source separated material before any recycling of mixed construction and demolition debris material;
 - 3. Implement recycling of mixed construction and demolition debris material before all other forms of disposal.
- E. Recycling Requirements:
 - 1. Source Separated Materials: The Contractor shall develop and implement procedures for source-separation, to the greatest extent feasible, of the following types of recyclable or reusable materials:
 - a. Asphalt.
 - b. Acoustical ceiling tiles.
 - c. Bricks, stone(s), granite, and other finished stone-type materials.
 - d. Carpet and padding.
 - e. Concrete, concrete block, slump stone (decorative concrete block).
 - f. Corrugated cardboard.
 - g. Dimensional lumber and beams.
 - h. Fixtures, hardware, doors, and windows.

- i. Metal, ferrous and non-ferrous.
 - j. Mixed Inerts.
 - k. Rigid plastic.
 - l. Soil/dirt/rock.
 - m. Trees, Landscape Debris, cleared vegetation and cut-off or other wood scraps.
 - n. Wall board, gypsum sheetrock.
- 2. Mixed Construction & Demolition Debris Material:
 - a. For projects within the legal and geographical boundaries of the City and County of San Francisco, mixed C&D debris material must be taken to a Registered Facility by a Registered Transporter, per Environment Code 14. Registered Facilities Recovery (Diversion) Rates are listed at: <https://sfenvironment.org/construction-demolition-resources>
 - b. For projects outside San Francisco, if mixed C&D debris material is taken to a non-registered facility the diversion rate approved by the local jurisdiction will be used, and official documentation of the diversion rate approved by the local jurisdiction must be provided by the Contractor. If a facility does not have a locally approved recovery/recycling rate, the recovery (diversion) rate is calculated as zero.
- 3. Handling Of Recyclable Materials:
 - a. The Contractor shall assure that recyclable or reusable materials be free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process. The Contractor shall clean materials that are contaminated before placing it in collection containers.
 - b. The Contractor shall arrange for collection of reusable and recyclable materials by or delivery to the appropriate reuse and/or recycling centers for purposes of reuse and/or recycling.
 - c. All mixed C&D debris material from projects in San Francisco must be taken to a Registered Facility authorized to process the material, and it must be hauled by a Registered Transporter. For the lists of Registered Facilities and Registered Transporters refer to the website: <https://sfenvironment.org/construction-demolition-resources>
- 4. No Construction and Demolition Debris shall be burned, buried or otherwise disposed of on the project site.
- F. The Contractor is prohibited from sending any Construction and Demolition Debris directly to landfill or to any facility that would incinerate or otherwise process such debris using high temperature technology without submitting a written request to and receiving approval from the San Francisco Department of the Environment; see Form A and Form B.
- G. Requirements only for Construction Contracts within the legal and geographical boundaries of the City and County of San Francisco:
 - 1. Registered Transporters and Registered Facilities: Only Registered Transporters can remove mixed C&D debris material and they must take this material to a Registered Facility. Source separated material at the job site should be taken to the appropriate recycling or reuse facility.
 - a. For a list of Registered Facilities and Registered Transporters refer to the website: <https://sfenvironment.org/construction-demolition-resources>
 - 2. Full Demolition Requirements: Contractor conducting full demolition of an existing

structure must submit a Demolition Debris Recovery Plan (DDRP) to the San Francisco Department of the Environment (SFE).

- a. The DDRP must demonstrate a minimum of 75% recovery from landfill of demolition debris, including materials source separated for reuse or recycling.
 - b. The DDRP must be submitted to and approved by SFE before the Department of Building Inspection will issue a Full Demolition Permit.
 - c. This requirement does not apply to City construction contracts outside of the legal and geographical boundaries of the City and County of San Francisco.
 - d. The DDRP is available at the following website:
<https://sfenvironment.org/construction-demolition-resources>
- H. Mixed C&D debris material from projects outside the legal and geographical boundaries of the City and County of San Francisco must be taken to a Recycling Facility that processes the material to achieve maximum recycling. If the material is taken to a facility not registered with San Francisco, the local jurisdiction's recycling rate for that facility shall be used provided official documentation from the local jurisdiction is attached to all submittals as required in Paragraphs 1.5, 1.6 and 1.7. If a facility does not have a local approved recycling rate, the diversion rate is calculated as zero.
- I. Universal Wastes: Contractor shall handle and dispose of all hazardous material, including "Universal Wastes," in accordance with the requirements of the California Department of Toxic Substances Control (DTSC). Refer to DTSC website: www.dtsc.ca.gov. In general, universal waste may not be discarded in solid waste landfills or with non-hazardous materials collected for recycling or composting. Contractor shall comply with all hazardous material regulations, including, but not limited to, the following:
1. Universal wastes shall be stored in containers so that they do not spill, leak, break, or are released into the environment.
 2. Label or mark universal wastes, or their containers, to identify their types.
 3. Send all universal waste to a facility authorized to collect, recycle or dispose of universal waste.
 4. Do not dispose of universal waste in the trash.
 5. Do not accumulate more than 5,000 kilograms of universal waste at any one time.
 6. Train employees in proper universal waste management including handling, packaging, storing and labeling the universal waste, as well as how to respond to releases. This training may be accomplished by simply giving employees written instructions about universal waste.
 7. Keep record of all shipments and receipts of universal waste for three years.
- J. Treated Wood Waste: For complete information on handling and disposal of Treated Wood Waste (TWW), refer to the fact sheet available from the DTSC website. For incidental TWW wastes generated during construction, the Contractor shall comply with the following minimum requirements:
1. Keep TWW segregated from other materials.
 2. Store no more than 1,000 pounds of TWW for no longer than 30 days. In the event that Contractor stores more than 1,000 pounds of TWW or stores TWW for more than 30 days, Contractor shall comply with additional requirements for routine

generators of TWW. Refer to DTSC fact sheet.

3. Label all TWW bundle/shipments with the following information:

<i>TREATED WOOD WASTE – Do not burn or scavenge.</i>
<i>TWW Handler</i> <i>Name:</i> _____
<i>Address:</i> _____
<i>Accumulation Date:</i> _____

4. Take TWW to an authorized TWW facility. See the listings at the end of the factsheet for information on facilities who have been authorized to accept TWW in California.
 5. Keep records of all shipments of TWW for three years.
- K. Waste Reduction: Contractor shall implement waste reduction measures, including, but not limited to, the following:
1. Eliminating the procurement of unneeded supplies;
 2. Reduce waste by printing and copying double-sided;
 3. Submit all submittals, reports, and forms in electronic format (PDF);
 4. Fully participate in available and required recycling and composting programs; and
 5. Purchase products made with recycled content such as paper and recycled aggregate.
- L. Contractor shall submit the following items in electronic format (Green Halo Systems Platform: <http://sfgov.wastetracking.com/>) to the City Representative and in accordance with Paragraphs 1.5, 1.6, and 1.7 below:
1. Material Reduction and Recovery Plan.
 2. Material Reduction and Recovery Monthly Summary of Recovery (Diversion) and supporting documentation.
 3. Material Reduction and Recovery Final Report.

1.5 MATERIAL REDUCTION AND RECOVERY PLAN

- A. The requirements under this Paragraph 1.5 apply to all City construction contracts for City-owned Facilities or City leaseholds located within the nine counties surrounding the San Francisco Bay, regardless of size of the project.
- B. After Award of Contract and before commencement of the Work at the site, the Contractor shall conduct a site assessment to estimate the types and quantities of materials that will be generated by construction and/or demolition at the site and which materials are anticipated to be feasible and practical for reuse and recycling. Contractor shall complete a Material Reduction and Recovery Plan (MRRP) to be discussed with the City Representative.
- C. Contractor shall schedule a meeting with the City Representative to discuss its proposed MRRP to develop a mutual understanding regarding the City's reuse and recycling policies and goals and their application to this project. The contractor must manage all project Construction and Demolition Debris to meet a minimum recovery rate of 75%.

- D. Contractor shall obtain tonnage estimates for all construction and demolition debris from all subcontractors and compile data from all subcontractors into the MRRP. The plan shall include, but not be limited to, the following:
1. The Contractor's information and Project identification.
 2. Procedures to be used for debris management.
 3. A list of the materials and estimated quantities to be reused or recycled.
 4. The names, locations, and permit or license, as applicable, of recycling and reuse facilities and Registered Facilities (for mixed C&D debris material) that the Contractor plans to use for this project.
 5. Procedures for source separation for the materials listed in subparagraph 1.4F "Recycling Requirements" of this Section.
 6. Source Reduction: Describe any project practices for this project which will reduce waste at the source, such as requiring vendors to deliver materials in reusable packaging.
 7. On-site Processing: Describe procedures in which materials are reused on-site, such as grinding materials for use on-site, or reuse of lumber for concrete frames, etc.
 8. Procedures to educate and train all employees and subcontractors on recycling and reuse procedures to be used at the jobsite.
- E. Contractor shall use the Green Halo System to provide all Material Reduction and Recovery Plans and Reports for the Project. The City Representative will create a Green Halo project account for use by the Contractor. The Contractor shall then use this account to prepare and submit the following:
1. Material Reduction and Recovery Plan (MRRP). Develop and submit a project specific MRRP for the Project:
 - a) Register the project and create a project tracking number
 - b) Provide the Plan (<http://sfgov.wastetracking.com/>).
 - c) Coordinate the MRRP with the LEED Construction and Demolition Debris Management Plan (if the project is pursuing a LEED certification) requirements.
 - d) Comply with the City and County of San Francisco's requirement for a minimum 75% recovery rate from landfill.
 - e) Describe the Contractor's approach to managing the Project's Construction and Demolition Debris.
 - f) When complete, click "Submit" for review and approval.
- F. The MRRP is subject to approval by the City Representative. Contractor shall revise and resubmit the MRRP as required by the City Representative.
- G. Review of the Contractor's MRRP will not relieve Contractor of responsibility for compliance with applicable laws and regulations governing control and disposal of solid waste or other pollutants.

1.6 MONTHLY UPDATES OF MATERIAL RECOVERY

- A. Contractor shall provide monthly updates through the Green Halo Platform by uploading new information, quantifying the construction and demolition debris generated and reused, or recycled. Contractor should upload information regarding transporter method, recovered materials, facilities used, and weight tickets generated as well as any other applicable supporting files and additional requirements.
 - 1. Failure provide monthly updates shall render the application for progress payment incomplete and may delay progress payment.

1.7 MATERIAL REDUCTION AND RECOVERY FINAL REPORT

- A. Upon final completion of the Project, the Contractor shall submit a Final Recovery Report, on the Green Halo Platform, showing weight of all construction and demolition debris material recovered for the entire project and the overall recovery rate achieved.
- B. The Final Recovery Report shall be prepared into one plan/report by the Contractor with data from all subcontractors and submitted to the City Representative.

1.8 JOB SITE ADMINISTRATION

- A. The Contractor shall review the environmental goals of this project with all subcontractors and sub-subcontractors. The Contractor shall make a proactive effort to increase awareness of these goals and ensure full compliance to the Construction and Demolition Debris Management Plan among the Contractor's job site workers and all subcontractors and other workers.
- B. The Contractor shall communicate the presence of demolition debris which is hazardous material to all workers on the job site and shall establish and clearly identify hazardous material storage areas. The Contractor shall discuss practices and alternatives to minimize worker exposure to potentially harmful substances expected to be encountered on the job site.
- C. For Construction Contracts within the legal and geographical boundaries of the City and County of San Francisco the Contractor shall provide green, blue and black refuse bins and appropriate signs for field offices to separate recyclable and compostable materials from the trash and subscribe to adequate collection services. To subscribe to these services, contact Recology San Francisco at 415-330-1300
- D. For projects outside the legal and geographical boundaries of the City and County of San Francisco, Contractor shall abide by local jurisdiction's refuse.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION