

WasteSpec

Model Specifications for Construction Waste Reduction, Reuse, and Recycling

Prepared by

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- Disclaimer -

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– Why a WasteSpec? –

Architects and engineers face increasing client demand for measures to reduce the amount of waste going to landfills during construction projects. This increased demand is due not only to client desire to cut costs but to client desire to demonstrate corporate responsibility through environmentally sensitive construction and, in some cases, client desire to meet local government waste reduction goals.

The architects and engineers who seek ways to reduce and recycle construction and demolition waste on their projects need specifications to address these measures. The purpose of the WasteSpec is to meet that need by providing architects and engineers with a tool: model specification language addressing waste reduction, reuse, and recycling during construction and demolition.

Construction and demolition waste is a significant portion of the waste going into landfills. Estimates vary, but a commonly accepted estimate is that between 15 and 20% of municipal solid waste comes from construction and demolition projects. Local governments will consequently be focusing more and more attention on encouraging waste reduction opportunities in this sector of the economy.

This local government attention is justified by the fact that a significant portion of construction and demolition waste can be reused or recycled. In Portland, Oregon, 47% of all construction and demolition waste was diverted from landfills in 1993. One example of this was the recycling of 76% of the waste from new construction of a 5,000 square foot restaurant: 61% of the waste was recyclable or reusable wood, 11% was recyclable cardboard, and 4% was recyclable gypsum wallboard. Estimates are that up to 90% of construction and demolition waste is potentially reusable or recyclable, depending upon the type of project and local markets for waste materials.

The potential cost savings achieved by taking advantage of waste reduction and recycling opportunities will vary, depending upon the nature of the particular project and the locale. Architects and engineers can use the WasteSpec to work with owners and contractors in identifying the waste reduction and recycling opportunities that make the most sense on each project. As on all aspects of a project, this type of teamwork on waste management will result in greater likelihood of success in achieving goals.

The WasteSpec was the result of the efforts of the 33 members of the Construction and Demolition Waste Task Force of Triangle J Council of Governments in Research Triangle Park, North Carolina. Triangle J Council of Governments is a regional planning organization composed of the county and local governments within a six-county area. The 33 Task Force members represented local architects, developers, Associated General Contractors, subcontractor associations, Home Builders Associations, government solid waste planners and regulators, building inspectors, building supply companies, private recycling companies, and public agencies and private corporations undertaking large building projects in the region. They convened in 1993 to address construction and demolition waste reduction, and they concluded that one of the needs for the region was model specification language that could be adopted by architects and engineers seeking to reduce waste during construction projects.

The Task Force identified the following desirable characteristics of model specification language:

Comprehensiveness. The Task Force wanted language that was tailored to all 16 divisions of the Construction Specifications Institute (CSI) format system for specifications, not just to Division 1 (the General Requirements division). This would ensure that subcontractors were as informed as general contractors concerning the desired waste goals.

Introductory detail. The Task Force wanted model specification language accompanied by background information for the specification writer. This background information would promote understanding of when particular provisions would be relevant and help the specification writer choose the most appropriate language for the local area.

Resources. The Task Force wanted model specification language accompanied by a list of resources for the specification writer who wanted to do further research or who wanted to include specifications to achieve other environmental goals.

The Task Force identified several examples of model specification language developed elsewhere in the nation, but none of these had all of the foregoing desired characteristics. It therefore undertook the creation of this WasteSpec with the financial support of Region IV of the U.S. Environmental Protection Agency.

– What the WasteSpec Does –

The WasteSpec provides the specifier with model language to insert into specifications. This model language addresses the following areas:

- use of waste reduction techniques during construction;
- reuse of construction waste material on the construction site;
- salvage of construction and demolition waste material from the construction site for resale or reuse by others;
- return of unused construction material to vendors for credit; and
- recycling of construction and demolition waste by delivering it to other sites for remanufacture into new products.

The WasteSpec is designed to identify for the specification writer those provisions that probably will not add to project cost and those provisions that might or probably will add to project cost. Symbols in the margin provide this information for the specification writer. The WasteSpec also contains provisions designed to allow the owner to choose to receive information from bidders on any anticipated additional cost associated with recycling, so that the owner can then decide whether or not to incur any such additional cost.

Furthermore, the WasteSpec gives the specification writer the option of requiring the contractor to report the actual cost difference due to recycling versus disposal during the course of the project. This information is valuable to owners who are new to recycling and will enable such owners to make better informed choices among alternative specifications in the future. Keeping records on this cost difference will also enable the contractor to prepare better informed and more accurate bids in the future.

The specifier can pick and choose among WasteSpec provisions depending upon the nature and budget of the particular project and the characteristics of the particular local community. For some projects, most of the WasteSpec provisions will be appropriate; for other projects, only some of the provisions will be appropriate. On every project, however, the specifier will find at least some of the WasteSpec provisions to be relevant.

– What the WasteSpec Does Not Do –

The WasteSpec does not directly address the following environmental goals relevant to construction projects:

- use of alternative building materials (i.e., materials with recycled content or materials that have been salvaged from offsite);
- energy efficiency;
- indoor air quality;
- water conservation and quality; or
- design-stage waste reduction measures (which have enormous potential for reducing waste).

There are other sources of model specification language either already developed or in the development stage that address these goals. It was not the intent of the authors of the WasteSpec to duplicate the work already being done in these other areas. Sources of information and sources of model specification language concerning some of the above topics will be found in Appendix E.

– A Word About Cost –

Some of the provisions in the WasteSpec require extra attention to waste aspects of a project and more reporting by the contractor, and thus will result in some added expense at certain stages of a project. This added expense will, however, be offset in many cases by reduced waste disposal costs. Furthermore, owners and contractors with a continuing series of construction projects will find that the cost of implementing any waste reduction and recycling measures will decrease over time due to the following:

- the experience of construction management and laborers with new procedures;
- the additional market opportunities that will arise due to the increased supply of collected recyclable and salvageable construction and demolition materials in the local area; and
- in some cases, the offsetting cost savings due to cleaner and safer sites, fewer accidents, and lower workers' compensation premiums.

It may be worth incurring a small additional cost initially in order to stimulate new on-site procedures and new local markets that may produce cost savings for the owner or contractor on future projects.

– Before Beginning: –

**Basic Information About Alternatives for Handling
Construction and Demolition Waste**

The importance of tipping fees

The higher the local landfill tipping fee, the more local alternatives to landfilling construction and demolition waste will exist. More specifically, in areas where the tipping fee is \$50 or more per ton, there will more likely be many such alternatives.

In many local areas, separate landfill tipping fees have been established for clean or separated construction and demolition material. For example, in Orange County, North Carolina, the tipping fee in 1995 for mixed construction and demolition waste at the municipal solid waste landfill was \$25 per ton; the tipping fee for clean dimensional lumber was \$5 per ton. It is important to be familiar with these economic variables.

To find out the local municipal solid waste landfill tipping fee and any special tipping fee for construction and demolition waste, call the county landfill or solid waste management department.

Getting familiar with local recycling options

Many of the specifications contained in the WasteSpec cost nothing (or very little) to implement and are, therefore, appropriate for most construction projects. Other specifications, however, are only appropriate depending upon local markets for recycled construction and demolition waste. The specification writer should get a sense of these local markets in order to choose specifications relevant to the local situation. For example, there are certain materials that can be recycled on most projects, such as cardboard, clean dimensional lumber, beverage containers, land clearing debris, concrete, bricks, concrete masonry units, asphalt, and metal. Additional materials for which markets exist in some areas include drywall, plastic buckets, plastic sheeting, carpet and carpet pad trim, paint, asphalt roofing shingles, vinyl siding trim, and rigid foam insulation.

Good sources of information regarding local markets for these materials are the following:

- the county recycling coordinator;
- the county solid waste management department;

- the local recycling center;
- the state recycling coordinator; and
- private recycling and hauling companies.

A list of the state, provincial, and Puerto Rican recycling coordinators can be found in Appendix B.

Providing help for the bidder

When issuing a bid with recycling specifications, it might be helpful to provide the bidders with a list of potential markets (i.e., places to take recyclables) obtained from one of the above resources. Bidders who have had no previous experience with recycling will find a recycling market list beneficial in estimating costs.

In addition, bidders might find it useful to have a document that helps them estimate the amount of different types of waste that will be generated on a project. Appendix A contains a document suitable for photocopying and distributing to bidders that gives bidders information regarding waste generation. The document also provides some additional information to help them estimate the expenses involved in recycling.

Federal, state, and local regulations

Currently, federal statutes and federal regulations governing solid waste do not differentiate between construction and demolition waste and other municipal solid waste. This is likely to change in the near future. In the meantime, much of the legislation and regulation specifically addressing construction and demolition waste exists at the state level and in local ordinances. Familiarity with relevant statutes, regulations, and ordinances is a necessity for contractors; specification writers who also develop this familiarity will find it easier to write relevant specifications regarding waste management.

Hazardous waste — a special concern

Reducing the generation of hazardous waste provides significant benefits to all parties involved in a construction project. Reducing hazardous waste can

- reduce worker exposure to toxic chemicals;
- reduce pollution of water and air; and

- reduce the burden of compliance with certain federal requirements concerning hazardous waste.

All of these benefits are favorable from an economic standpoint, but the last point deserves additional comment.

The federal Resource Conservation and Recovery Act (RCRA) requires many generators of hazardous waste to track this waste with a manifest system, dispose of the waste in special facilities, and keep and report records. Conditionally exempt small quantity generators, however, are required by RCRA only to (1) identify which of their wastes are hazardous, and (2) dispose of the hazardous waste in state-permitted municipal solid waste facilities. To qualify as a conditionally exempt small quantity generator under federal law, a contractor must generate no more than 100 kilograms (220 pounds) of hazardous waste per site per month. In either case, it is necessary to be able to identify hazardous wastes.

Wastes are considered hazardous if they are (1) listed as hazardous in federal regulations or (2) exhibit one of the following characteristics of hazardous waste:

- ignitability—i.e., the ability to burn or cause a fire;
- corrosivity—i.e., the ability to eat away materials and destroy living tissue when contact occurs;
- toxicity—i.e., the ability to poison, either immediately or over a long period of time; or
- reactivity—i.e., the ability to cause an explosion or release poisonous fumes when exposed to air, water, or other chemicals.

Many common construction wastes are or could be considered hazardous. See Table 1 for a list. Demolition projects could involve an even larger array of hazardous materials.

Note that labels give information on the hazardous nature of many products. Labels that say “danger,” “poison,” “warning,” or “caution” indicate that the product is hazardous.

The WasteSpec contains provisions that both require proper disposal of hazardous wastes and require substitution of nonhazardous for hazardous materials where appropriate. The reader is encouraged to stay abreast of federal, state, and local regulations concerning hazardous waste. Appendix E contains some sources of information on federal regulations.

- Table 1 -

**Hazardous and Potentially Hazardous Materials
Used on Construction Sites**

Acetone	Glues
Acetylene Gas	Greases
Adhesives	Helium (in cylinders)
Ammonia	Hydraulic brake fluid
Antifreeze	Hydrochloric acid
Asphalt	Insulations
Benzene	Iron
Bleaching agents	Kerosene
Carbon black	Lime
Carbon dioxide (in cylinders)	Lubricating oils
Caulking, sealant agents	Lye
Caustic soda (sodium hydroxide)	Metals
Chromate salts	Methyl ethyl ketone
Chromium	Motor oil additives
Cleaning agents	Paint removers, strippers
Coal tar pitch	Paint/lacquers
Coatings	Particle board
Cobalt	Pentachlorophenol
Concrete curing compounds	Polishes for metal floors
Creosol	Putty
Cutting oil	Resins, epoxies
De-emulsifier for oil	Sealers
Diesel fuel oil	Shellac
Diesel lube oil	Solder, solder flux
Etching agents	Solvents
Ethyl alcohol	Sulfuric acid
Fiberglass, mineral wool	Transite pipe
Foam insulation	Varnishes
Freon	Waterproofing agents
Gasoline	Wood preservatives

(Source: *Waste Audit Study: Building Construction Industry*, Cal. Dept. of Health Services, 1990.)

- How to Use the WasteSpec -

The WasteSpec is intended for use in the preparation of and enforcement of construction documents that address *construction waste management in all divisions of the Work*. This document should be used as a resource tool; it is intended to both supplement and complement any master guide specifications system on the subject of reduction of job site waste by providing the specifier with model language to insert into bid specifications for all built improvements. The authors of the WasteSpec adhered to conventional CSI formats and numbering systems. The WasteSpec is designed to allow the specifier to pick and choose the sections that are applicable to individual project conditions - project type, municipality or region, or owner's goals - without invalidating the premise of the WasteSpec document. For example, Section 01505 - Construction Waste Management can be used as part of the overall WasteSpec, or it can be pulled out and used exclusively with other specifications.

The "Sample Page Layout" on page 12 is a sample page of specifications indicating how material has been organized and presented in the WasteSpec. Notes to the specifier regarding the WasteSpec provisions appear in capital letters at the beginning of each document, section, or division. In the notebook version of the WasteSpec, these notes appear in shaded boxes. Some of these notes indicate locations for language, or examples of language, regarding environmental criteria that warrant further development beyond the scope of the WasteSpec. Specific choices to be edited by the specifier appear throughout the text in brackets and capital letters. In the notebook version, these choices are also shaded.

Various symbols appear in the margins of the WasteSpec. The symbol $(-\$)$ is used to denote provisions which, if incorporated into the specifications, *will probably not add cost to the project or may save money on the project*. The symbol $(\pm\$)$ beside a provision indicates that such a provision *may or may not require additional costs*. The symbol $(+\$)$ is used to denote waste management measures which, if incorporated into specification language, *will likely add cost to the project*, either as "hard costs" or frequently as "soft costs" such as additional administration, lost space on the jobsite, or more meetings.

Documents - Bidding Requirements, Contract Forms, and Conditions of the Contract.

Documents typically precede Division 1 - General Requirements and the

technical specification sections in most Project Manuals. Most master guide specification systems assign standard locations and numbers for these documents for coordination with the remainder of the specifications and for filing purposes. The WasteSpec references several documents where language pertinent to construction waste management could be included. However, several documents, such as "Supplementary General Conditions," have important legal consequences and should not be modified without explicit approval and guidance from the owner or the owner's legal counsel.

Division 1 - General Requirements.

Model language regarding waste management requirements (administrative and procedural) and temporary facilities *applicable to all sections in Divisions 2 through 16* have been specified in Division 1, and have not been repeated in individual sections. Model provisions included in individual sections have been limited to items unique to those sections. General provisions (found in Division 1) have been referenced under individual sections.

General Format for Sections in Divisions 2 -16.

Information and model specification language that applies to an entire division, such as language pertaining to all wood and plastics, has been included under the relevant division heading, i.e., Division 6 - Wood and Plastics. Immediately following the general language pertinent to the entire division, additional model language specific to a particular section or sections within that division has been listed under relevant section numbers and headings.

The chart on page 14, "CSI-Based Format Headings," outlines the typical format used by most master guide specifications systems for section organization. This outline was followed in the WasteSpec.

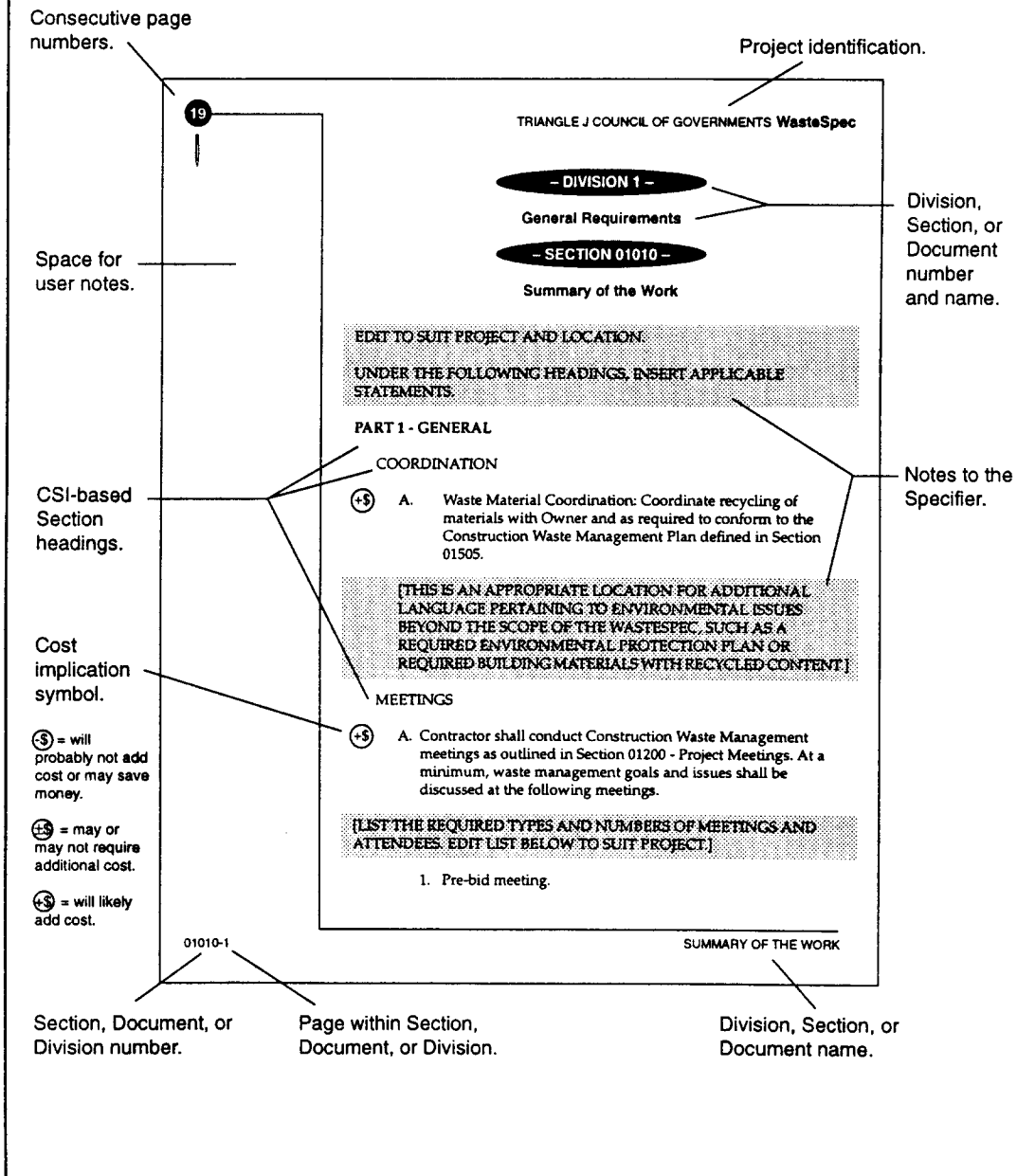
Considerations For Using The WasteSpec Effectively.

Specifications are primarily a means of communicating with the contractor. Owners, architects, and engineers should take the opportunity to communicate through the most effective means possible that the waste management provisions for the project are not status quo. This might be achieved, for example, through pre-qualification of bidders to insure that they understand the waste management provisions in advance, or through explanations in the advertisement for bids, the pre-bid conference, or the pre-construction conference. It will be useful to emphasize that subcontractors are also expected to follow the waste manage-

ment requirements, and include waste management provisions pertinent to individual trades in the appropriate sections of the specifications, since subcontractor noncompliance with the management plan is an area where most recovery efforts breakdown.

Keep in mind that waste management specifications should be viewed as "living" documents. Provisions will change over time as the specifier gains experience with waste management through direct experience with the process, through owner response, through knowledge gained in meetings with contractors implementing the plans, and through changing market conditions and demands.

- Sample Page Layout -



– About the Disk Version of the WasteSpec –

The WasteSpec notebook comes with a 3-1/2 inch double density recycled disk version of WasteSpec in one of the three following formats, all of which will automatically upload into higher versions of the software:

1. Word Perfect 5.1 for DOS;
2. Microsoft Word 5.0 for DOS; or
3. Microsoft Word 3.0 for Macintosh.

The main purpose of the disk version is to give specification writers text that they can easily cut and paste into other specifications. Consequently, there are several differences between the disk version and the notebook version of WasteSpec. The disk version is in a generic format that is easily translatable into several software programs: it is in a monospaced font, Courier 12, and all bold, italic, shaded, and underlined text appears as regular text. No cost symbols appear in the margin, and there are no page numbers, headers, or footers. The disk version includes Appendices A and C, but not Appendices B, D, and E.

The disk version is meant to complement, not substitute for, the notebook version of WasteSpec. The notebook version contains information that is not contained in the disk version, and the notebook version is in a much more readable format.

- CSI - Based Section Format Headings -

PART 1 GENERAL	PART 2 PRODUCTS	PART 3 EXECUTION
SUMMARY Section Includes Products Furnished but not Installed Under This Section Products Installed but not Furnished Under This Section Related Sections Allowances Unit Prices Alternates/Alternatives	MANUFACTURERS	EXAMINATION Verification of Conditions
REFERENCES	MATERIALS	PREPARATION Protection Surface Preparation
DEFINITIONS	MANUFACTURED UNITS	ERECTION
SYSTEM DESCRIPTION Design Requirements Performance Requirements	EQUIPMENT	INSTALLATION
SUBMITTALS Product Data Shop Drawings Samples Quality Control Submittals Design Data Test Reports Certificates Manufacturer's Instructions Manufacturer's Field Reports Contract Closeout Submittals Project Record Documents Operation and Maintenance Data and Warranty <u>Environmental Certifications</u>	COMPONENTS	APPLICATION Special Techniques Interface With Other Products Tolerances
QUALITY ASSURANCE Qualifications Regulatory Requirements <u>Product Environmental Requirements</u> Certifications Field Samples Mock-Ups Pre-Installation Conference	ACCESSORIES	FIELD QUALITY CONTROL Tests Inspection Manufacturer's Field Service
DELIVERY, STORAGE, AND HANDLING Packing and Shipping Acceptance at Site Storage and Protection	MIXES	ADJUSTING
PROJECT/SITE CONDITIONS <u>Project/Site</u> Environmental Requirements Existing Conditions Field Measurements	FABRICATION Shop Assembly Tolerances	CLEANING
SEQUENCING AND SCHEDULING	FINISHES Shop Priming Shop Finishing	<u>WASTE MANAGEMENT</u> <u>Separation</u> <u>Return</u> <u>Reuse</u> <u>Recycle</u>
WARRANTY Special Warranty	SOURCE QUALITY CONTROL Tests Inspection Verification of Performance	DEMONSTRATION
MAINTENANCE Maintenance Service Extra Materials	<u>ENVIRONMENTAL CONSIDERATIONS</u> <u>Source</u> <u>Content</u> <u>Performance</u>	PROTECTION
		SCHEDULES

Underlined entries are not typical. They are additions proposed by the WasteSpec. Some of them are under consideration by CSI.

- DOCUMENT 00120 -

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS:
RESOURCE EFFICIENCY**

INCORPORATE APPLICABLE STATEMENTS BELOW INTO STANDARD DOCUMENT 00120 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS.

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

DESCRIPTION

- ④ A. The Owner requires the Contractor to efficiently use resources to the fullest extent possible in the completion of this Project. Resource efficient aspects to be considered in completing this Project include:

[EDIT LIST BELOW TO SUIT PROJECT.]

1. Use of techniques that minimize waste generation.
2. Reuse and renovation of existing structures in lieu of demolition.
3. Salvage of existing materials and items for reuse or resale.
4. Reuse of materials on site where possible.
5. Recycling of waste generated during the demolition and construction processes.

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE REGARDING ENVIRONMENTAL PROVISIONS BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIRED USE OF RECYCLED-CONTENT MATERIALS.]

- ④ B. The Contractor is encouraged to include additional resource efficient methods in the Project.

RELATED SECTIONS

- ⑤ A. The following Documents and Sections describe specific areas where resource efficiency is to be incorporated into the Project.

[EDIT LIST BELOW TO SUIT PROJECT.]

1. Document 00800 - Supplementary General Conditions
2. Section 01010 - Summary of the Work
3. Section 01030 - Alternates, or
Section 01031 - Waste Management/Recycling Alternates
4. Section 01060 - Regulatory Requirements
5. Section 01094 - Definitions
6. Section 01200 - Project Meetings
7. Section 01300 - Submittals
8. Section 01400 - Quality Control
9. Section 01500 - Construction Facilities and Temporary Controls
10. Section 01505 - Construction Waste Management
11. Section 01600 - Material and Equipment
12. Section 01630 - Substitutions
13. Section 01700 - Contract Close-out
14. Section 02050 - Building Demolition
15. Section 02070 - Selective Demolition
16. Section 02080 - Material Salvage

COST INFORMATION

- ⑤ A. Cost information is to be provided on the "Waste Management Plan," described in Section 01505 - Construction Waste Management, for the following:

[EDIT LIST BELOW TO SUIT PROJECT.]

1. Waste Disposal.
2. Recycling.
3. Salvage.

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE REGARDING ENVIRONMENTAL PROVISIONS BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIRED USE OF RECYCLED-CONTENT MATERIALS.]

EVALUATION OF RESOURCE EFFICIENCY

- ⑤ A. Evaluation of efficient use of resources in the Project will be based on the specific Project goals stated below:

[LIST GOALS APPROPRIATE TO THIS PROJECT.]

- 1.
- 2.
- 3.
- 4.

[THE FOLLOWING EXAMPLES MAY ASSIST IN DEVELOPING GOALS FOR THE PROJECT.]

1. Example Goal 1: To divert 25% of the construction waste generated by this project from municipal landfills.
2. Example Goal 2: To recycle 50% of the construction waste generated by this project in local recycling markets.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

– END OF DOCUMENT –

- DOCUMENT 00800 -**SUPPLEMENTARY GENERAL CONDITIONS**

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

General Conditions and Supplementary General Conditions and Division 1-General Requirements contain information necessary for completion of every part of the Project.

- ④ A. Resource Efficiency Concerns: Special resource efficiency concerns are defined in Document 00120 - Supplementary Instructions to Bidders: Resource Efficiency, [SECTION ____].
- ④ B. Environmental Concerns:

[THIS IS AN APPROPRIATE LOCATION FOR LANGUAGE DEALING WITH ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THE WASTESPEC. SEE APPENDIX E FOR FURTHER RESOURCES ON ENVIRONMENTAL ISSUES.]

- ④ C. Waste Management Concerns: Special waste management requirements are defined in Section 01505- Construction Waste Management, [SECTION ____].

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF DOCUMENT -



- DIVISION 1 -

GENERAL REQUIREMENTS

- SECTION 01010 -

SUMMARY OF THE WORK

**EDIT TO SUIT PROJECT AND LOCATION.
UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.**

PART 1 - GENERAL

COORDINATION

- ⊕ A. Waste Management Coordination: Coordinate recycling of materials with Owner and as required to conform to the Construction Waste Management Plan defined in Section 01505.

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS A REQUIRED ENVIRONMENTAL PROTECTION PLAN OR REQUIRED BUILDING MATERIALS WITH RECYCLED CONTENT.]

MEETINGS

- ⊕ A. Contractor shall conduct Construction Waste Management meetings as outlined in Section 01200 - Project Meetings. At a minimum, waste management goals and issues shall be discussed at the following meetings:

[LIST THE REQUIRED TYPES AND NUMBERS OF MEETINGS AND ATTENDEES. EDIT LIST BELOW TO SUIT PROJECT.]

1. Pre-bid meeting.
2. Pre-construction meeting.
3. Regular job-site meetings.
4. Job safety meetings.

CUTTING AND PATCHING

- ⑤ A. Use on-site waste as primers, sealers, underlayments, supports, backing, blocking, furring, suspension systems, and accessories as required for any purpose in patching existing work.

[CHECK WITH OWNER AND LOCAL CODES FOR ACCEPTABILITY OF REUSE OF ON-SITE WASTE IN NEW CONSTRUCTION. REFER TO SECTION 02050 - DEMOLITION FOR EXAMPLES.]

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIREMENTS TO PROVIDE ENVIRONMENTALLY BENIGN, NONHAZARDOUS, OR RECYCLED CONTENT MATERIALS FOR CUTTING AND PATCHING.]

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01030 -

ALTERNATES

**** OR ****

- SECTION 01031 -

WASTE MANAGEMENT / RECYCLING ALTERNATES

INCORPORATE APPLICABLE STATEMENTS BELOW INTO STANDARD SECTION 01030 - ALTERNATES;

****OR****

INCLUDE SEPARATE SECTION 01031 - WASTE MANAGEMENT / RECYCLING ALTERNATES.

IF THE PROJECT IS BID, THIS SECTION CAN BE USED TO OBTAIN AND ISOLATE COST INFORMATION ON PROPOSED JOB SITE RECYCLING SO THAT THE OWNER CAN DETERMINE THE FEASIBILITY OF IMPLEMENTING SOME OR ALL RECYCLING MEASURES. ALLOW ADEQUATE TIME FOR DISCUSSION OF WASTE MANAGEMENT GOALS AND BID PREPARATION IF REQUIRING ALL BIDDERS TO SUBMIT RECYCLING ALTERNATES IN ORDER TO RECEIVE REALISTIC BIDS DUE TO BASIC UNFAMILIARITY WITH CONSTRUCTION WASTE MANAGEMENT.

****OR****

IF THE PROJECT IS NEGOTIATED, OR IF THE OWNER REQUIRES ONLY THE SUCCESSFUL BIDDER TO SUBMIT A WASTE MANAGEMENT PLAN, THIS ALTERNATE SECTION MAY BE OMITTED IN FAVOR OF DEVELOPMENT OF THE DRAFT WASTE MANAGEMENT PLAN AS OUTLINED IN SECTION 01505 - CONSTRUCTION WASTE MANAGEMENT.

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 - GENERAL

SUMMARY: ALTERNATE BIDS

[EDIT BELOW TO SUIT PROJECT.]

- ⑤ A. It is intended that references in the Bid Forms to "Waste Management/Recycling Alternate Bid" shall refer directly to this

Section. Information included is provided for use of the bidders in completing their Bid Proposals and will not be repeated on the Bid Forms.

SCHEDULE OF ALTERNATES

- ⑤ A. For each Waste Management/Recycling Alternate proposed, describe the recommended method for proper disposal of materials to be recycled or disposed of included in the Waste Management/Recycling Alternate.

[THIS IS AN APPROPRIATE LOCATION FOR LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC.]

- ⑤ B. For each Waste Management/Recycling Alternate proposed, provide a waste management plan with the Bid.

[SEE APPENDIX D FOR A SAMPLE WASTE MANAGEMENT PLAN FORM.]

- ⑤ C. For each Waste Management/Recycling Alternate proposed, describe waste management requirements. Requirements for performance, appearance, workmanship, and materials not modified under the Alternate Bids shall conform to Drawings and Specifications, except as exceeded by Code.

[EXAMPLES LISTED BELOW MAY ASSIST IN DEVELOPMENT OF A SCHEDULE OF ALTERNATES FOR THIS PROJECT. PRODUCTS OR MANUFACTURERS ARE USED FOR EXAMPLE ONLY, AND DO NOT IMPLY WARRANTIES. EDIT TO SUIT PROJECT AND LOCATION.]

Example 1. Recycling Alternate Bid Number 1: State the amount to be added or to be deducted from the Base Bid if the Project's estimated clean wood waste is recycled at a recycling facility in lieu of traditional disposal in a landfill.

ADD: _____ dollars; or DEDUCT _____ dollars.

Example 2. Environmental Alternate Bid Number 1: State the amount to be added or to be deducted from the Base Bid if insulation containing minimum 100 percent cotton/polyester blend is provided in lieu of batt insulation as specified in Section 07200 -Building Insulation. (MFR: Greenwood Cotton Insulation Products, SC., 404 - 998 - 6888.)

ADD: _____ dollars; or DEDUCT _____ dollars.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01060 -**REGULATORY REQUIREMENTS**

INCORPORATE INTO STANDARD SECTION 01060 - REGULATORY REQUIREMENTS, ANY STATUTES, ORDINANCES, OR REGULATIONS RELEVANT TO WASTE MANAGEMENT, WASTE REDUCTION, OR RECYCLING. EXAMPLES INCLUDE PROHIBITIONS ON BURNING OR LANDFILL BANS ON CERTAIN MATERIALS, SUCH AS ALUMINUM OR CARDBOARD.

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

The Contractor shall be responsible for knowing and complying with regulatory requirements - Federal, State and Local - pertaining to legal disposal of all construction and demolition waste materials.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01094 -**DEFINITIONS**

THE FOLLOWING ARE GENERAL DEFINITIONS OF TERMS COMMONLY USED WHEN DISCUSSING WASTE MANAGEMENT ISSUES. DEFINITIONS MAY VARY ACCORDING TO STATE. BE SURE TO CHECK STATUTES OR REGULATIONS PERTINENT TO PROJECT LOCATION THAT MAY AFFECT DEFINITIONS.

EDIT TO SUIT PROJECT AND LOCATION.

PART 1 GENERAL**WASTE MANAGEMENT DEFINITIONS**

[EDIT LIST BELOW TO SUIT PROJECT.]

Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity.

Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity, or reactivity.

Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

Recycle: To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others.

Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

Return: To give back reusable items or unused products to vendors for credit.

Reuse: To reuse a construction waste material in some manner on the Project site.

Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.

Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

Toxic: Poisonous to humans either immediately or after a long period of exposure.

Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through outgassing: solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation. When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, and damage to the liver, kidneys, and central nervous system, and possibly cancer.

Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

– END OF SECTION –

- SECTION 01200 -

PROJECT MEETINGS

EDIT TO SUIT PROJECT AND LOCATION.
UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

CONSTRUCTION WASTE MANAGEMENT MEETINGS

- Ⓢ A. Contractor shall either conduct separate construction waste management meetings or discuss waste management goals and issues as part of the following regular meetings:

[LIST REQUIRED TYPES AND NUMBERS OF MEETINGS AND ATTENDEES. SPECIFY WHICH MEETINGS ARE MANDATORY AND WHICH ARE CONTRACTOR'S OPTION. MAKING WASTE MANAGEMENT PART OF REGULAR MEETINGS WILL BE MORE COST EFFECTIVE. EDIT LIST BELOW TO SUIT PROJECT.]

1. Pre-bid meeting.
 2. Pre-construction meeting.
 3. Pre-fabrication meeting.
 4. Regular job-site meetings.
 5. Job safety meetings.
 6. Special Construction Waste Management meetings.
- Ⓢ B. Pre-Bid Meeting: The Owner requires, as part of the pre-bid meeting with all interested bidders prior to the Bid Date, a discussion of waste management goals established for the Project as outlined in Section 01505 - Construction Waste Management.
 - Ⓢ C. Pre-Construction Meeting: Contractor shall include discussions on waste management requirements per Section 01505- Construction Waste Management in the pre-construction meeting.
 - Ⓢ D. Pre-Fabrication Meeting: Contractor shall include discussions on waste management goals and requirements per Section 01505 - Construction Waste Management in all pre-fabrication meetings conducted with subcontractors or fabricators.

- Ⓢ E. Regular Job Meetings: Contractor shall include discussions on waste management requirements per Section 01505 - Construction Waste Management in the regular job meetings conducted during the course of the Project.
- Ⓢ F. Job Safety Meetings: Contractor shall include discussions on waste management requirements per Section 01505 - Construction Waste Management in the job safety meetings.

[THERE MAY BE A CORRELATION BETWEEN JOB SITE SAFETY AND CLEAN JOB SITES WHERE EXCESS MATERIALS, PRODUCTS, AND TRASH ARE SEPARATED.]

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01300 -

SUBMITTALS

EDIT TO SUIT PROJECT AND LOCATION.
UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

SUBMITTALS

- ④ A. Refer to Section 01505-Construction Waste Management for special submittal requirements.

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUESTS FOR MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALTERNATIVE ENVIRONMENTAL PRODUCTS OR MATERIALS, VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS DATA FOR PROPOSED MATERIALS, OR RECYCLING POTENTIAL FOR PROPOSED MATERIAL.]

CERTIFICATES

- ④ A. Submit a Summary of Solid Wastes Generated, manifests, weight tickets, ~~[LIST OTHER DOCUMENTS REQUIRED]~~ in accordance with requirements of Section 01505 - Construction Waste Management.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01400 -

QUALITY CONTROL

THE CONTRACTOR'S OBSERVANCE DURING CONSTRUCTION OF THE QUALITY CONTROL PROVISIONS TYPICALLY INCLUDED IN MOST SPECIFICATIONS IS ONE OF THE MOST EFFECTIVE WASTE REDUCTION STRATEGIES. SUCH PROVISIONS REDUCE DAMAGE TO MATERIALS, PRODUCTS, AND INSTALLATIONS DUE TO MISHANDLING, MISAPPLICATION, AND IMPROPER STORAGE AND/OR PROTECTION. SEVERAL EXAMPLES OF TYPICAL QUALITY CONTROL PROVISIONS THAT REDUCE ON-SITE WASTE FOLLOW.

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

PROJECT / SITE CONDITIONS

- ④ A. Field Measurements: Contractor is to verify that field measurements are as indicated on construction and/or shop drawings before confirming product orders or proceeding with work, in order to minimize waste due to excessive materials.

PACKING AND SHIPPING

- ④ A. Shipping: Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- ④ B. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION

PREPARATION

- ④ A. Storage and Protection: Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

- Ⓢ B. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep [MATERIALS] [PRODUCTS] [ACCESSORIES] covered and off the ground, and store in a dry, secure area.
- Ⓢ C. Prevent contact with material that may cause corrosion, discoloration, or staining.
- Ⓢ D. Protect all materials and installations from damage by the activities of other trades.

INSTALLATION

- Ⓢ A. Install product(s) per [MANUFACTURER'S RECOMMENDATIONS] [ACCEPTED PRACTICE] to reduce damage to or waste of materials by required replacement.

WASTE MANAGEMENT

- Ⓢ A. Source separation: Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in order to prevent contamination of materials and to maximize recyclability and salvageability of identified materials. Refer to the Waste Management Plan in Section 01505.
- Ⓢ B. Return: Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.
- Ⓢ C. Reuse and Salvage: Set aside, sort, and protect separated products and materials for collection, re-use [ON SITE] [ELSEWHERE] by [OWNER] [CONTRACTOR], and salvage by [MATERIALS EXCHANGE] [HABITAT FOR HUMANITY] [OTHER].
- Ⓢ D. Recycling: Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials. Refer to the Waste Management Plan in Section 01505.

- END OF SECTION -

- SECTION 01500 -

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

TEMPORARY POWER

[THIS IS AN APPROPRIATE LOCATION FOR LANGUAGE PERTAINING TO ADDITIONAL ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIRING ENERGY MANAGEMENT CONTROLS DURING CONSTRUCTION TO CONSERVE POWER.]

NOISE, DUST, AND POLLUTION CONTROL

- ⑤ A. Refer to Section 01505 - Construction Waste Management. In addition, comply with Owner's and local requirements for noise, dust, and pollution control.

BARRIERS AND ENCLOSURES

- ⑤ A. **Materials:** Reuse Project construction waste materials, or provide materials for barriers and enclosures which are nonhazardous, recyclable, or reusable to the maximum extent possible.
 1. **Barricades and Enclosures:** Provide enclosures around piles of separated materials pursuant to the Waste Management Plan described in Section 01505 - Construction Waste Management.
 2. **Locate enclosures** out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors.

CLEANING

- ⑤ A. Control accumulation of waste materials and trash. Recycle or dispose of off-site at intervals approved by the Owner and in compliance with waste management procedures specified in Section 01505.

- ⑤ B. Cleaning materials: Use cleaning materials that are nonhazardous.

PROTECTION

- ⑤ A. After installation, provide coverings to protect products from damage due to traffic and construction operations. Remove coverings when no longer needed.
 - 1. Save plastic covering. At completion of Project, reuse if practical; if not, then recycle if local market exists.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01505 -

CONSTRUCTION WASTE MANAGEMENT

THIS SECTION HAS BEEN INTRODUCED TO DEAL SPECIFICALLY WITH CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.

DEPENDING ON THE SIZE AND COMPLEXITY OF THE PROJECT, YOU MAY INCORPORATE ALL CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT INFORMATION AND REQUIREMENTS INTO A SINGLE, STAND ALONE SECTION, SECTION 01505 - CONSTRUCTION WASTE MANAGEMENT,

****OR****

YOU MAY DISTRIBUTE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT INFORMATION AND REQUIREMENTS THROUGHOUT RELATED DOCUMENTS AND SECTIONS OF THE PROJECT MANUAL FOLLOWING THE EXAMPLE USED IN THIS WASTESPEC. LIST ALL RELATED SECTIONS.

IF YOU SPECIFIED THE USE OF AN ALTERNATE IN SECTION 01031 IN ORDER TO OBTAIN COST INFORMATION RELATED TO JOB SITE RECYCLING, YOU MAY DELETE REQUIREMENTS IN THIS SECTION FOR THE CONTRACTOR TO DEVELOP A DRAFT WASTE MANAGEMENT PLAN. IF YOU DID NOT SPECIFY AN ALTERNATE IN ORDER TO DETERMINE RECYCLING COST INFORMATION, THE DRAFT WASTE MANAGEMENT PLAN OUTLINED IN THIS SECTION SHOULD BE USED TO ESTIMATE THE COST OF RECYCLING.

EDIT TO SUIT PROJECT AND LOCATION. DELETE OR EDIT REFERENCES TO WASTE DISPOSAL IN OTHER SECTIONS THAT CONFLICT WITH THE PROVISIONS OF THIS SECTION.

PART 1 - GENERAL

REQUIREMENTS INCLUDED IN THIS SECTION

[EDIT LIST BELOW TO SUIT PROJECT.]

- A. Waste Management Goals.
- B. Waste Management Plan.
- C. Management Plan Implementation.
- D. Special Programs.

RELATED SECTIONS

[EDIT LIST BELOW TO SUIT PROJECT.]

- A. Document 00120-Supplementary Instructions to Bidders-Resource Efficiency.
- B. Document 00800 - Supplementary General Conditions.
- C. Section 01010 - Summary of the Work.
- D. Section 01030 - Alternates, or
Section 01031 - Waste Management / Recycling Alternates.
- E. Section 01060 - Regulatory Requirements.
- F. Section 01094 - Definitions.
- G. Section 01200 - Project Meetings.
- H. Section 01300 - Submittals.
- I. Section 01400 - Quality Control.
- J. Section 01500 - Construction Facilities and Temporary Controls.
- K. Section 01505 - Construction Waste Management.
- L. Section 01600 - Materials and Equipment.
- M. Section 01630 - Substitutions.
- N. Section 01700 - Contract Close-out.

WASTE MANAGEMENT GOALS

- Ⓢ A. The Owner has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
- Ⓢ B. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. [REFER TO SECTION 01094 - DEFINITIONS FOR TERMS USED IN THIS SECTION.] [FOR PURPOSES OF THIS SECTION, THE FOLLOWING DEFINITIONS APPLY: REUSE, SALVAGE, RECYCLE, RETURN.]

[EDIT STATEMENTS ABOVE ACCORDING TO WHETHER THIS SECTION (01505) IS INTEGRATED INTO THE SPECIFICATION OR WHETHER IT IS USED AS A STAND-ALONE SECTION.]

- Ⓢ C. With regard to these goals the Contractor shall develop, for the Architect's review, a Waste Management Plan for this Project.

WASTE MANAGEMENT PLAN

- Ⓢ A. Draft Waste Management Plan: Within [SPECIFY TIME FRAME] [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 Draft Waste Management Plan.

[SEE APPENDIX D FOR A SAMPLE WASTE MANAGEMENT PLAN WHICH CAN BE APPENDED TO PROJECT SPECIFICATIONS.]

The Draft Plan shall contain the following:

1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
2. Landfill options: The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
3. Alternatives to Landfilling: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed local market for each material, and the estimated 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 and (b) landfill tipping fees saved due to diversion of materials from the landfill. The list of these materials is to include, at minimum, the following materials:

[LIST BELOW MATERIALS APPLICABLE TO PROJECT AND LOCATION. THE LIST OF MATERIALS SHOULD INCLUDE AT MINIMUM THE MATERIALS LISTED IN (a) THROUGH (i) BELOW. ADD OTHER MATERIALS RELEVANT TO LOCAL AREA. EXAMPLES MAY INCLUDE DRYWALL, PLASTIC BUCKETS, CARPET AND CARPET PAD TRIM; PAINT; ASPHALT ROOFING SHINGLES; VINYL SIDING; PLASTIC SHEETING; AND RIGID FOAM INSULATION.]

- a. Cardboard.
- b. Clean dimensional wood.
- c. Beverage containers.
- d. Land clearing debris.
- e. Concrete.
- f. Bricks.
- g. Concrete Masonry Units (CMU).
- h. Asphalt.
- i. Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

- ⑤ B. Resources for Development of Waste Management Plan: The following sources may be useful in developing the Draft Waste Management Plan:

[EDIT LIST OF RECYCLING RESOURCES BELOW TO SUIT PROJECT. REFER TO APPENDICES A, B, C, AND D OF THIS WASTESPEC FOR RESOURCES YOU CAN USE TO DEVELOP RECYCLING WORKSHEETS AND LIST OF LOCAL MARKETS SPECIFIC TO YOUR PROJECT.]

1. Recycling Haulers and Markets: [APPENDIX ____] [THE ATTACHED LIST] contains local haulers and markets for recyclable materials. This list is provided for information only and is not necessarily comprehensive; other haulers and markets are acceptable. For more information, contact the [STATE] [COUNTY] [RECYCLING DEPARTMENT] [LISTED IN APPENDIX ____] [AT PHONE NUMBER ____].
2. Recycling Economics Information: [APPENDIX ____] [THE ATTACHED FORMS] contain information that may be useful in estimating the costs or savings or recycling options.

- ⊕ C. Final Waste Management Plan: Once the Owner has determined which of the recycling options addressed in the draft Waste Management Plan are acceptable, the Contractor shall submit, within [SPECIFY TIME FRAME] [10 CALENDAR DAYS] a Final Waste Management Plan.

[SEE APPENDIX D FOR A SAMPLE WASTE MANAGEMENT PLAN WHICH CAN BE APPENDED TO PROJECT SPECIFICATIONS.]

The Final Waste Management Plan shall contain the following:

1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
2. Landfill options: The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
3. Alternatives to Landfilling: A list of the waste materials from the Project that will be separated for reuse, salvage, or recycling.
4. Meetings: A description of the regular meetings to be held to address waste management. Refer to Section 01200 - Project Meetings.
5. Materials Handling Procedures: A description of the means by which any waste materials identified in item (3) above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

6. 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.

WASTE MANAGEMENT PLAN IMPLEMENTATION

- ⊕ A. **Manager:** The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project.

[DEPENDING ON THE SIZE AND COMPLEXITY OF THE PROJECT, YOU MAY EITHER DESIGNATE A FULL TIME CONSTRUCTION WASTE MANAGER OR ASSIGN RESPONSIBILITY TO THE JOB SUPERVISOR OR APPROPRIATE PERSONNEL.]

- ⊕ B. **Distribution:** The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.
- ⊕ C. **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.
- ⊕ D. **Separation facilities:** The Contractor shall lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
- ⊕ E. **Hazardous wastes:** Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
- ⊕ F. **Application for Progress Payments:** The Contractor shall submit with each Application for Progress Payment a Summary of Waste Generated by the Project. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner [SEE APPENDIX ____] and 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, the amount (in tons or cubic yards), the date removed from the jobsite, 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 invoices.

SPECIAL PROGRAMS

- ⑤ A. The Contractor shall be responsible for final implementation of programs involving tax credits or rebates or similar incentives related to recycling, if applicable to the Project. Revenues or other savings obtained for recycling or returns shall accrue to the [CONTRACTOR] [OWNER].

- 1. Applicable programs are the following:

[LIST APPLICABLE PROGRAMS HERE.]

- 2. The Contractor is responsible for obtaining information packets relevant to all of the above-listed programs prior to starting work on the Project.

- B. The Contractor shall document work methods, recycled materials, [LIST OTHER] that qualify for tax credits, rebates, and other savings under each of the above-listed programs.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01600 -**MATERIAL AND EQUIPMENT**

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL**TRANSPORTATION**

- ④ A. Transport materials in covered trucks to prevent contamination of product or littering of surrounding areas.

HANDLING

- ④ A. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
1. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
 2. Promptly return damaged shipments or incorrect orders to manufacturer for credit or refund.

STORAGE

- ④ A. Store products in accordance with provisions of Section 01400 - Quality Control and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01630 -

SUBSTITUTIONS

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

ALTERNATES

The Contractor shall investigate proposed substitutions with respect to the following:

A. Environmental Concerns:

[THIS IS AN APPROPRIATE LOCATION FOR LANGUAGE PERTAINING TO ADDITIONAL ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIRING MATERIAL SAFETY DATA SHEETS (MSDS) WITH SUBMISSION OF PROPOSED SUBSTITUTE MATERIALS OR PRODUCTS.]

REVENUE

- ④ If the Contractor has an approved alternative means of achieving a waste reduction goal that leads to cost savings, those savings shall accrue to the **[CONTRACTOR] [OWNER]**.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -

- SECTION 01700 -**CONTRACT CLOSE-OUT**

EDIT TO SUIT PROJECT AND LOCATION.

UNDER THE FOLLOWING HEADINGS, ADD APPROPRIATE STATEMENTS.

PART 1 GENERAL**FINAL CLEANING**

- ⑤ A. Cleaning Materials: Only nonhazardous cleaning materials shall be used in the final cleanup.
- ⑤ B. Recycle, salvage, and return construction and demolition waste from Project in accordance with requirements in Section 01505.
- ⑤ C. Arrange for pick-up of salvageable materials in accordance with the Waste Management Plan.
- ⑤ D. Disposal Operations: Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the Project site.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

- END OF SECTION -



- DIVISION 2 -

SITWORK

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE SITE CLEARING, DEMOLITION, TEMPORARY WORK, AND REPAVING.

THIS DIVISION HAS GREAT POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. HUNDREDS OF PRODUCTS ARE AVAILABLE. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. Where choices exist, preference is to be given to products and materials with [EDIT TO SUIT PROJECT] recycled content or resource efficient characteristics [EDIT TO SUIT PROJECT].

PART 3 EXECUTION

WASTE MANAGEMENT

- Ⓢ A. Separate and recycle offcuts and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ C. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ D. Use trigger operated spray nozzles for water hoses.
- Ⓢ E. Set aside and protect the following surplus and uncontaminated waste materials: [EDIT TO SUIT PROJECT AND LOCATION]. Deliver to or arrange collection by employees, individuals, or organizations [EDIT TO SUIT PROJECT AND LOCATION] for verifiable reuse or remanufacturing.
- Ⓢ F. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[SECTIONS WITH SIMILAR WASTE CHARACTERISTICS ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

- 02050 DEMOLITION
- 02060 BUILDING DEMOLITION
- 02070 SELECTIVE DEMOLITION

[TESTING FOR AND IDENTIFICATION OF ENVIRONMENTAL HAZARDS AND CONTAMINANTS SHOULD PRECEDE ALL DEMOLITION WORK. PROCEDURES FOR DEALING WITH HAZARDS SUCH AS REMOVAL OR CONTAINMENT SHOULD BE SPECIFIED. DISMANTLING AND SEPARATION OF MATERIALS IS CRITICAL TO DEMOLITION WASTE REDUCTION, AS IS KNOWLEDGE OF MATERIAL TYPES AND SIZES AND POTENTIAL MARKETS. COORDINATE CLOSELY WITH DRAWINGS.]

- Ⓢ A. The work of this section is to be performed in a manner that maximizes salvage and recycling of materials and includes the dismantling and removal of the materials listed below.

(Acceptable end uses are indicated in parentheses.) **[EDIT TO SUIT PROJECT.]** All materials dismantled and removed are to be separated, set aside, and prepared for reuse, as specified, and stored or delivered to collection point for reuse, remanufacture, or recycling, as specified, and to the maximum extent economically feasible.

[EDIT TO SUIT PROJECT AND LOCATION. SEE APPENDIX C – DEMOLITION MATERIALS FOR COMPREHENSIVE CHECKLIST.]

1. Concrete (can be crushed and graded for use as riprap, aggregate, sub-base material, or fill).
2. Brick (can be reused if whole; crushed for use as landscape cover, sub-base material, or fill).
3. Concrete block (can be reused if whole, crushed for use as sub-base material or fill).
4. Land clearing wood (can be chipped or shredded for use as ground cover, mulch, compost, pulp, or process fuel).
5. Whole buildings (can be sold or donated and either moved or dismantled).
6. Asphalt material (can be sorted by type for milling and recycling).
7. Wood (can be sorted by type and size for reuse or remanufacturing).
8. Precast concrete panels (can be used for erosion control or landscape features).
9. Windows and doors (can be salvaged).
10. Metal (can be separated for recycling).
11. Hardware (can be salvaged for reuse).
12. Electrical and plumbing fixtures and fittings (can be salvaged).

- Ⓢ B. Protect and secure all stored materials.
- Ⓢ C. The items listed below have unique or may have regulated disposal requirements and are to be removed and disposed of in the manner dictated by law or in the most environmentally responsible manner. Typical concerns are listed in parentheses:

[EDIT TO SUIT PROJECT AND LOCATION. SEE INTRODUCTION FOR SAMPLE HAZARDOUS WASTE LIST.]

1. Fluorescent light ballasts manufactured prior to 1978. (PCB).
 2. Fluorescent lamps. (Mercury).
 3. Refrigeration, air-conditioning, and other equipment containing refrigerants. (CFC recovery).
 4. Batteries. (Lead, acid, mercury).
 5. Paints, solvents, and other hazardous fluids.
 6. Corrugated cardboard.
 7. Asbestos based materials.
 8. Materials with lead based finishes.
- ⑤ D. The following materials can be recycled in the area of the project location:

[EDIT TO SUIT PROJECT AND LOCATION. SEE APPENDIX B FOR RESOURCES.]

- ⑤ E. Maintain an inventory of all removed materials and submit tracking forms for all removed materials indicating type, quantities, condition, destination, and end use.

RELATED SECTIONS

- A. Section 02200 Earthwork.

02060 BUILDING DEMOLITION

[USE THIS SECTION FOR WHOLE BUILDING DISMANTLING, RECYCLING, SALVAGE, AND REUSE. COORDINATE CLOSELY WITH DRAWINGS. USE THE PROVISIONS LISTED UNDER SECTION 02050 - DEMOLITION AS APPROPRIATE.]

02070 SELECTIVE DEMOLITION

[USE THIS SECTION FOR PARTIAL OR MINOR DISMANTLING, RECYCLING, SALVAGE, AND REUSE. WHEN WASTE REDUCTION IS A PRIORITY, USE OF THIS SECTION TO SPECIFY DEMOLITION WORK MAY HELP TO EMPHASIZE WASTE REDUCTION OBJECTIVES. COORDINATE CLOSELY WITH DRAWINGS. USE THE PROVISIONS LISTED UNDER SECTION 02050 DEMOLITION AS APPROPRIATE.]



- ③ A. Execute dismantling and salvage operations so as to minimize the risk of damage to the immediate environment.

RELATED SECTIONS

- A. Section 01045 Cutting and Patching.

02110 SITE CLEARING

- ③ A. Protect trees and other designated features and areas by erecting a high visibility construction fence, a minimum of 3' high. Locate fence no closer to trees than the drip line.
- ③ B. All marketable trees designated for removal are to be sold. All other vegetation is to be ground, chipped, or shredded for mulching and composting, or where these options are not possible, for use as mill pulp or process fuel.
- ③ C. Provide on-site locations for as much excavated rock, soil, and vegetation as possible. Provide erosion control and seeding if not immediately used.
- ③ D. Separate organic and inorganic material. [EDIT TO SUIT PROJECT.]
- ③ E. Stockpile topsoil for final grading and landscaping. Provide erosion control and seeding if not immediately used.

02280 SOIL TREATMENT

02282 TERMITE CONTROL

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. In the event that chemical treatments are used, post signs in English and Spanish in areas of application warning workers that soil treatment has been applied.

- ③ A. Use the least toxic treatment methods and materials for rodent, termite, and vegetation control including, but not limited to, installation of physical controls.
- ③ B. Use only soil treatments which are not injurious to plants.

02282 TERMITE CONTROL

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS REQUIREMENTS FOR NON-CHEMICAL TERMITE CONTROL USING AN ANTI-TERMITE SAND BARRIER CAPABLE OF CONTROLLING PESTS IN THE PROJECT LOCATION.]

02500 PAVING AND SURFACING

- ⑤ A. Asphalt paving: Protect excess material from contamination and return to production for reheating and/or reuse.
- ⑤ B. Asphalt paving: Protect excess material from contamination and reuse on-site for walkways, patching, ditch beds, speed bumps, or curbs.

02900 LANDSCAPING

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Integrated Pest Management is to be used for the control of undesirable insects. Broad spectrum pesticides are prohibited.
 - B. Except where specified or approved by the [DESIGNER] chemical landscape treatments are prohibited. Organic methods are to be used and exhausted before consideration of chemical treatments.
 - C. Where choices exist, select landscaping that [EDIT TO SUIT PROJECT AND LOCATION] minimizes maintenance requirements and uses materials diverted from waste stream, for example, composted sludge or food waste, tree trimmings, shredded paper, and agricultural wastes.
- ⑤ A. Assess suitability of site for application of pulverized gypsum waste as soil amendment. Apply gypsum waste in accordance with the results and specified landscape treatment.
 - ⑤ B. Protect existing and proposed landscape features, elements, and sites from damage or contamination. Coordinate with the work of other trades to reduce waste, for example, damage or loss caused by soil compaction, mixing of waste, overspray, or run-off from cleaning operations.
 - ⑤ C. Separate and recycle or reuse the following landscape waste materials: [EDIT TO SUIT PROJECT] nylon straps, wire, ball wrap, burlap, wood stakes, metal stakes.

– END OF DIVISION –

- DIVISION 3 -

CONCRETE

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, FIELD CONDITIONS, PROTECTION, TEMPORARY BRACING, FORMWORK, AND HAZARDOUS FLUIDS.

THIS DIVISION HAS GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Portland cement manufactured in a kiln fueled by hazardous waste shall be restricted. Maintain a record of source for each batch. [EDIT TO SUIT PROJECT.]

1. Supplier shall certify that no hazardous waste is used in the fuel mix or raw materials. [OR:]
2. Supplier shall certify that the hazardous waste is neutralized by the manufacturing process and that no additional pollutants are discharged.

- B. The use as a form release agent of any substance which has not been specifically manufactured for that purpose is prohibited.

[FLY ASH AND SILICA FUME ARE INDUSTRIAL WASTE PRODUCTS KNOWN AS POZZOLANS WHICH CAN SUPPLEMENT OR PARTIALLY SUBSTITUTE FOR THE CEMENT CONTENT IN A CONCRETE MIX. FOR STANDARDS REFER TO ASTM C 618-91.]
[OR INSERT PROVISIONS UNDER MANUFACTURERS/PRODUCTS.]

PART 3 EXECUTION

WASTE MANAGEMENT

- Ⓢ A. Separate and recycle waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ C. Use trigger operated spray nozzles for water hoses.
- Ⓢ D. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

03300 CAST-IN-PLACE CONCRETE

- Ⓢ A. Use reusable forms to the maximum extent economically feasible. Clean all forms immediately after removal.
- Ⓢ B. Incorporate crushed concrete or masonry materials in sub-base to the maximum extent economically feasible in accordance with sub-base specifications.
- Ⓢ C. Before concrete pours, designate locations or uses for excess concrete. Options include: [EDIT THE FOLLOWING TO SUIT PROJECT:] additional paving, post footing anchorage, swale rip-rap reinforcing, mud slab, flowable fill, footing bottom, retaining

wall footing ballast, storm structure covers, underground utility pipe kickers, storm pipe flared end section, toe wash protection, and shoulder and toe outfall restraints for temporary erosion pipes.

- Ⓢ D. Before concrete pours, designate a location for cleaning out concrete trucks. Options include:
 1. Company owned site for that purpose (meeting environmental standards).
 2. Remote on-site area to be paved later in project.
- Ⓢ E. Carefully coordinate the specified concrete work with weather conditions.

[SOME ADMIXTURES ARE INCOMPATIBLE IN CERTAIN CONDITIONS, FOR EXAMPLE, CALCIUM CHLORIDE. OFTEN ADDED IN COLD WEATHER IT AFFECTS COLORED CONCRETE. IN SOME APPLICATIONS CHLORIDES ARE PROHIBITED.]

- Ⓢ F. Check concrete within 24 hours of placement for flatness, levelness, and other specified tolerances. Adjust formwork and placement techniques on subsequent pours to achieve specified tolerances.

03410 STRUCTURAL PRECAST CONCRETE

- Ⓢ A. Attendance at a pre-fabrication conference in accordance with the Waste Management Plan and Section 01200 Project Meetings is a requirement of this section.
- Ⓢ B. Store materials in a safe, dry, above ground location.
- Ⓢ C. Prevent contact with material that may cause corrosion, discoloration, or staining.
- Ⓢ D. Set aside, sort, and protect substandard and damaged precast concrete products. Provide for delivery to or collection by alternative end user, e.g., for secondary use as foot bridges or stream bank reinforcement.

[ACC (AUTOCLAVED CELLULAR CONCRETE) IS ENTERING THE U.S. MARKET. IT IS A LIGHTWEIGHT STRUCTURAL MATERIAL WITH GOOD INSULATING VALUES. IT MAY PROVIDE ON-SITE WASTE REDUCTION OPPORTUNITIES BECAUSE OF ITS WORKABILITY.]

– END OF DIVISION –

- DIVISION 4 -**MASONRY**

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, FIELD CONDITIONS, TEMPORARY BRACING, PROTECTION, SKILL LEVELS, AND ESTIMATING ERRORS.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL**SYSTEM DESCRIPTION**

[UNIQUE MASONRY SYSTEMS, MODULES, OR FEATURES REQUIRING SPECIAL TECHNIQUES OR COORDINATION SHOULD BE NOTED AND DESCRIBED.]

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS**ENVIRONMENTAL CONSIDERATIONS**

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

A. Materials used in the manufacture of masonry CMU's shall incorporate bottom ash, fly ash, and recycled aggregate.

B. Materials used in the manufacture of clay brick may/shall [EDIT] incorporate contaminated waste which is neutralized or otherwise rendered inert by a manufacturing process which does not discharge additional pollutants.

[OR INSERT PROVISIONS UNDER MANUFACTURERS/PRODUCTS.]

PART 3 EXECUTION

WASTE MANAGEMENT

- ⓐ A. Separate and recycle waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- ⓑ B. Place materials defined as hazardous or toxic waste in designated containers.
- ⓒ C. Use trigger operated spray nozzles for water hoses.
- ⓓ D. Fold up metal banding, flatten, and place in designated area for recycling.
- ⓔ E. Collect wood packing shims and pallets and place in designated area.
- ⓕ F. Place unused mixed mortar in designated locations where lower strength mortar meets the requirements for bulk fill, for example, use as retaining wall footing ballast, cavity fill at grade, or underground utility pipe kickers.
- ⓖ G. Separate masonry waste and place in designated area for use as structural fill.
- ⓗ H. Separate selected masonry waste and excess for landscape uses, either whole or crushed as ground cover.
- ⓓ I. Protect all installed masonry from damage and staining. Cover immediate ground area with materials that do not compromise termite treatment.
- ⓙ J. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

04200 UNIT MASONRY

- ④ A. Before proceeding with the Work, verify all unit, modular, and system requirements.

- END OF DIVISION -

- DIVISION 5 -

METALS

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, FIELD CONDITIONS, TEMPORARY BRACING, PROTECTION, AND METAL OFFCUTS.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

DELIVERY, STORAGE, AND HANDLING

- Ⓢ A. Store materials in a safe, dry, above ground location.
- Ⓢ B. Prevent contact with material that may cause corrosion, discoloration, or staining.

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. Where choices exist, preference is to be given to products and

materials with [EDIT TO SUIT PROJECT] recycled content or resource efficient characteristics [EDIT TO SUIT PROJECT].

PART 3 EXECUTION

WASTE MANAGEMENT

- ⑤ A. Separate and handle general construction waste in accordance with the Waste Management Plan.
- ⑤ B. Separate for recycling and place in designated containers the following metal waste in accordance with the Waste Management Plan and local recycler standards: [EDIT LIST TO SUIT PROJECT] steel, iron, galvanized steel, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
- ⑤ C. Fold up metal banding, flatten, and place in designated area.
- ⑤ D. Use the least toxic primers and sealers necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[SECTIONS FOR WHICH THE SAME ADDITIONAL PROVISIONS ARE APPLICABLE ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

05120 STRUCTURAL STEEL
05500 METAL FABRICATIONS
05510 METAL STAIRS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. The work of this section shall be manufactured or fabricated from metals with X% recycled content. [EDIT TO SUIT PROJECT.]

[DESIGNING TO ACCOMMODATE EARLY INSTALLATION AND PROTECTION OF PERMANENT STAIRS, HANDRAILS, AND TREADS MAY AVOID NECESSITY FOR TEMPORARY WORK.]

- END OF DIVISION -

- DIVISION 6 -

WOOD AND PLASTICS

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE WOOD REJECTS AND OFFCUTS, CORRUGATED CARDBOARD, PACKING MATERIALS, FIELD CONDITIONS, TEMPORARY BRACING, PROTECTION, PLASTICS, METALS, AND ESTIMATING ERRORS.

THIS DIVISION HAS VERY GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. OVER ONE HUNDRED PRODUCTS ARE AVAILABLE. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Where hardwoods or tropical or endangered woods are specified,

only those with written certification of sourcing from sustainably managed forests will be accepted. Acceptable certifiers are: [EDIT TO SUIT PROJECT.]

[LESSER KNOWN AND SUSTAINABLY HARVESTED ALTERNATIVES TO ENDANGERED AND UNAVAILABLE SPECIES CAN BE SPECIFIED. SPECIFY REUSE OF EXISTING OR SALVAGED ITEMS IF RELEVANT.]

- B. Where choices exist, preference is to be given to products and materials with [EDIT TO SUIT PROJECT] recycled content or resource efficient characteristics [EDIT TO SUIT PROJECT].

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- ④ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.

[WOOD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS, MARKETS, AND REGULATIONS.]

- ④ B. Do not burn scrap at the project site.
- ④ C. Separate wood waste in accordance with the Waste Management Plan and place in designated areas in the following categories for recycling: [EDIT TO SUIT PROJECT AND LOCATION.]
1. Solid wood/ softwood/ hardwood. [EDIT TO SUIT PROJECT]
 2. Composite wood, (for example, plywood, OSB, LVL, I-Joist, parallel strand, MDF, particleboard). [EDIT TO SUIT PROJECT]
 3. Treated, painted, or contaminated wood.
- ④ D. Separate wood waste in accordance with the Waste Management Plan and place in designated areas in the following categories for re-use on site: [EDIT TO SUIT PROJECT]
1. Sheet materials larger than [2 square feet][SPECIFY SIZE].
 2. Framing members larger than [24"]][SPECIFY SIZE].
 3. Multiple offcuts of any size larger than [12"]][SPECIFY SIZE].

- ④ E. Set aside damaged wood for acceptable alternative uses, for example use as bracing, blocking, cripples, or ties.
- ④ F. Sequence work to minimize use of temporary HVAC to dry out building and control humidity.
- ④ G. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[SECTIONS FOR WHICH THE SAME ADDITIONAL PROVISIONS ARE APPLICABLE ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

06100 ROUGH CARPENTRY

06170 PREFABRICATED STRUCTURAL WOOD

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Vertical studs to be of engineered wood, e.g., finger jointed studs.
- B. Beams and girders to be of engineered wood, e.g., LVL, parallel strand.
- C. Long span joists to be of engineered wood, e.g., wood I-joists, truss joists.

- ④ A. Store, protect, handle, and install prefabricated structural elements strictly in accordance with manufacturer's instructions. Keep products off the ground and protected. Pay particular attention to requirements for stacking, lifting, bracing, cutting, notching, and special fastening requirements.
- ④ B. Fold up metal banding, flatten, and place in designated area for recycling.
- ④ C. Store separated reusable wood waste convenient to cutting station and area of work.

06200 FINISH CARPENTRY

06400 ARCHITECTURAL WOODWORK

[SHOP FABRICATED AND PREFINISHED WORK, SPECIFIED IN SECTION 06400, CAN PROVIDE GREATER OPPORTUNITIES FOR WASTE REDUCTION AND ENVIRONMENTAL CONTROL THAN ON-SITE WORK.]

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. All substrate materials to be manufactured without the use of urea formaldehyde additives or permanently sealed to prevent outgassing.
- ⑤ A. Use non-toxic sealants, adhesives, sealers, and finishes.

06500 STRUCTURAL PLASTIC

[THIS IS AN APROPRIATE SECTION TO SPECIFY PLASTICS WITH UP TO 100% RECYCLED CONTENT FOR LIMITED STRUCTURAL APPLICATIONS SUCH PLASTIC LUMBER FOR DECKING. CONTENT CAN INCLUDE PLASTIC, WOOD, AND OTHER FIBERS FROM POST-CONSUMER OR POST-INDUSTRIAL WASTE. CONTENT CAN BE TARGETED, E.G., MILK JUGS.]

- ⑤ A. Set aside offcuts to be returned to manufacturer for recycling into new product. Place in designated area or provide for delivery to collection point. [USE WHEN SUPPLIER HAS RECYCLING PROGRAM.]

06600 PLASTIC FABRICATIONS

[THIS IS AN APROPRIATE SECTION TO SPECIFY PLASTIC PANELS WITH UP TO 100% RECYCLED CONTENT. CONTENT CAN INCLUDE PLASTIC, WOOD, AND OTHER FIBERS FROM POST-CONSUMER OR POST-INDUSTRIAL WASTE. CONTENT CAN BE TARGETED, E.G., CARPET.]

- ⑤ A. Set aside offcuts to be returned to manufacturer for recycling into new product. Place in designated area or provide for delivery to collection point. [USE WHEN SUPPLIER HAS RECYCLING PROGRAM.]

– END OF DIVISION –

- DIVISION 7 -

THERMAL AND MOISTURE PROTECTION

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE HAZARDOUS SOLIDS AND LIQUIDS, PACKING MATERIALS, FIELD CONDITIONS, PROTECTION, INSULATION, PLASTICS, METALS, AND ROOFING WASTE.

THIS DIVISION HAS VERY GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. OVER ONE HUNDRED PRODUCTS ARE AVAILABLE. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Where choices exist, preference is to be given to products and materials with [EDIT TO SUIT PROJECT] recycled content or

resource efficient characteristics [EDIT TO SUIT PROJECT].

- B. In the selection of the products and materials of this section preference will be given to those with the following characteristics: [EDIT TO SUIT SECTION:]
1. Water based.
 2. Water soluble.
 3. Water clean-up.
 4. Non-flammable.
 5. Biodegradable.
 6. Low Volatile Organic Compound (VOC) content.
 7. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 8. Manufactured without compounds which contribute to smog in the lower atmosphere.
 9. Does not contain methylene chloride.
 10. Does not contain chlorinated hydrocarbons.
 11. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
 12. Recycled content: X% [EDIT TO SUIT PROJECT] Waste

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- Ⓢ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- Ⓢ B. Fold up metal banding, flatten, and place in designated area for recycling.
- Ⓢ C. Use trigger operated spray nozzles for water hoses.
- Ⓢ D. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ E. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[SECTIONS FOR WHICH THE SAME ADDITIONAL PROVISIONS ARE APPLICABLE ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

07100 WATERPROOFING

- ⑤ A. Where choices exist, preference is to be given to coatings which are water based and require water clean up.

07200 INSULATION

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. The use of insulation products manufactured with CFC's as blowing agents is prohibited.
- B. Where choices exist in the provision of glass fiber insulation, preference is to be given to the following characteristics: [EDIT TO SUIT PROJECT.]
 1. Low or no formaldehyde emissions.
 2. Post-consumer recycled content.

[CELLULOSE INSULATION TYPICALLY HAS A HIGH RECYCLED CONTENT AND LOW TOXICITY FIRE AND INSECT TREATMENTS.]

- ⑤ A. Plan and coordinate the insulation work to minimize the generation of offcuts and waste. Sequence the work to maximize use of insulation offcuts and waste.
- ⑤ B. Where choices exist in the provision of glass fiber insulation, preference is to be given to the following characteristics: [EDIT TO SUIT PROJECT.]
 1. Suppliers who take back waste for reuse or recycling.

07300 SHINGLES AND ROOFING TILES

- ⑤ A. Separate waste organic and glass fiber shingle and felt as required by local recycling facilities and provide for delivery to collection facility. Ensure no contamination with nails, staples, accessories, or other materials.

07400 MANUFACTURED ROOFING AND SIDING

07500 MEMBRANE ROOFING

[MEMBRANE SYSTEMS MAY GENERATE LESS HAZARDOUS WASTE AND OTHER WASTE THAN BUILT-UP ROOFING.]

07600 FLASHING AND SHEET METAL**07610 SHEET METAL ROOFING**

- ⑤ A. Separate metal waste in accordance with the Waste Management Plan and place in designated areas for recycling.

07900 JOINT SEALERS

- ⑤ A. Close and seal tightly all partly used sealant containers and store protected in well ventilated fire-safe area at moderate temperature.
- ⑤ B. Place used sealant tubes and other containers in areas designated for hazardous materials.

– END OF DIVISION –

- DIVISION 8 -

DOORS AND WINDOWS

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE CORRUGATED CARDBOARD, PACKING MATERIALS, FIELD CONDITIONS, PROTECTION, AND ORDERING OR DELIVERY ERRORS.

THIS DIVISION HAS GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. Where choices exist, preference is to be given to products and materials with [EDIT TO SUIT PROJECT] recycled content or resource efficient characteristics [EDIT TO SUIT PROJECT].

[SPECIFY REUSE OF EXISTING OR SALVAGE ITEMS IF RELEVANT.]

PART 3 EXECUTION

WASTE MANAGEMENT

- ⑤ A. Provide covered storage area to protect materials and products from sunlight, moisture, staining, and impact or other damage.

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- ⑤ B. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- ⑤ C. Place materials defined as hazardous or toxic waste in designated containers.
- ⑤ D. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.
- ⑤ E. Close and seal tightly all partly used sealant containers and store protected in well ventilated fire-safe area at moderate temperature.
- ⑤ F. Place used sealant tubes and other containers in areas designated for hazardous materials.

SPECIFIC SECTIONS

[SECTIONS FOR WHICH THE SAME ADDITIONAL PROVISIONS ARE APPLICABLE ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

08100 METAL DOORS AND FRAMES
 08200 WOOD AND PLASTIC DOORS
 08300 SPECIAL DOORS
 08400 ENTRANCES AND STOREFRONTS

- ⑤ A. Separate wood and metal spreader bars for reuse or recycling.
- ⑤ B. Separate protective materials for reuse or recycling.

08500 METAL WINDOWS
 08600 WOOD AND PLASTIC WINDOWS
 08800 GLAZING
 08900 GLAZED CURTAIN WALLS

[THE GLASS WASTE GENERATED BY THE WORK OF THESE SECTIONS MAY NOT BE COMPATIBLE WITH TYPICAL GLASS CONTAINER RECYCLING. CHECK YOUR PROJECT LOCATION FOR RECYCLING STANDARDS.]

- ⑤ A. Separate protective materials for reuse or recycling.

- END OF DIVISION -



- DIVISION 9 -

FINISHES

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE GYPSUM BOARD, CORRUGATED CARDBOARD, PACKING MATERIALS, HAZARDOUS SOLIDS AND FLUIDS, FIELD CONDITIONS, PROTECTION, AND FLOORING OFFCUTS.

THIS DIVISION HAS VERY GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. OVER ONE HUNDRED PRODUCTS ARE AVAILABLE. SEE APPENDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. In the selection of paints, coatings, adhesives, solvents, cleaners, lubricants, and other fluids, preference will be given to those with

the following characteristics: [EDIT TO SUIT PROJECT:]

1. Water based.
2. Water soluble.
3. Water clean-up.
4. Non-flammable.
5. Biodegradable.
6. Low Volatile Organic Compound (VOC) content.
7. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
8. Manufactured without compounds which contribute to smog in the lower atmosphere.
9. Does not contain methylene chloride.
10. Does not contain chlorinated hydrocarbons.
11. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
12. Recycled content: X% [EDIT TO SUIT PROJECT] Waste.

PART 3 EXECUTION

WASTE MANAGEMENT

- Ⓢ A. Separate and recycle offcuts and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ C. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ D. Use trigger operated spray nozzles for water hoses.
- Ⓢ E. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

[THERE ARE MANY INNOVATIVE USES FOR WHOLE OR PARTIAL FINISH MATERIALS WHICH CANNOT BE USED ON-SITE. CHECK THE PROJECT LOCATION FOR COMMUNITY ORGANIZATIONS OR ENTREPRENEURS WHO HAVE USES FOR WASTE FINISH MATERIALS.]

- Ⓢ F. Set aside and protect the following surplus and uncontaminated waste finish materials: [EDIT TO SUIT PROJECT AND LOCATION]. Deliver to or arrange collection by employees, individuals, or organizations [EDIT TO SUIT PROJECT AND LOCATION] for verifiable re-use or re-manufacturing.
- Ⓢ G. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

- ⑤ H. Place used sealant and adhesive tubes and containers in areas designated for hazardous waste.

SPECIFIC SECTIONS

[SECTIONS WITH SIMILAR WASTE CHARACTERISTICS ARE SHOWN GROUPED. INSERT THE FOLLOWING ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

- 09200 LATH AND PLASTER
 09250 GYPSUM BOARD
 09260 GYPSUM BOARD SYSTEMS

[GYPSUM BOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- ⑤ A. Separate clean waste gypsum products from contaminants for recycling. Do not include wood, plastic, metal, asphalt impregnated gypsum board, or any gypsum board coated with glass fiber, vinyl, decorative paper, or other finish. Place in designated area and protect from moisture and contamination.
- ⑤ B. Clean waste gypsum products are to be recycled by: [EDIT TO SUIT PROJECT AND LOCATION.]
- ⑤ 1. Hauling to gypsum board manufacturer in lieu of landfill.
- ⑤ 2. Hauling to alternative use manufacturer in lieu of landfill.
- ⑤ 3. Pulverizing and applying on-site as soil amendment in accordance with landscape specifications. Protect granular material from moisture.
- ⑤ C. Separate metal waste in accordance with the Waste Management Plan and place in designated areas for recycling or reuse.

- 09300 TILE
 09550 WOOD FLOORING
 09650 RESILIENT FLOORING
 09680 CARPET

[WASTE CARPET RECYCLING IS EVOLVING. TECHNIQUES VARY ACCORDING TO THE TYPE OF FIBER AND BACKING MATERIAL AND LOCAL RECYCLING OR COLLECTION FACILITIES.]

- ⑤ A. Set aside and protect offcuts and remainders greater than [2 square feet][SPECIFY SIZE] for re-use, [EDIT TO SUIT PROJECT AND LOCATION] for example, by owner, Habitat for Humanity, or animal shelter.

09800 SPECIAL COATINGS
09900 PAINTING

[LOCAL OPTIONS AND REQUIREMENTS FOR DEALING WITH THE WASTE PRODUCTS OF THESE SECTIONS VARY GREATLY AND ARE USUALLY VERY SPECIFIC. CHECK YOUR SPECIFIC PROJECT LOCATION. LANDFILLS MAY REQUIRE CONTAINERS TO BE OPEN, EMPTY, AND DRY. CLEAN CONTAINERS MAY BE REUSED OR RECYCLED, BUT CLEANING MAY BE RESTRICTED. PAINT RECYCLING MAY BE AVAILABLE LOCALLY.]

- Ⓢ A. Use trigger operated spray nozzles for water hoses.
- Ⓢ B. Where choices exist, preference is to be given to coatings which have the following characteristics:
 - 1. Water based.
 - 2. Require water clean up.
 - 3. Low in Volatile Organic Compounds (VOC).
 - 4. Do not contain toxic metal pigments.
- Ⓢ C. Do not use kerosene or any such organic solvents to thin or clean up water based paints.
- Ⓢ D. Do not dispose of paints or solvents by pouring on the ground. Place in designated containers for proper disposal.
- Ⓢ E. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.

- END OF DIVISION -

- DIVISION 10 -**SPECIALTIES**

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE CORRUGATED CARDBOARD, PACKING MATERIALS, FIELD CONDITIONS, AND PROTECTION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

In the selection of materials and products, preference will be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]

1. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]

- 2. Recycled content: X% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
- 3. Recycled content: 100% [OTHER][[EDIT TO SUIT PROJECT] Waste.
- 4. Recycled content: X% [OTHER][[EDIT TO SUIT PROJECT] Waste.
- 5. Factory applied coatings.
- 6. Powder based coatings.
- 7. Coatings with low Volatile Organic Compound (VOC) content.

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- Ⓢ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- Ⓢ B. Separate and recycle waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ C. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ D. Supplier is to take back shipping and packing materials for re-use or recycling to the maximum extent economically feasible.
- Ⓢ E. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS Not Used.

- END OF DIVISION -

- DIVISION 11 -**EQUIPMENT**

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE CORRUGATED CARDBOARD, PACKING MATERIALS, HAZARDOUS FLUIDS, FIELD CONDITIONS, AND PROTECTION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

In the selection of equipment, preference will be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]

1. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
2. Recycled content: X% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]

3. Recycled content: 100% [OTHER][EDIT TO SUIT PROJECT] Waste.
4. Recycled content: X% [OTHER][EDIT TO SUIT PROJECT] Waste.
5. Factory applied coatings.
6. Powder based coatings.
7. Coatings and fluids with low Volatile Organic Compound (VOC) content.
8. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
9. Manufactured without compounds which contribute to smog in the lower atmosphere.
10. High energy efficiency.
11. Low water consumption.
12. Does not generate hazardous or toxic waste.

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- ⓐ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- ⓑ B. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- ⓒ C. Place materials defined as hazardous or toxic waste in designated containers.
- ⓓ D. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- ⓔ E. Supplier is to take back shipping and packing materials for re-use or recycling to the maximum extent economically feasible.

SPECIFIC SECTIONS

[SECTIONS WITH SIMILAR WASTE CHARACTERISTICS ARE SHOWN GROUPED. INSERT ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

- 11170 SOLID WASTE HANDLING EQUIPMENT
- 11400 FOOD SERVICE EQUIPMENT
- 11450 RESIDENTIAL EQUIPMENT

[THESE SECTIONS ARE APPROPRIATE LOCATIONS FOR THE PROVISIONS LISTED ABOVE WHEN MORE SPECIFIC SECTIONS ARE NOT USED.]

[SECTION 11170 IS AN APPROPRIATE LOCATION FOR PROVISIONS WHICH ADDRESS OR COORDINATE WITH END USER WASTE REDUCTION MEASURES.]

- END OF DIVISION -

- DIVISION 12 -

FURNISHINGS

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

- 00000 DOCUMENTS
- DIV 1 GENERAL REQUIREMENTS
- 01010 SUMMARY OF THE WORK
- 01094 DEFINITIONS
- 01500 CONSTRUCTION FACILITIES
- 01505 CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE CORRUGATED CARDBOARD, PACKING MATERIALS, FIELD CONDITIONS, AND PROTECTION.

THIS DIVISION HAS VERY GOOD POTENTIAL FOR THE INCORPORATION OF PRODUCTS AND MATERIALS WITH RECYCLED CONTENT. ALMOST ONE HUNDRED PRODUCTS ARE AVAILABLE. SEE APPEDIX E FOR RESOURCES.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. In the selection of furnishings, preference will be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]

1. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
2. Recycled content: X% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
3. Recycled content: 100% [OTHER][EDIT TO SUIT PROJECT] Waste.
4. Recycled content: X% [OTHER][EDIT TO SUIT PROJECT] Waste.
5. Factory applied coatings.
6. Powder based coatings.
7. Coatings with low Volatile Organic Compound (VOC) content.

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- Ⓢ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- Ⓢ B. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ C. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ D. Supplier is to take back shipping and packing materials for re-use or recycling to the maximum extent economically feasible.
- Ⓢ E. Containers and packing materials which are reusable, such as shipping blankets, are to be used in the delivery of the products and materials of this section.

[IT HAS BEEN REPORTED THAT ONE MANUFACTURER HAS FOUND THAT FURNITURE IS MORE LIKELY TO BE DAMAGED DURING REMOVAL FROM CARDBOARD BOXES THAN DURING TRANSIT.]

SPECIFIC SECTIONS

[SECTIONS WITH SIMILAR WASTE CHARACTERISTICS ARE SHOWN GROUPED. INSERT ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

- 12300 MANUFACTURED CASEWORK
- 12600 FURNITURE AND ACCESSORIES

[THESE SECTIONS ARE APPROPRIATE LOCATIONS FOR THE PROVISIONS LISTED ABOVE WHEN MORE SPECIFIC SECTIONS ARE NOT USED.]

- END OF DIVISION -

- DIVISION 13 -

SPECIAL CONSTRUCTION

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, TEMPORARY BRACING, AND PROTECTION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC.]

PART 3 EXECUTION

WASTE MANAGEMENT

- ⑮ A. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.



- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ C. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ D. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS Not Used.

- END OF DIVISION -

- DIVISION 14 -

CONVEYING SYSTEMS

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, HAZARDOUS FLUIDS, FIELD CONDITIONS, TEMPORARY BRACING, AND PROTECTION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

In the selection of conveying systems, materials, and equipment, preference will be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]

1. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
2. Recycled content: X% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]

3. Recycled content: 100% [OTHER][EDIT TO SUIT PROJECT] Waste.
4. Recycled content: X% [OTHER][EDIT TO SUIT PROJECT] Waste.
5. Factory applied coatings.
6. Powder based coatings.
7. Coatings and fluids with low Volatile Organic Compound (VOC) content.
8. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
9. Manufactured without compounds which contribute to smog in the lower atmosphere.
10. High energy efficiency.
11. Low Electromagnetic Field (EMF) emissions.
12. Components do not contain or generate hazardous or toxic materials.

PART 3 EXECUTION

WASTE MANAGEMENT

- Ⓢ A. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ C. Collect and recycle waste hydraulic jack oil.
- Ⓢ D. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ E. Use the least toxic lubricants, cleaners, sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS Not Used.

– END OF DIVISION –

- DIVISION 15 -**MECHANICAL**

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE PACKING MATERIALS, HAZARDOUS FLUIDS, FIELD CONDITIONS, METAL OFFCUTS, AND INSULATION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISIONS.]

- A. Where choices exist in the selection of solvents, lubricants, and other fluids, preference is to be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]
 1. Water based.
 2. Water soluble.
 3. Water clean-up.
 4. Low Volatile Organic Compound (VOC) content.



- B. Where choices exist in the selection of systems, refrigerants and gases, preference is to be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]
 1. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
 2. Manufactured without compounds which contribute to smog in the lower atmosphere.

- C. [WHEN HVAC SYSTEM HAS BEEN DESIGNED TO COMPLY, INSERT:] Provide building HVAC systems consistent with standards set forth in ANSI/ASHRAE 62-1989 and Addendum 62a-1990, "Ventilation for Acceptable Indoor Air Quality".

PART 3 EXECUTION

WASTE MANAGEMENT

- Ⓢ A. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.

- Ⓢ B. Place materials defined as hazardous or toxic waste in designated containers.

- Ⓢ C. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.

- Ⓢ D. Use trigger operated spray nozzles for water hoses.

- Ⓢ E. Use the least toxic sealants, adhesives, lubricants, sealers, and finishes necessary to comply with the requirements of this section.

- Ⓢ F. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

- Ⓢ G. Place used sealant and adhesive tubes and containers in areas designated for hazardous waste.

SPECIFIC SECTIONS

[SECTIONS WITH SIMILAR WASTE CHARACTERISTICS ARE SHOWN GROUPED. INSERT ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

- 15050 BASIC MECHANICAL MATERIALS AND METHODS
- 15400 PLUMBING
- 15500 HEATING, VENTILATING, AND AIR CONDITIONING

[THESE SECTIONS ARE APPROPRIATE LOCATIONS FOR THE PROVISIONS LISTED ABOVE WHEN MORE SPECIFIC SECTIONS ARE NOT USED.]

- END OF DIVISION -

- DIVISION 16 -

ELECTRICAL

REFER TO THE FOLLOWING RELATED SPECIFICATION DOCUMENTS AND SECTIONS FOR TECHNICAL SUPPORT, PROCEDURES, AND COORDINATION WHEN USING THIS WASTESPEC DIVISION:

00000	DOCUMENTS
DIV 1	GENERAL REQUIREMENTS
01010	SUMMARY OF THE WORK
01094	DEFINITIONS
01500	CONSTRUCTION FACILITIES
01505	CONSTRUCTION WASTE MANAGEMENT

SIGNIFICANT FACTORS IN THE GENERATION OF WASTE IN THIS DIVISION INCLUDE CORRUGATED CARDBOARD, PACKING MATERIALS, FIELD CONDITIONS, WIRE, METAL PANELS, PUNCHOUTS AND OFFCUTS, AND PROTECTION.

UNDER THE FOLLOWING OR SIMILAR HEADINGS, INSERT APPLICABLE STATEMENTS.

PART 1 GENERAL

RELATED SECTIONS

- A. Section 01500 Construction Facilities.
- B. Section 01505 Construction Waste Management.

PART 2 PRODUCTS

ENVIRONMENTAL CONSIDERATIONS

[THIS IS AN APPROPRIATE LOCATION FOR ADDITIONAL LANGUAGE PERTAINING TO ENVIRONMENTAL ISSUES BEYOND THE SCOPE OF THIS WASTESPEC, SUCH AS THE FOLLOWING PROVISION.]

- A. In the selection of electrical materials and equipment, preference will be given to those with the following characteristics: [EDIT TO SUIT PROJECT.]
 1. Recycled content: 100% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]
 2. Recycled content: X% Post-consumer or Post-industrial Waste. [EDIT TO SUIT PROJECT.]

3. Recycled content: 100% [OTHER][EDIT TO SUIT PROJECT] Waste.
4. Recycled content: X% [OTHER][EDIT TO SUIT PROJECT] Waste.
5. Factory applied coatings.
6. Powder based coatings.
7. Coatings and fluids with low Volatile Organic Compound (VOC) content.
8. Manufactured without compounds which contribute to ozone depletion in the upper atmosphere.
9. Manufactured without compounds which contribute to smog in the lower atmosphere.
10. High energy efficiency.
11. Low Electromagnetic Field (EMF) emissions.
12. Components do not contain or generate hazardous or toxic materials.

PART 3 EXECUTION

WASTE MANAGEMENT

[CORRUGATED CARDBOARD IS ONE OF THE LARGEST SOURCES OF CONSTRUCTION WASTE. CHECK YOUR SPECIFIC PROJECT LOCATION FOR RECYCLING OPTIONS AND REGULATIONS.]

- Ⓢ A. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- Ⓢ B. Separate and recycle cut-offs and waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- Ⓢ C. Place materials defined as hazardous or toxic waste in designated containers.
- Ⓢ D. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- Ⓢ E. Use the least toxic sealants, adhesives, lubricants, sealers, and finishes necessary to comply with the requirements of this section.

SPECIFIC SECTIONS

[INSERT ADDITIONAL PROVISIONS UNDER PART 3 EXECUTION, WASTE MANAGEMENT, UNLESS OTHERWISE NOTED.]

16050 BASIC ELECTRICAL MATERIALS AND METHODS

[THIS SECTION IS AN APPROPRIATE LOCATION FOR THE PROVISIONS LISTED ABOVE WHEN SPECIFIC SECTIONS ARE NOT USED.]

- END OF DIVISION -





- Appendix A -

**Information for Bidders:
Preparing Estimates on Recycling**

I. Estimating the amount of recyclable waste: generation rates

One method of estimating the generation of different types of waste is to get average figures of waste generation for different construction materials. The following are estimates by material:

Corrugated cardboard	7.5% of commercial construction waste (10% of residential construction waste) is scrap corrugated cardboard.
Dimensional lumber and pallets	18% of commercial construction waste (25% of residential construction waste) is scrap dimensional lumber and pallets.
Metals	4.5% of commercial construction waste (1% of residential construction waste) is scrap metal.
Gypsum wallboard:	1/2 pound per square foot of commercial floor area (1 pound per square foot of residential floor area) becomes scrap.
Concrete	15% of commercial construction waste (4.5% of residential construction waste) is scrap concrete.

(Sources: "A New Methodology for Quantifying Construction Waste", Peter Yost and John M. Halstead, in *Sustainable Construction: Proceedings of the First International Conference of CIB TG 16* (1994), University of Florida College of Architecture; *Construction Materials Recycling Guidebook — A Guide to Reducing and Recycling Construction and Remodeling Waste*, Metropolitan Council of the Twin Cities Area, 1993.)

Another method is to look at generation rates from similar projects. Several studies have been conducted on the amount of recyclable waste generated on commercial and multi-family residential construction projects:

- Construction of a 5,000-square foot restaurant

Construction of this restaurant generated 12,344 pounds of waste, or 2.46 pounds per square foot. This waste included the following recyclable materials:

Wood	7,440 pounds	(61% of the waste)
Cardboard	1,414 pounds	(11% of the waste)
Gypsum wallboard	500 pounds	(4% of the waste)

(Source: *Characterization of Construction Site Waste* (1993), Metro Solid Waste Department (Portland OR).)

- Construction of a 17-unit apartment complex using pre-cut lumber packages

Construction of this apartment complex resulted in 28,434 pounds of waste, or 2 pounds per square foot. This waste included the following recyclable materials:

Wood	16,169 pounds	(57% of the waste)
Cardboard	917 pounds	(3% of the waste)
Gypsum wallboard	6,997 pounds	(25% of the waste)

(Source: *Characterization of Construction Site Waste* (1993), Metro Solid Waste Department (Portland OR).)

- Six commercial renovation projects

These six commercial renovation projects averaged the following percentages of recyclable materials:

Untreated dimensional wood	5% of all project waste
Cinderblock	19% of all project waste
Concrete without rebar	22% of all project waste
Ferrous scrap	5% of all project waste

(Source: "What's in a Building?", *Demolition Age*, September 1993.)

- Construction of one residential low-rise building and one commercial low-rise building

Construction of these two buildings generated the following percentages of recyclable materials:

Wood from the residential	31% of all project waste
Wood from the commercial	8% of all project waste

(Source: Metropolitan Toronto Waste Composition Study, 1991, cited in *Construction Waste & Demolition Debris Recycling . . . A Primer* (1993) Solid Waste Association of North America (Silver Spring MD.)

II. Estimating the amount of recyclable waste : conversion figures

Mixed Waste	350 lbs/cu yd	0.175 tons/cu yd	5.7 cu yds/ton
Wood	300 lbs/cu yd	0.15 tons/cu yd	6.7 cu yds/ton
Cardboard	100 lbs/cu yd	0.05 tons/cu yd	20 cu yds/ton
Gypsum wallboard	500 lbs/cu yd	0.25 tons/cu yd	4 cu yds/ton
Rubble	1400 lbs/cu yd	0.7 tons/cu yd	1.4 cu yds/ton

(Source: *Resource Efficient Building* (1994), Metro Solid Waste Department (Portland OR).)

III. Tips on reducing the cost of recycling

- Schedule containers for collecting recyclables only when needed. For example, rent a collection container for cardboard only during the latter part of construction, when the majority of cardboard waste is generated.
- Be sure to understand the market specifications so that recyclable materials are not rejected. For example, some markets for clean wood waste accept only dimensional lumber; others also accept plywood, particle board, and oriented strand board.
- Encourage scrap dealers to be flexible when possible. For example, a scrap metal dealer who initially refused to accept metal bands from around lumber was convinced to accept them when they were repeatedly folded and hit with a hammer, then put into an empty 5-gallon plastic bucket, so as to create a more dense item for transportation. (Creating these more dense bundles of metal bands also had the advantage of cutting down on injuries at the construction site.)

IV. Estimating the cost of waste management encompassing recycling

The following steps will help arrive at an estimate of the cost of construction waste management which involves recycling certain materials.

• **Step One: Estimate Total Project Waste and Amounts of Recyclable Materials.**

(1) Estimate the Total Project Waste in cubic yards (cy). (1) _____ cy
(Use information from previous comparable projects.)

For each material to be recycled, estimate the amount of waste to be recycled. If necessary, use typical percentages of commercial construction waste provided in section I above and multiply percentage by Total Project Waste in line (1) above. Add lines as necessary.

- (2a) Recyclable material #1 (identify): _____ (2a) _____ cy
- (2b) Recyclable material #2 (identify): _____ (2b) _____ cy
- (2c) Recyclable material #3 (identify): _____ (2c) _____ cy
- (2d) Recyclable material #4 (identify): _____ (2d) _____ cy
- (2e) Recyclable material #5 (identify): _____ (2e) _____ cy
- (2f) Recyclable material #6 (identify): _____ (2f) _____ cy

(2) Add the total cubic yards in (2a) through (2f) above to get the Total Recyclable Materials Amount (2) _____ cy

(3) Subtract line (2) from line (1) to get the Non-recyclable Material Amount (3) _____ cy

• **Step Two: Estimate the cost of waste management if you use one recycling hauler.** (Note: This service is not available in all local areas.)

(4) If you use a hauler to collect all waste and sort out the recyclables and recycle them, then record the cost per cubic yard for this service (including all hauling, container rental, and tipping fee charges). (4) \$ _____ /cy

(5) Multiply the cost from line (4) by line (1) to get the **Net Total Cost of Waste Management using one hauler who separates out recyclables.** (5) \$ _____

- **Step Three: Estimate the cost of recycling if you separate materials on site and have them hauled separately to market.** (This is an alternative to Step Two.)

Estimate the cost of transporting to market each recyclable material you plan to transport using an outside hauler who provides containers. Add lines as necessary.

(6a) Divide cubic yards of one recyclable material (identify) _____ from line (2) by container capacity, round off to nearest whole number (___), and multiply by container hauling cost. Add cost of container rental if not included in hauling cost. (6a) \$ _____

(6b) Divide cubic yards of another recyclable material (identify) _____ from line (2) by container capacity, round off to nearest whole number (___), and multiply by container hauling cost. Add cost of container rental if not included in hauling cost. (6b) \$ _____

(6c) Divide cubic yards of another recyclable material (identify) _____ from line (2) by container capacity, round off to nearest whole number (___), and multiply by container hauling cost. Add cost of container rental if not included in hauling cost. (6c) \$ _____

(6) Add lines (6a) through (6c). (6) \$ _____

Estimate the cost of transporting to market each recyclable material you plan to transport to market yourself. Add lines as necessary.

(7a) Divide cubic yards of recyclable material (identify) _____ from line (2) by per load capacity, round off to nearest whole number (___), multiply by hours per trip (___) and per hour labor and trucking costs (\$___). (7a) \$ _____

(7b) Divide cubic yards of recyclable material (identify) _____ from line (2) by per load capacity, round off to nearest whole number (___), multiply by hours per trip (___) and per hour labor and trucking costs (\$___). (7b) \$ _____

(7c) Divide cubic yards of recyclable material (identify) _____ from line (2) by per load capacity, round off to nearest whole number (___), multiply by hours per trip (___) and per hour labor and trucking costs (\$___). (7c) \$ _____

(7) Add lines (7a) through (7c) (7) \$ _____

Estimate the amount of revenue to be received from selling each material in lines (8a) through (8c). Add lines as necessary.

(8a) Multiply cubic yards of recyclable material identified in line (7a) by market price per cubic yard for that material (\$___). (Use conversion table in section II above if necessary). (8a) \$ _____

(8b) Multiply cubic yards of recyclable material identified in line (7b) by market price per cubic yard for that material (\$___). (Use conversion table in section II above if necessary). (8b) \$ _____

(8c) Multiply cubic yards of recyclable material identified in line (7c) by market price per cubic yard for that material (\$___). (Use conversion table in section II above if necessary). (8c) \$ _____

(8) Add lines (8a) though (8c). (8) \$ _____

(9) Subtract line (8) from line (7). (9) \$ _____

(10) Estimate the number of extra hours needed to sort and monitor separated waste (___) and multiply by per hour labor cost (\$___). (10) \$ _____

(11) Estimate the cost of disposing of nonrecyclable waste by multiplying the Nonrecyclable Material Amount from line (3) above by the cost per cubic yard of disposing of this waste in a landfill, including container rental, transportation, labor, and landfill tipping fee. (Use conversion figures in section II above if necessary). (11) \$ _____

(12) Add lines (6), (9), (10) and (11) to get the Net Total Cost of Waste Management using source separation of recyclables. (12) \$ _____

- **Step Four: For comparison, calculate the cost of landfilling all project waste.**

(13) Divide Total Project Waste in (1) above by container capacity, round off to nearest whole number ___, and multiply by container hauling cost (\$___) to get Cost of Landfilling: \$_____. Add all costs for container rental and all tipping fees if not included in hauling cost to get Cost of Landfilling All Project Waste. (13) \$ _____

- Appendix B -

State, Provincial, & Puerto Rican Recycling Coordinators

(Source: *The Recyclers Directory*, Resource Recycling, Inc., August 1994)

STATE

Alabama

Michael W. Forster, Recycling
Coordinator
Solid Waste Branch
Department of Environmental
Management
PO Box 301463
Montgomery, AL 36130-1463
Phone: (205) 270-5651
Fax: (205) 271-7950

California

Dan Gorfain, Manager
Markets, Research & Technology
Division
Integrated Waste Management Board
8800 Cal Center Drive
Sacramento, CA 95826-2205
Phone: (916) 255-2320
Fax: (916) 255-2222

Alaska

David Wigglesworth, Chief
Pollution Prevention Office
Department of Environmental
Conservation
3601 C Street, Suite 1334
Anchorage, AK 99503
Phone: (907) 273-4303
Fax: (907) 562-4026

Colorado

Kelly Blair Roberts, Recycling
Coordinator
Office of Energy Conservation
Governor's Office
1675 Broadway, #1300
Denver, CO 80202-4613
Phone: (303) 620-4292
Fax: (303) 620-4288

Arizona

Tammy Shreeve, Recycling Unit
Manager
Office of Waste Programs
3033 N. Central Avenue, 5th Floor
Phoenix, AZ 85012
Phone: (602) 207-2300
Fax: (602) 207-4467

Connecticut

Kim Trella, State Recycling
Coordinator
Bureau of Waste Management/
Recycling
Department of Environmental
Protection
79 Elm Street
Hartford, CT 06106
Phone: (203) 566-8722
Fax: (203) 566-4924

Arkansas

Bill Reinhardt, Chief Recycling
Coordinator
Recycling Division
Department of Pollution Control &
Ecology
PO Box 8913
Little Rock, AR 72219-8913
Phone: (501) 562-6533
Fax: (501) 562-2541

Delaware

Rich Von Stetten, Recycling Supervisor
Delaware Solid Waste Authority
PO Box 455
Dover, DE 19903-0455
Phone: (302) 739-5361
Fax: (302) 739-4287

District of Columbia

Evelyn Shields, Program Manager
 Ermon Green, Acting Program
 Manager
 Office of Recycling
 Department of Public Works
 65 K Street, N.E. Lower Level
 Washington, DC 20002
 Phone: (202) 727-5887
 Fax: (202) 727-5872

Florida

Ron Henricks, Environmental
 Administrator
 Solid Waste
 Department of Environmental
 Protection
 2600 Blair Stone Road
 Tallahassee, FL 32301
 Phone: (904) 922-6104
 Fax: (904) 922-4939

Georgia

Paula Longo, State Recycling
 Coordinator
 Georgia Clean & Beautiful
 Department of Community Affairs
 100 Peachtree Street, #1200
 Atlanta, GA 30303
 Phone: (404) 656-5534
 Fax: (404) 656-6644

Hawaii

John Harder, Solid Waste Coordinator
 Office of Solid Waste Management
 Department of Health
 5 Waterfront Plaza, Suite 250
 500 Ala Moana Boulevard
 Honolulu, HI 96813
 Phone: (808) 586-4240
 Fax: (808) 586-4370

Idaho

Katie Sewell, Recycling Coordinator
 Division of Environmental Quality
 Department of Health and Welfare
 1410 N. Hilton
 Boise, ID 83706
 Phone: (208) 334-5860
 Fax: (208) 334-0576

Illinois

Mike Collins, Director
 Office of Recycling & Waste Reduction
 Department of Energy & Natural
 Resources
 325 W. Adams, #300
 Springfield, IL 62704
 Phone: (217) 524-5454
 Fax: (217) 524-4177

Indiana

Tom Neltner, Recycling Coordinator
 Solid & Hazardous Waste
 Management
 Department of Environmental
 Management
 PO Box 6015
 Indianapolis, IN 46206-6015
 Phone: (317) 0 232-8172
 Fax: (317) 232-5539

Iowa

Tom Collins/Gaye Wiekierak
 DNR/Waste Management Assistance
 Division
 Wallace State Office Building
 900 E. Grand Avenue
 Des Moines, IA 50319-0034
 Phone: (515) 281-8941
 Fax: (515) 281-8895

Kansas

Claud S. Shelor, Coordinator
 Waste Reduction, Recycling & Market
 Development
 Industrial Development
 Department of Commerce and
 Housing
 700 S. W. Harrison Street, Suite 1300
 Topeka, KS 66603-3712
 Phone: (913) 296-3483
 Fax: (913) 296-3490

Kentucky

Vicki Pettus, Manager
 Resource Conservation & Local
 Assistance
 Division of Solid Waste
 18 Reilly Road
 Frankfort, KY 40601
 Phone: (502) 564-6716
 Fax: (502) 564-4049

Michigan

Lonnie C. Lee, Chief
 Resource Recovery Section
 Waste Management Division
 Department of Natural Resources
 PO Box 30241
 Lansing, MI 48909
 Phone: (517) 373-4735
 Fax: (517) 373-4797

Louisiana

Michael Vince
 Solid Waste Division
 Department of Environmental Quality
 PO Box 82178
 Baton Rouge, LA 70884-2178
 Phone: (504) 765-0249
 Fax: (504) 765-0299

Minnesota

Kevin Johnson, Supervisor
 Research & Planning
 Office of Environmental Assistance
 1350 Energy Lane, #201
 St. Paul, MN 55108
 Phone: (612) 649-5788
 Fax: (612) 649-5749

Maine

Jody Harris, Director
 Office of Waste Reduction & Recycling
 Waste Management Agency
 State House Station, #154
 Augusta, ME 04333
 Phone: (207) 287-5300
 Fax: (207) 287-5425

Mississippi

Tom Whitten, Director
 Waste Reduction/Waste Minimization
 Department of Environmental Quality
 PO Box 10385
 Jackson, MS 39289
 Phone: (601) 961-5241
 Fax: (601) 961-5376

Maryland

Lori Scozzafava, Chief
 Division of Recycling
 Department of the Environment
 2500 Broening Highway
 Baltimore, MD 21224
 Phone: (410) 631-3315
 Fax: (410) 631-3321

Missouri

Kathy Weinsaft, Recycling
 Coordinator
 Solid Waste Management Program/
 Planning Unit
 Department of Natural Resources
 PO Box 176
 Jefferson City, MO 65102-0176
 Phone: (314) 751-5401
 Fax: (314) 526-3902

Massachusetts

Robin Ingenthron, Director of
 Recycling
 Division of Solid Waste Management
 Department of Environmental
 Protection
 One Winter Street, 4th Floor
 Boston, MA 02108
 Phone: (617) 292-5960
 Fax: (617) 556-1049

Montana

Christine Kaufman, Coordinator
 Waste Reduction and Recycling
 Solid Waste Program
 Department of Health &
 Environmental Sciences
 Cogswell Building
 Helena, MT 59601
 Phone: (406) 444-1430
 Fax: (406) 444-1427

Nebraska

Steve Danahy, Recycling Coordinator
 Material Division
 Department of Administrative
 Services
 PO Box 94847
 Lincoln, NE 68509-4847
 Phone: (402) 471-2431
 Fax: (402) 471-2089

Nevada

Tom Polikalas, Recycling Coordinator
 Waste Management Bureau
 333 W. Nye
 Capitol Complex
 Carson City, NV 89710
 Phone: (702) 687-5872 x 3003
 Fax: (702) 885-0868

New Hampshire

Elizabeth A. Bedard, Coordinator
 Governor's Recycling Program
 Office of State Planning
 2 1/2 Beacon Street
 Concord, NH 03301
 Phone: (603) 271-1098
 Fax: (603) 271-1728

New Jersey

Guy Watson, Bureau Chief
 Source Reduction & Market
 Development
 Division of Solid Waste Management
 Department of Environmental
 Protection & Energy
 840 Bear Tavern Road
 Trenton, NJ 08625-0414
 Phone: (609) 530-8208
 Fax: (609) 530-8899

New Mexico

Judy Kowalski, Director
 Recycling Programs
 Energy, Minerals and Natural
 Resources
 2040 S. Pacheco Street
 Santa Fe, NM 87505
 Phone: (505) 827-5993
 Fax: (505) 438-3855

New York

William C. Colden, Chief
 Bureau of Waste Reduction &
 Recycling
 Department of Environmental
 Conservation
 50 Wolf Road
 Albany, NY 12233-4015
 Phone: (518) 457-7337
 Fax: (518) 457-1283

North Carolina

Mary Beth Powell, Manager
 Solid Waste Reduction Program
 Office of Waste Reduction
 Environment, Health & Natural
 Resources
 3825 Barrett Drive
 Raleigh, NC 27609
 Phone: (919) 571-4100
 Fax: (919) 571-4135

North Dakota

Bob Tubbs, Recycling Coordinator
 Department of Health
 Solid Waste Program
 PO Box 5520
 Bismarck, ND 58502-5520
 Phone: (701) 221-5166
 Fax: (701) 221-5200

Ohio

Tom Davis, Natural Resources
 Administrator
 Division of Recycling & Litter
 Prevention
 Department of Natural Resources
 1889 Fountain Square Court,
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 Columbus, OH 43224
 Phone: (614) 265-7069
 Fax: (614) 262-9387

Oklahoma

Bryce Hulsey, Recycling Coordinator
 Solid Waste Management Service
 Department of Environmental Quality
 1000 N.E. 10th Street
 Oklahoma City, OK 73117-1299
 Phone: (405) 271-4447
 Fax: (405) 271-7018

Oregon

E. Patricia Vernon, Manager
 Solid Waste Reduction & Planning
 Manager
 Hazardous and Solid Waste Division
 Department of Environmental Quality
 811 S.W. 6th Avenue
 Portland, OR 97204
 Phone: (503) 229-5913
 Fax: (503) 229-6977

Pennsylvania

Vince Tarentino, Solid Waste Program
 Specialist
 Recycling and Markets
 Bureau of Waste Management
 Department of Environmental
 Resources
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 Fax: (717) 787-1904

Rhode Island

Janet Keller, Chief
 Office of Environmental Management
 83 Park Street, 5th Floor
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 Phone: (401) 277-3434
 Fax: (401) 277-2591

South Carolina

Richard Chesley, Director
 Bureau of Solid & Hazardous Waste
 Department of Health & Environment
 2600 Bull Street
 Columbia, SC 29201
 Phone: (803) 734-4957
 Fax: (803) 734-5199

South Dakota

Terrance Keller, Recycling Coordinator
 Office of Waste Management
 Department of Environment &
 Natural Resources
 Joe Foss Building
 523 E. Capitol Avenue
 Pierre, SD 57501
 Phone: (605) 773-3153
 Fax: (605) 773-6035

Tennessee

Recycling Section Manager
 Division of Solid Waste Assistance
 Bureau of Resource Management
 Department of Environment and
 Conservation
 14th Floor, L & C Tower
 401 Church Street
 Nashville, TN 37243-0455
 Phone: (615) 532-0091
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 Municipal Solid Waste Division
 PO Box 13087
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 Phone: (512) 239-6741
 Fax: (512) 908-6763

Utah

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 Coordinator
 Department of Environmental Quality
 PO Box 144810
 Salt Lake City, UT 84114-4810
 Phone: (801) 536-4400
 Fax: (801) 536-4401

Vermont

Andrea Cohen, Chief
 Recycling & Resource Conservation
 Section
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 103 S. Main Street
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 Phone: (802) 241-3444
 Fax: (802) 241-3273

Virginia

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 Manager
 Department of Environmental Quality
 PO Box 10009
 Richmond, VA 23240-0009
 Phone: (804) 762-4492
 Fax: (804) 762-4453

Washington

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 Solid Waste Services
 Department of Ecology
 PO Box 47600
 Olympia, WA 98504-7600
 Phone: (206) 407-6100
 Fax: (206) 407-6102

West Virginia

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 Division of Natural Resources
 Department of Conservation,
 Education and Litter Control
 1900 Kanawha Boulevard
 East Charleston, WV 25305
 Phone: (304) 558-3370
 Fax: (304) 558-2768

Wisconsin

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 Bureau of Solid & Hazardous Waste
 Management
 Department of Natural Resources
 PO Box 7921
 Madison, WI 53704
 Phone: (608) 267-7566
 Fax: (608) 267-2768

Wyoming

Dianna Gentry-Hogel, State Recycling
 Coordinator
 Solid & Hazardous Waste Division
 Department of Environmental Quality
 122 W. 25th Street
 Cheyenne, WY 82002
 Phone: (307) 777-7746
 Fax: (307) 777-5973

PUERTO RICO

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 Puerto Rico Solid Waste Authority
 Division of Recycling
 PO Box 40285
 San Juan, PR 00940
 Phone: (809) 765-7575
 Fax: (809) 753-2220

CANADA**Alberta**

Pat Kane
 Environmental Protection Services
 Alberta Environmental Protection
 5th Floor, Oxbridge Place
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 Fax: (403) 422-5120

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 Parks
 777 Broughton Street, 3rd Floor
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 Management
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 Fax: (204) 945-1211

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Ministere de l'Environnement et de la
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Waste Reduction Unit, Municipal
Branch
Department of Environment &
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Regina, SK S4S 0B1
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Yukon

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Transportation Services
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- Appendix C -

Demolition Materials

THE FOLLOWING CHECKLIST WILL BE USEFUL WHEN PLANNING TO SALVAGE, REUSE, AND RECYCLE DEMOLITION MATERIALS. IT MAY BE COPIED FOR USE DURING A WALK-THROUGH OF THE STRUCTURE TO BE DEMOLISHED OR DURING PLAN REVIEW IN ORDER TO PREPARE A COMPREHENSIVE LIST OF MATERIALS FOR INSERTION IN THE DEMOLITION SPECIFICATION SECTIONS 02050, 02060, OR 02070.

	COMMENTS AND CONCERNS	OWNER RE-USE/RECYCLE	CONTRACTOR RE-USE/RECYCLE
Air conditioning equipment	CFC		
Air conditioning: Computer room packages	CFC		
Air conditioning: Mini central systems	CFC		
Air conditioning: Window units	CFC		
Aluminum			
Aluminum handrails			
Appliances, white goods			
Asbestos: Various possible materials	Testing, removal		
Asphalt			
Asphalt: Paving			
Asphalt: Shingles			
Batteries			
Brass			
Brick			
Bronze			
Cabinets			
Cable: Various			
Cardboard			
Carpet			
Cast iron: Radiators, pipes			
Cast iron			
Clay tile blocks			
Compressors	CFC		
Computer equipment			
Computers, monitors			
Concrete			
Concrete masonry units			
Decking: Wood			
Door frames: Metal			
Doors: Elevator vintage			
Doors: Heavy vault			
Doors: Thin panel and various	Non-rated		
Doors: Wood, Metal			
Ductwork			

Earth		
Electric switchgear, feeder cables, conduit		
Electrical equipment		
Electrical: Cable		
Elevator cabs, machinery, shaft equipment, rails		
Fabric		
Fiberglass		
Fire suppression equipment		
Fixtures & fittings: Plumbing		
Fixtures: Electrical		
Flooring: Carpet		
Flooring: Vinyl		
Flooring: Wood		
Fuel storage tanks		
Furniture: Metal		
Furniture: Metal shelving		
Furniture: Reusable		
Furniture: Systems		
Furniture: Wood		
Glass: Interior and exterior		
Glass: Plate		
Glass: Wired, Laminated		
Glazing compound: Asbestos, lead possible	Testing	
Gutters and flashing		
Gypsum blocks		
Gypsum board		
Hardwood		
Hazardous materials		
Heavy timbers		
Inert materials: Clay tile block, cinder block		
Inert materials: Gypsum board, plaster		
Insulation		
Interior air handlers and controls		
Lamps: Fluorescent	Mercury retrieval	
Lead: Paint and other possible materials	Testing, removal	
Light bulbs		
Light fixtures: Decorative		
Light fixtures: Fluorescent and utility fixtures		
Light fixtures: Vintage fluorescent, incandescent	PCB Ballasts	
Marble: Toilet partitions		
Marble: Walls		
Metal: Brass		
Metal: Bronze		
Metal: Cable		
Metal: Cast Iron		
Metal: Conduit		
Metal: Galvanized Steel		
Metal: Miscellaneous		
Metal: Steel		
Mirrors		
Other considerations:		
Paper		
Partitions, demountable panels		
Partitions: Aluminum tracks, misc framing		
PBX/ telephone equipment, conduit, cables		

Petroleum products			
Photocopy machine			
Piping			
Plaster			
Plastic: ABS			
Plastic: Polyethylene			
Plastic: Polystyrene			
Plastic: PVC			
Plumbing fittings, faucets, etc.			
Possible lead waste pipes			
Pressure treated wood			
Precast concrete			
Pumps			
Radioactive materials			
Raised access flooring			
Rock			
Roofing: Asphalt and stone			
Roofing: Membrane, various			
Roofing: Metal			
Rubber			
Sand			
Sheet metal: Miscellaneous			
Software, floppy discs	Discs recyclable		
Stainless steel			
Standpipe			
Steel			
Steel: Heavy			
Steel: Reinforcement			
Steel: Sheet			
Steel: Stairs, handrails			
Steel: Structural			
Steel: Studs and misc framing			
Stone			
Telecommunications equipment			
Terrazzo			
Textiles			
Toxic materials			
Transformers	PCB		
Treated lumber			
Trees			
Vinyl			
Water fountains			
Window mounted room air conditioning units	CFC		
Windows: Steel frames			
Windows: Wood frames, cast iron weights			
Wood			

- Appendix D -

Sample Waste Management Plan

I. Total Project Waste

Quantity (tons)	Landfill site	Tip fee/ton

Total cost of disposal, including hauling, container rental, tip fees

Quantity (tons)	Landfill site	Tip fee/ton

Total cost/ton

Project: _____

Date: _____

II. Alternatives to Landfilling

Type of Material	Quantity (tons)	Destination & means of transp.	Cost of handling & transporting	Expected revenue & tip fee savings	Net cost	Cost if landfilled	Comparison cost (+) or savings (-)

III. Total net cost (+) or savings (-) from all alternatives to landfilling all project waste

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IV. Means of Keeping recyclables free of contamination

V. Meetings to be held to address waste management

(Use additional sheets as necessary.)

– Appendix E –

Green Building Resources

Many of the resources listed below were consulted in drafting the WasteSpec.

GENERAL RESOURCES

Build America Beautiful Program

National Association of Home Builders

1201 15th Street, NW, Washington DC 20005, (800) 368-5242.

Designing With Vision: Public Building Guidelines for the 21st Century

Chris Stafford, AIA, Stafford-Harris, Inc., 1992.

1916 Pike Pl., Seattle WA 98101, (206) 682-4042

Environmental Building News

A bimonthly newsletter on environmentally sustainable design and construction.

Yearly subscription.

RR 1, Box 161, Brattleboro, Vermont 05301, (802) 257-7300.

The Environmental Resource Guide

A collection of detailed material assessments, articles, and case studies connecting environmental awareness with building construction. Quarterly: \$200/year

The American Institute of Architects

1735 New York Ave, NW, Washington DC 20006, (202) 626-7331 (800) 365-ARCH.

"Green Building" Performance Standard Guide

American Society for Testing Materials (ASTM), 1992.

The Healthy House

In-depth look at the construction of a "healthy house," especially with respect to chemical sensitivity. Chapters are broken down into stages of building (i.e., planning, location, etc.) and building components (i.e., foundation systems, steel framing, windows and doors, etc.) Good lists of organizations and suppliers.

John Bower

Carol Communications 1989.

Sustainable Construction: Proceedings of the First International Conference of the International Council for Building Research Studies and Documentation Task Group 16

Covers a wide range of topics. Over 800 pages.

University of Florida College of Architecture,

Center for Construction and Environment, 1994, (904)392-7502.



**Sustainable Building Guidebook for the New State Office Building:
A Preliminary Overview**

Center for Maximum Potential Building Systems, Inc.
February 1993.

SPECIFICATIONS

Architectural/Engineering Guidelines

Comprehensive specifications covering energy efficiency and other life cycle and sustainable provisions. About 110 pages.

State of Texas General Services Commission, Office of Facility Planning, 1993
Austin, Texas.

Demolition for Salvage and Reuse: Prototypical Demolition Specifications

A summary of background and specifications used on a demolition project in Portland. About 25 pages.

Metro Solid Waste Department, 1993
600 NE Grand Avenue, Portland, Oregon, (503) 797-1650.

Waste Reduction Specifications 1993

A collection of examples of waste reduction specifications. About 50 pages.

Metro Solid Waste Department
600 NE Grand Avenue, Portland, Oregon, (503) 797-1650.

URBAN PLANNING/LAND USE/COMMUNITIES

A Pattern Language: Towns-Buildings-Construction

A design classic, illustrating patterns that work on all scales, from the reading nook to the whole city.

Christopher Alexander, Sara Ishikawa, and Murray Silverstein
Oxford University Press.

Design with Nature

Ian L. McHarg
John Wiley & Sons, Inc., 1991
605 3rd Avenue, New York NY 10158 (212) 850-6000
or from the AIA Bookstore (800) 365-2724.

Land Use Strategies for More Livable Places: A Guidebook for Local Governments

Clear and concise guidelines for land use planning to reduce automobile use. California emphasis, but nationwide applicability. Has sample drafts of a resolution and other documents for use by local governments or community groups.

Steve Weissman and Judy Corbett, Local Government Commission, 1992
909 12th Street, Suite 205, Sacramento CA 95814, (916) 448-1198
(916) 448-8246 (fax).

Sustainable Communities: A New Design Synthesis for Cities, Suburbs, and Towns

Essays by these two leading planners and several others provide a good overview to the theory of ecologically appropriate land use.

Sim Van der Ryn and Peter Calthorpe

Sierra Books, 1986

2034 Fillmore Street, San Francisco CA 94115, (415) 291-1600

or from the AIA Bookstore (800) 365-2724.

WATER CONSERVATION IN SITE AND LANDSCAPE DESIGN

Design for Human Ecosystems: Landscape, Land Use, and Natural Resources

Uses highly detailed case studies to illustrate principles of ecologically sensitive land use planning.

John Tillman Lyle

Van Nostrand Reinhold, 1985

115 Fifth Avenue, New York NY 10003, (212) 254-3232.

Energy Conserving Site Design

A collection of thirteen articles by various authors on landscape and land-use design. Fairly technical, with lots of useful information.

E. Gregory McPherson, Ed.

American Society of Landscape Architects, 1984

1733 Connecticut Avenue, NW, Washington DC 20009, (202) 686-2752.

Integrated Pest Management Program

General Services Administration

National Capital Region

Washington, DC 20407, (202) 708-6948.

Water-Efficient Technologies: A Catalog for the Residential/Light Commercial Sector

A complete guide to water-conserving plumbing fixtures and irrigation systems. Photos, detailed product descriptions, listings of product reviews and addresses for each product listed.

Colin Laird

Rocky Mountain Institute, 1991

1739 Snowmass Creek Road, Snowmass CO 81654, (303) 927-3851 (303) 927-4178 (fax).

Xeriscape Gardening: Water Conservation for the American Landscape

Comprehensive review of low water-use landscaping and strategies and region-by-region species recommendations. Useful for professionals and homeowners.

Connie Ellefson, Tom Stephens, and Doug Welsh

Macmillan Publishing Co.

866 Third Avenue, New York NY 10022, (212) 702-2120 (212) 605-9351 (fax).

ENERGY

Alternative Energy Sourcebook

Real Goods Trading Corporation, Published yearly
966 Mazzone Street, Ukiah CA 95482-3471, (704) 468-9292 (800) 762-7325.

Climatic Design: Energy-Efficient Building Principles and Practices

A classic on energy-efficient and climate-responsive design. (Out of print.)

Donald Watson, FAIA, Kenneth Labs

McGraw-Hill, Inc., 1983

Monterey Avenue, Blue Ridge, Summit PA 17294-0850, (800) 822-8138

or from the AIA Bookstore (800) 365-2724.

Computer Program for Estimating Solar Energy in New Construction

BLAST Support Office (Army Corps of Engineers)

30 Mechanical Engineering Building

1206 W. Green Street, Urbana, IL 61801, (217) 333-3977.

Concepts and Practice of Architectural Daylighting

Somewhat technical; a thorough introduction to the basics.

Fuller Moore

Van Nostrand Reinhold, 1991

115 Fifth Avenue, New York NY 10003, (212) 254-3232.

Design with Climate: A Bioclimatic Approach to Architectural Regionalism

The classic text providing principles for incorporating climatic variables into building design and siting.

Victor Olgyay

Van Nostrand Reinhold, 1992

115 Fifth Avenue, New York NY 10003, (212) 254-3232.

Energy Design Update

The leading resource for news and developments relating to energy-efficient residential design and construction. Emphasis on products. Yearly subscription.

Ned Nisson

Cutter Information Corporation

37 Broadway, Arlington MA 02174, (617) 648-8700 (617) 684-1950 (fax).

Energy Source Directory: A Guide to Products Used in Energy Efficient Construction

Detailed listings, with photos, of hundreds of products used in energy-efficient construction. New for '93: icons identify products with recycled content and those that use alternatives to CFCs. (\$175/year.)

Iris Communications, Inc.

258 East 10th Avenue, Suite E, Eugene OR 97401-3284, (503) 383-9353 (503) 484-1645 (fax).

Energywise Options for State and Local Governments

Center for Policy Alternatives

2000 Florida Avenue, NW, Suite 400

Washington, DC 20009, (202) 387-6030.

Environmental Control Systems: Heating Cooling Lighting

Fuller Moore
McGraw-Hill, Inc., 1993
New York.

EPA Green Lights Program

401 M Street, SW
Washington, DC, (202) 755-6650.

New Energy from Old Buildings

Examples of conservation of "embodied energy" through preservation.
The Preservation Press, 1981
National Trust for Historic Preservation.

HEALTHY INDOOR AIR QUALITY**Indoor Air Quality and HVAC Systems**

Comprehensive discussion of the relationship between HVAC equipment and indoor air quality. Primary focus is on commercial buildings.
David W. Bearg
Lewis Publishers/CRC Press, Inc., 1993
2000 Corporate Boulevard, NW, Boca Raton FL 33431, (407) 994-0555.

Indoor Air Review

The newspaper of the Indoor Air Quality industry. Newspaper-format periodical includes sections on lead, asbestos, and radon. Monthly newsletter: \$72/year.
Dennis Melamed
IAQ Publications, Inc.
4520 East-West Highway, Suite 610, Bethesda MD 20814, (301) 913-0115 (301) 913-0119 (fax).

RESOURCE-EFFICIENT PRODUCTS & MATERIALS**The Harris Directory. Updated Second Edition**

A database of over 2000 recycled content building materials.
Stafford-Harris, Inc., 1995
1916 Pike Pl., Seattle WA 98101, (206) 682-4042.

Building with Junk and Other Good Stuff: A Guide to Home Building and Remodeling Using Recycled Materials

Lots of good ideas for using scrounged and salvaged materials to build a house. Geared towards owner-builders.
Jim Broadstreet
Loompanics Unlimited, 1990
Box 1197, Port Townsend WA 98368.

Building with Recycled-Content Materials

An overview of the issues involved in the use of recycled-content and composition materials; includes sources of recycled-content products, a list of demonstration projects, and bibliography. 25 pages.

DPR Environmental Consulting (Twin Cities, Minn.), Waste Alternative Consulting (Twin Cities), and The Center for Resourceful Building Technology (Missoula, Mont.)

(612) 227-6500.

Buy Recycled Project

United States Conference of Mayors

1620 Eye St., NW, 4th Floor

Washington, DC 20006, (202) 293-7330

Directory of Recycled Content Building and Construction Products

Clean Washington Center, 1992

2001 Sixth Avenue, Suite 2700, Seattle, WA 98121, (206) 464-7040.

The Sourcebook for Sustainable Design

Extensive listings in CSI format. A useful resource, especially for architects and specifiers. Less descriptive information than GREBE. (See Below.)

Architects for Social Responsibility/Boston Society of Architects

52 Broad Street, Boston MA 02109-4301, (617) 951-1433.

Environmentally Responsible Building Products

National Park Service

Denver Service Center, 1992

PO Box 25287, Denver CO 80225-0287, (303) 969-2130.

Guide to Resource Efficient Building Elements (GREBE)

A detailed listing of resource-efficient building materials. Especially strong in the area of alternatives to conventional wood products.

Center for Resourceful Building Technology (CRBT)

PO Box 100, Missoula MT 59806, (406) 549-7678.

Green Building Journal

Quarterly newsletter from Sustainable Development and Construction Initiative, Inc.

Gainesville, Florida, (904) 371-3718.

McRecycle USA Program

Region-specific database available on recycled content building materials.

McDonalds Corporation, Environmental Affairs Department

McDonalds Plaza, Oak Brook IL 60521, (708) 575-3000.

The Official Recycled Products Guide

American Recycling Market

PO Box 577, Ogdensburg NY 13669, (800) 267-0707 or (315) 471-3258.

Resource Guide to Recycled Construction Products and Energy Efficiency
 City of Los Angeles Board of Public Works
 Integrated Solid Waste Management Office, 1992, (213) 237-1444.

Sustainable Building Sourcebook and The Green Building Program
 City of Austin Environmental and Conservation Services Department
 Austin, Texas, (512) 499-3504.

A Guide to Recycled Products: Building and Construction Products
 Metro Solid Waste Department, 1994
 600 NE Grand Avenue, Portland, Oregon, (503) 797-1650.

WASTE MANAGEMENT

Builders' Guidebook to Reducing, Reusing and Recycling Residential Construction Waste in Wisconsin
 A basic manual of about 20 pages.
 Robert Walther and Jon Udell
 University of Wisconsin - Madison Enterprise Center, 1993
 Madison, Wisconsin.

C & D Debris Recycling
 A periodical covering current state of the commercial recycling industry.
 29 N. Wacker Drive, Chicago, IL 60606, (312) 726-2802.

Characterization of Construction Site Waste
 A summary of waste characterization audits on commercial and residential construction projects in Portland, Oregon. Thirty pages.
 Metro Solid Waste Department, 1993
 600 NE Grand Avenue, Portland, Oregon, (503) 797-1650.

Construction Materials Recycling Guidebook - A Guide to Reducing and Recycling Construction and Remodeling Waste
 Metropolitan Council of the Twin Cities Area, 1993
 (612) 432-7038.

Construction Site Recycling
 A short manual covering residential construction, about 25 pages.
 National Association of Home Builders
 Washington, DC, (800) 368-5242.

Construction Waste and Demolition Debris Recycling - A Primer
 Comprehensive document of about 100 pages.
 Solid Waste Association of North America, 1993
 Silver Spring, Maryland, (301) 585-2898.

Construction Waste Management

Recommendations for reducing construction waste, about 20 pages.
National Association of Home Builders Research Center, Draft 1994
400 Prince George's Blvd., Upper Marlboro, MD 20772
(301) 249-4000 (301) 249-0305 (fax).

Resource Efficient Building

A good resource for formulating a reuse/salvage/recycling plan. Particularly interesting is the information regarding construction job-site recycling.
Metro Solid Waste Department
600 NE Grand Avenue, Portland OR 97232-2736, (503) 797-1650.

Resource Efficient Building: Reducing Materials Use, Toxicity and Waste in Design and Construction

WRITAR, LHB Engineers and Architects and the Center for Residential Building Technology, March 1995
4600 West 77th Street, Suite 302, Minneapolis, MN 55435, (612) 832-8971.

Making a Molehill Out of a Mountain I (1990) and Making a Molehill Out of a Mountain II (1991)

Studies of types of wastes generated from residential construction in Toronto and suggested waste reduction and recycling procedures, about 30 pages each.
Toronto Home Builders' Association, North York, Ontario, (416) 391-3445.

HAZARDOUS WASTE**Catalogue of Hazardous and Solid Waste Publications**

A list of frequently requested documents on hazardous and solid waste, with information on how to order documents. Over 200 pages.
U. S. Environmental Protections Agency, 7th edition, 1994
Resource Conservation and Recovery Act Hotline, (800) 424-9346.

Construction Contractors' Environmental Risk Management Procedures Manual

Excellent coverage of legal and other issues.
Associated General Contractors of America, 1995
1957 E Street, NW, Washington, DC, (202) 393-2040.

Waste Audit Study: Building Construction Industry

Detailed report on hazardous waste from construction. About 100 pages.
California Department of Health Services, Alternative Technology Division, 1990
Sacramento, California, (916) 322-3670.

