

# CHAPTER 12

## REBUILDING USING RECYCLED-CONTENT PRODUCTS

**Background:** After the disaster recovery is well underway, residents and businesses will begin rebuilding. Rebuilding includes two aspects that are important for disaster planning:

- ◆ selecting recycled-content products (RCPs) for building, and
- ◆ separating materials at the construction jobsite to maximize recovery.

**Products:** The key to diverting construction and demolition (C&D) debris is to promote products using the debris as feedstock. Recycled-content construction products will be discussed in two categories:

- ◆ inerts, and
- ◆ general building products.

**Contents:** This chapter contains five sections.

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**1: Inert products**

**Largest category:** The largest category of disaster debris is inerts, such as concrete, asphalt, and rubble. Most inerts can be processed into construction products. The following is a list of inert product categories.

**Aggregate:** The largest product category using recycled inerts is aggregate base under paved roads, made from crushed concrete and asphalt. Other common uses are gravel roads, base for building foundations, and fill for utility trenches. (See *Recycled Aggregate* fact sheet,,

Attachment A)

**Asphalt:** Broken asphalt pavement can also be crushed and used in new asphalt pavement, usually as 15%content. This practice is common in southern California. (See *Asphalt Pavement Recycling* fact sheet, Attachment B).

**Inert product promotion:** Most recycled inerts are used in road rehabilitation and other public works projects. Application methods of recycled inert products are often different from their virgin counterparts, so some education is required.

## Rebuilding with Recycled-Content Products

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**Actions:** The following is a list of suggested actions to promote these products with public works personnel.

#	SUGGESTED ACTIONS
1	<p><b>Meet with City/County engineers to:</b></p> <ul style="list-style-type: none"> <li>• establish a dialog and learn the engineers' concerns with recycled products,</li> <li>• supply the fact sheets <i>Recycled Aggregate</i> and <i>Asphalt Pavement Recycling</i>. (see Attachments A and B).</li> <li>• review existing City/County specifications for road base and asphalt pavement,</li> <li>• provide copies of Caltrans' Standard Special Provisions (SSPs) for recycled aggregate base and subbase. (See <i>Recycled Aggregate</i> fact sheet for details to download from World Wide Web, or to order from CIWMB.)</li> <li>• provide a list of local suppliers of recycled aggregate and asphalt, such as <i>Recycled-Content Construction Products</i>. (See Attachment C).</li> </ul>
2	Consider holding workshop so that recyclers can instruct City/County engineers in the use of their recycled products.

## 2: Building products

**Examples:** There are many types of recycled products used in buildings. Some examples are:

- ◆ glass-bonded floor tile,
- ◆ cellulose insulation,
- ◆ metal and fiber/cement roofing shingles,
- ◆ wall panels,
- ◆ polyester carpets,
- ◆ carpet cushion,
- ◆ latex paint, and
- ◆ plastic lumber.

Although many of these products do not use disaster debris as feedstock, it is still wise to encourage their use to help develop long-term recycling infrastructure.

## Rebuilding with Recycled-Content Products

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**Actions:** The following table presents a list of suggested sources of information on construction-related RCPs.

#	Suggested sources of information on construction-related RCPs
1	CIWMB's RCP database is on World Wide Web at [ <a href="http://www.ciwmb.ca.gov">http://www.ciwmb.ca.gov</a> ]. (This database includes the Recycled Products Guide and the Harris Directory, but cannot be downloaded).
2	<i>Recycled-Content Construction Products</i> , a spreadsheet of 450 manufacturers of products available in California. (See Attachment C, or order updates from CIWMB's Hotline 1-800-553-2962, pub#431-96-018).
3	Recycled Products Guide (RPG), catalog of all types of RCPs, 5,000 listings including building products, has separate California section. \$295 for one-year subscription, 1-800-267-0707.
4	Harris Directory is a database of 1,800 building products, (505) 995-0337.
5	Clean Washington Center's <i>Directory of Recycled-Content Building and Construction Products</i> , (206) 464-7040.
6	CIWMB's list <i>C&amp;D Recycling--Organizations/Publications</i> is a one-page spreadsheet that includes some local and national directories of construction-related RCPs. (Order from CIWMB's Hotline 1-800-553-2962, pub#431-96-019)

**3: Building product selection**

**Examples:** There are many players in the construction industry, most of whom can select or veto products. Examples are owners, developers, architects, specifiers, contractors, and building officials. Products must be specified in the building contract. (A fact sheet on specifications and contract language should be available in early 1997).

**Actions:** The following is a list of suggested actions to encourage RCP selection.

#	A list of suggested actions to encourage RCP selection
1	Determine which products have been properly tested and meet industry standards, and obtain those product specifications from the manufacturer. (Promoting sub-standard products does not help the recycling industry. See guide <i>Construction Product Approval Process</i> , Attachment D.)
2	Make construction RCP lists available at local recycling hotlines.
3	Provide lists of RCPs and product specifications to owners, developers, architects, specifiers, contractors, and building officials. On some projects, 'owners' will be City or County governments.
4	Determine if City or County procurement guidelines inadvertently preclude RCPs in local government buildings
5	Consider having city council pass a motion requiring minimum procurement for certain RCPs in public buildings.

**4: Assist manufacturers**

**Type of assistance:** Local manufacturers of construction RCPs may need assistance. If they are expanding or in start-up phase, they may need financing or assistance with permits. The following is a list of suggested actions to assist manufacturers.

#	<b>A list of suggested actions to assist manufacturers</b>
1	Refer manufacturers to your local Recycling Market Development Zone (RMDZ) Coordinator.
2	Refer manufacturers to CIWMB's R-Team at (916) 255-1000 for financial, technical, permitting, and marketing assistance.
3	Consider creating an RMDZ in your city if you haven't already done so.
4	Provide to new manufacturers the guide <i>Construction Product Approval Process</i> . (See Attachment D). Manufacturers of construction products must have their products tested in order to compete in the marketplace, and to follow building code safety requirements.

**5: Jobsite separation**

**Actions:** Following is a list of suggested actions to encourage separation and recycling of construction waste at new construction sites.

#	<b>Suggested actions to encourage separation and recycling of construction waste at new construction sites.</b>
1	Make available to contractors: <ul style="list-style-type: none"> <li>• local list of C&amp;D recyclers, or CIWMB's statewide list <i>C&amp;D Recyclers -- Processors &amp; Receivers</i> (Pub #431-96-017)</li> <li>• information on jobsite separation, such as <i>Job Site Source Separation</i> fact sheet (see Attachment E).</li> <li>• materials facts sheets, such as <i>Drywall Recycling</i> and <i>Urban Wood Waste</i>. (See Attachment F).</li> <li>• economics worksheet, to determine cost-effectiveness of each job.</li> </ul>
2	Consider attaching to each new construction permit issued <ul style="list-style-type: none"> <li>• some of the documents in #1 above,</li> <li>• a requirement for the contractor to submit a waste management plan. The plan could include jobsite separation, and possibly some recycling.</li> </ul>

**ATTACHMENTS**

- A. Recycled Aggregate fact sheet.
- B. Asphalt Pavement Recycling fact sheet.
- C. Recycled-content Construction Products fact sheet.
- D. Construction Product Approval Process fact sheet.
- E. Job Site Source Separation fact sheet.
- F. Drywall Recycling and Urban Wood Waste fact sheet.

# CHECKLIST

## CHAPTER 12 REBUILDING USING RECYCLED-CONTENT PRODUCTS

### Rebuilding phase

- ◆ Select recycled-content products for building.
- ◆ Separate materials at construction jobsite to maximize recovery.

### Promote products using disaster debris as feedstock

- ◆ inerts
- ◆ building products

### 1: Inert Products

- ◆ Meet with City/County engineers to:
  - ◆ establish a dialog and learn the engineers' concerns with recycled products;
  - ◆ supply the fact sheets *Recycled Aggregate* and *Asphalt Pavement Recycling*;
  - ◆ review existing city/county specifications for road base and asphalt pavement;
  - ◆ provide copies of Caltrans' Standard Special Provisions for recycled aggregate base and subbase;
  - ◆ provide a list of suppliers of recycled aggregate and asphalt, such as *Recycled-Content Construction Products* ; and
  - ◆ hold workshop to instruct city/county engineers in the use of recycled products.

### 2: Building Products

- ◆ Sources of information on construction-related recycled-content products:

- ◆ On-line Database - Recycled-Content Products - CIWMB's on-line database of recycled-content products of all kinds, including construction.
- ◆ *Recycled-Content Construction Products* - spreadsheet of 450 manufacturers of products available in California
- ◆ Recycled Products Guide (RPG) - catalog of all types of RCPs, 5,000 listings including building products, has separate California section.
- ◆ Harris Directory - database of 1,800 building products.
- ◆ Clean Washington Center's *Directory of Recycled-Content Building and Construction Products*.
- ◆ California Integrated Waste Management Board's list *C&D Recycling--Organizations/Publications* - one-page spreadsheet that includes some local and national directories of construction-related RCPs.

**3: Building Product Selection**

- ◆ Suggested actions to encourage RCP selection:
  - ◆ Determine which products have been properly tested and meet industry standards, and obtain those product specifications.
  - ◆ Make construction RCP lists available at local recycling hotlines.
  - ◆ Provide lists of RCPs and product specifications to owners, developers, architects, specifiers, contractors, and building officials.
  - ◆ Determine if City or County procurement guidelines inadvertently preclude RCPs in local government buildings.
  - ◆ Consider having city council pass a motion requiring minimum procurement for certain RCPs in public buildings.

**4: Assist Manufacturers**

- ◆ Suggested list of actions to assist manufacturers:
  - ◆ Refer manufacturers to your local Recycling Market Development Zone (RMDZ) Coordinator.
  - ◆ Refer manufacturers to CIWMB's R-Team at (916) 255-1000 for financial, technical, permitting, and marketing assistance.
  - ◆ Consider creating an RMDZ in your city if you have not already done so.

- ◆ Provide to new manufacturers the guide *Construction Product Approval Process*.

**5: Jobsite Separation**

- ◆ Suggested actions to encourage separation and recycling of construction waste at new construction sites. Make available to contractors:
  - ◆ local list of C&D recyclers, or CIWMB's statewide list *C&D Recyclers -- Processors & Receivers* (Pub #431-96-017);
  - ◆ information on jobsite separation, such as *Job Site Source Separation* fact sheet;
  - ◆ materials facts sheets, such as *Drywall Recycling* and *Urban Wood Waste*;
  - ◆ economics worksheet, to determine cost-effectiveness of each job.
  - ◆ Consider attaching to each new construction permit issued
    - ◆ some of the documents in #1 above; and
    - ◆ a requirement for the contractor to submit a waste management plan.