Best Practices in Construction & Demolition
Waste Diversion & Recycling

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StopWaste
October 22, 2015
CALIFORNIA GREEN BUILDING STANDARDS CODE

CALGreen
California Code of Regulations
Title 24, Part 11

California Building Standards Commission
INTERNATIONAL GREEN CONSTRUCTION CODE ADOPTION MAP

The IgCC is in use or adopted in 13 states, and the District of Columbia.
Leadership in Energy & Environmental Design
LIVING BUILDING CHALLENGE™
A Visionary Path to a Restorative Future
www.livingbuildingchallenge.org
Market Leaders (LEED)

Innovators (LBC)

Minimum Requirements

Positive Environmental Impact

Zero Impact

Negative Environmental Impact

Present Day

Time

Green Building Practices Becoming Foundational in Building Codes

Traditional Building Codes

Green Building Codes
CALGreen C&D Mandatory Measures

Required since 2011:

- Mandatory: C&D waste management plan + 50% recycling for all:
  - New construction (residential, multifamily, and commercial)
  - Commercial renovations over 1,000 square feet or $200,000 building renovation
  - Residential additions/alteration projects

- Voluntary (CALGreen Tiers)
  - Tier 1: 65% recycling
  - Tier 2: 75% or 80% recycling (res/nonres)
CALGreen C&D Mandatory Measures

2016 likely code changes set to go into effect January 1, 2017*:

• Mandatory: C&D waste management plan + 65% recycling for all:
  – New construction (residential, multifamily, and commercial)
  – Commercial renovations
  – Residential additions/alteration projects

• Voluntary (CALGreen Tiers)
  – Tier 1: 65% recycling + third-party verified recycling facility diversion rates
  – Tier 2: 75% recycling + verified facility rates

*proposed changes are out for public comment now
C&D Credit Achievement (75%+ Diversion) on LEED-NC Certified Projects by California Metro Statistical Area (MSA): LEEDv2.2 & LEEDv3

- San Jose/Sunnyvale: LEEDv2.2 = 9, LEEDv3 = 42
- Sacramento/Roseville: LEEDv2.2 = 38, LEEDv3 = 5
- San Francisco/Oakland: LEEDv2.2 = 82, LEEDv3 = 25
- Riverside/San Bernardino: LEEDv2.2 = 58, LEEDv3 = 9
- Los Angeles/Long Beach: LEEDv2.2 = 155, LEEDv3 = 40
- San Diego/Carlsbad: LEEDv2.2 = 113, LEEDv3 = 24
- Statewide: LEEDv2.2 = 647, LEEDv3 = 148
What is Leadership in the C&D Industry?
V4 is active now and required for new project registrations in October 2016
V4 C&D Credits

Prerequisite: waste management plan
- Must complete a pre-plan and report on results
- 20% diversion recommended, but not required

Credits:
Exclude excavated soil, land-clearing debris, and processed materials that end up as alternative daily cover (ADC)

1 point:
- 50% Diversion without ADC
- Must divert at least 3 material “streams”

2 points:
- 75% diversion without ADC
- Must divert at least 4 material “streams”

Pilot Credit:
- 3rd Party verified recycling rate for mixed-waste processing facility
LEED Pilot Credit #87: Third Party Verified Facility Diversion Rates
## Recycling Certification Institute

### View Detailed Report

**Current Facility 12-Month Recycling Rate:**

**Recycling Rate with ADC**  
62.17%

**Recycling Rate without ADC**  
39.09%

### Facility Data for: Feb 2014 - Jan 2015

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th></th>
<th></th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FEB</td>
<td>MAR</td>
<td>APR</td>
<td>MAY</td>
</tr>
<tr>
<td>Rate w/ ADC</td>
<td>59.05%</td>
<td>58.81%</td>
<td>57.76%</td>
<td>59.76%</td>
</tr>
<tr>
<td>Rate w/o ADC</td>
<td>82.12%</td>
<td>89.64%</td>
<td>86.90%</td>
<td>87.81%</td>
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Innovation
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>100% onsite</td>
</tr>
<tr>
<td>Water</td>
<td>100% onsite</td>
</tr>
<tr>
<td>Sewer</td>
<td>No hookup</td>
</tr>
<tr>
<td>Waste</td>
<td>&lt;3%</td>
</tr>
<tr>
<td>Red List Chemicals</td>
<td>zero</td>
</tr>
<tr>
<td>Regs. Changed</td>
<td>12+</td>
</tr>
</tbody>
</table>
The project team must strive to reduce or eliminate the production of waste during design, construction, operation, and end of life in order to conserve natural resources and to find ways to integrate waste back into either an industrial loop or natural nutrient loop.

All Projects must feature at least one salvaged material per 500 square meters of gross building area or be an adaptive reuse of an existing structure.

The project team must create a Material Conservation Management Plan that explains how the project optimizes materials in each of the following phases:

- Design Phase, including the consideration of appropriate durability in product specification
- Construction Phase, including product optimization and collection of wasted materials
- Operation Phase, including a collection plan for consumables and durables
- End of Life Phase, including a plan for adaptable reuse and deconstruction

### During construction, the project team must divert wasted material to the following levels:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>MINIMUM DIVERTED/WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>99%</td>
</tr>
<tr>
<td>Paper &amp; Cardboard</td>
<td>99%</td>
</tr>
<tr>
<td>Soil &amp; Biomass</td>
<td>100%</td>
</tr>
<tr>
<td>Rigid foam, Carpet &amp; Insulation</td>
<td>95%</td>
</tr>
<tr>
<td>All others - combined weighted average</td>
<td>90%</td>
</tr>
</tbody>
</table>

For all project types, there must be dedicated infrastructure for the collection of recyclables and compostable food scraps.
## Summary of C&D Requirements

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<thead>
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</thead>
<tbody>
<tr>
<td><strong>CALGreen Code 2013</strong></td>
<td>50%</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>&lt;2 lbs/sf</td>
<td>-</td>
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<tr>
<td><strong>CALGreen Code 2016</strong></td>
<td>65%</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>&lt;2 lbs/sf</td>
<td>Tier measure</td>
</tr>
<tr>
<td><strong>Int’l Green Const. Code 2015</strong></td>
<td>50%</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>ASHRAE 189.1 2014</strong></td>
<td>50%</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>&lt;1.2 lbs/sf</td>
<td>-</td>
</tr>
<tr>
<td><strong>LEED 2009</strong></td>
<td>50%/75%</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Pilot Credit</td>
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<tr>
<td><strong>LEED v4</strong></td>
<td>50%/75%</td>
<td>Yes</td>
<td>biomass only</td>
<td>No</td>
<td>&lt;2.5 lbs/sf</td>
<td>Pilot Credit</td>
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<tr>
<td><strong>Living Building Challenge</strong></td>
<td>90%+</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
Thank You