



Best Practices in Construction & Demolition Waste Diversion & Recycling

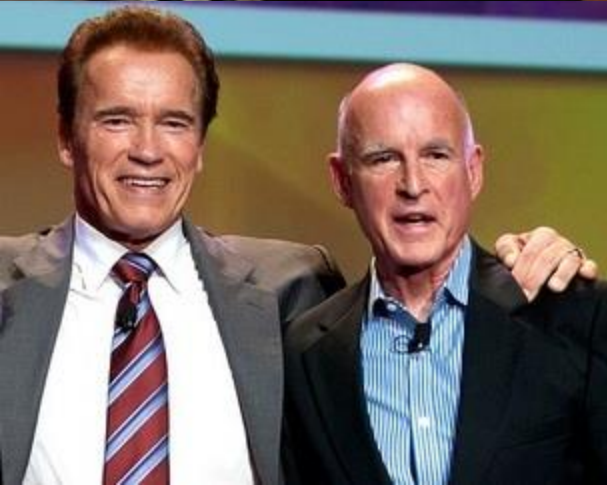
Meri Soll & Wes Sullens, StopWaste

StopWaste

October 22, 2015



CALIFORNIA REPUBLIC



CALIFORNIA 2013 GREEN BUILDING STANDARDS CODE

*CAL*Green

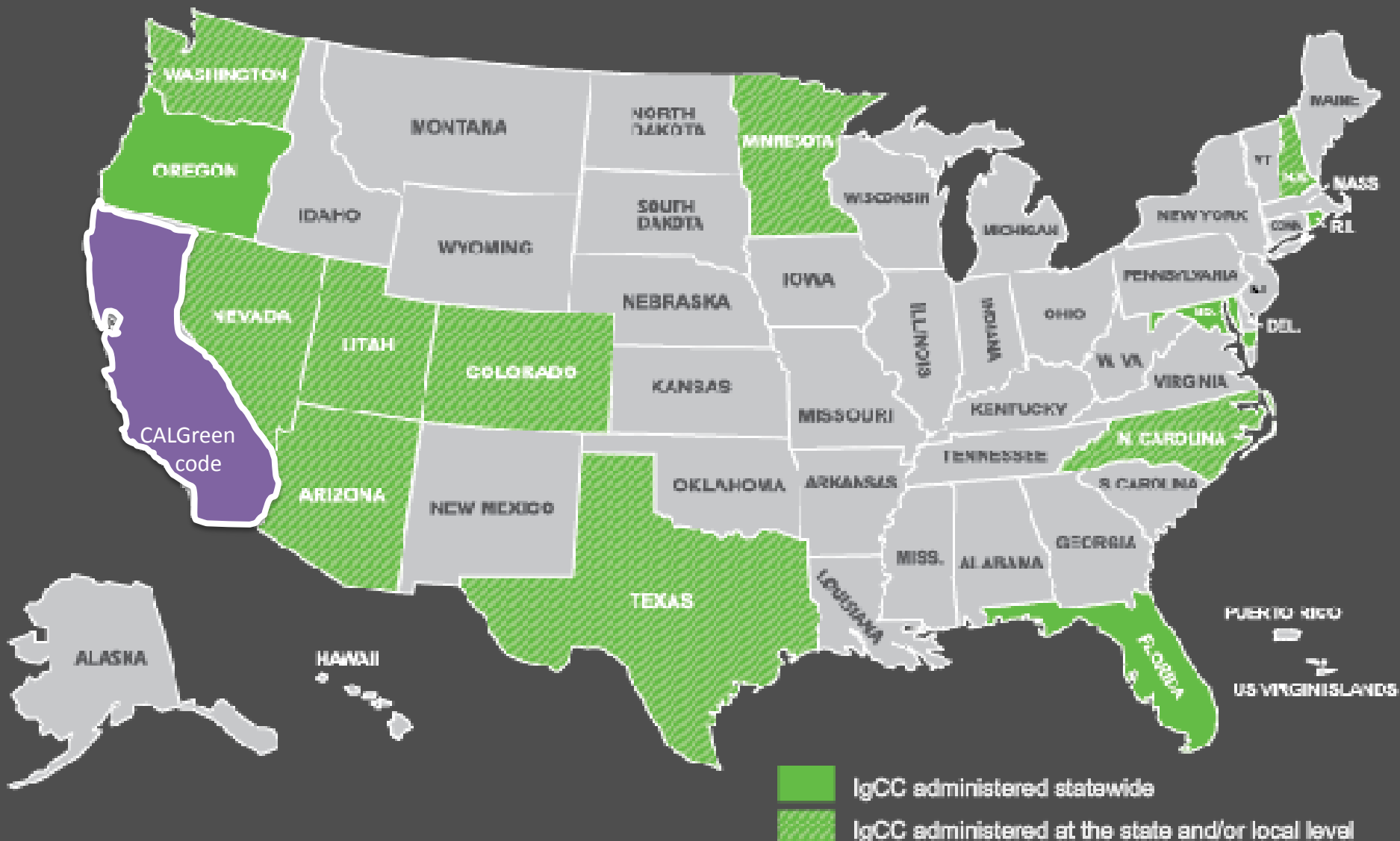
California Code of Regulations
Title 24, Part 11

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 CHALLENGESM

A Visionary Path to a Restorative Future

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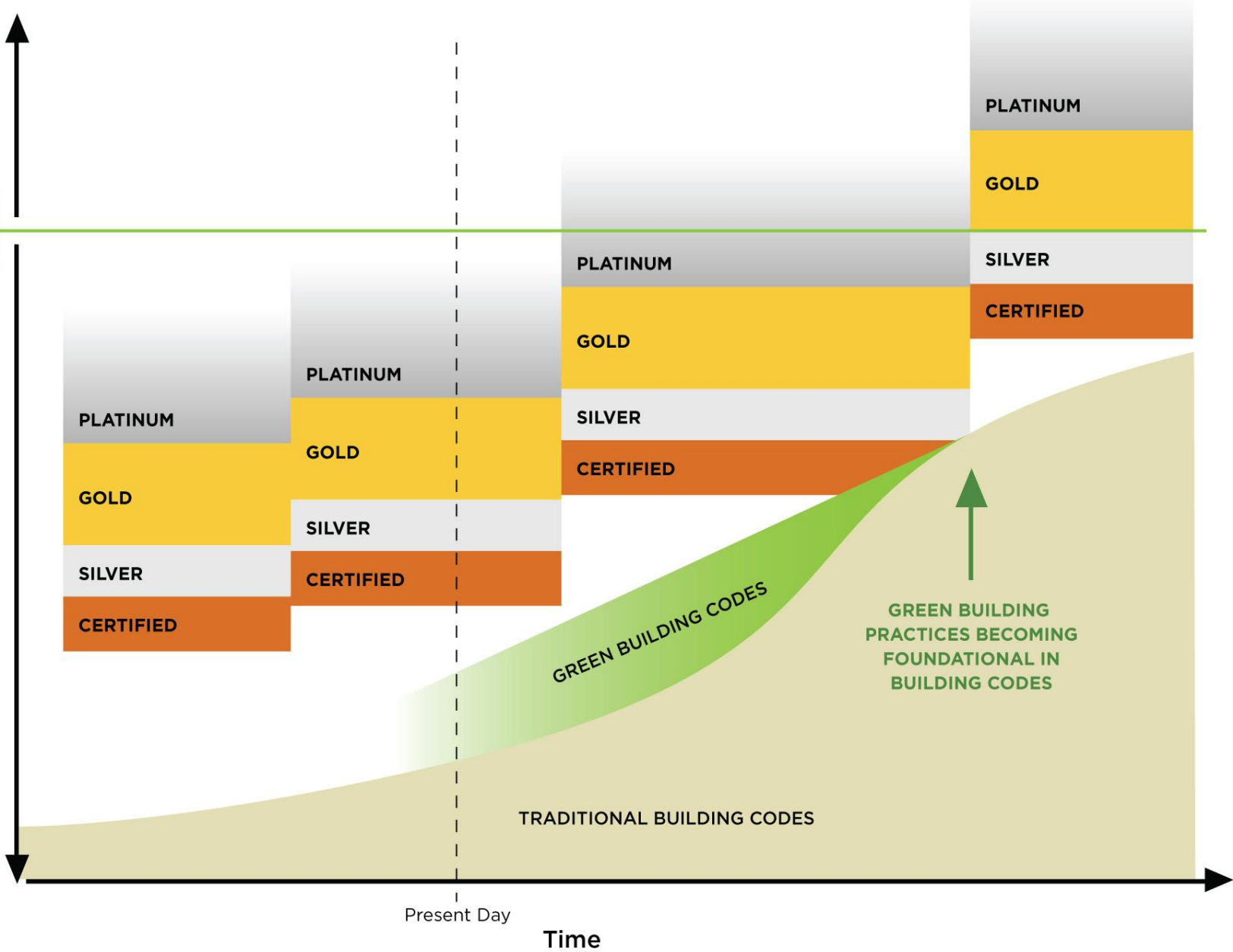


INTERNATIONAL
LIVING FUTURE
INSTITUTESM

Positive Environmental Impact

Zero Impact

Negative Environmental Impact



Positive Environmental Impact

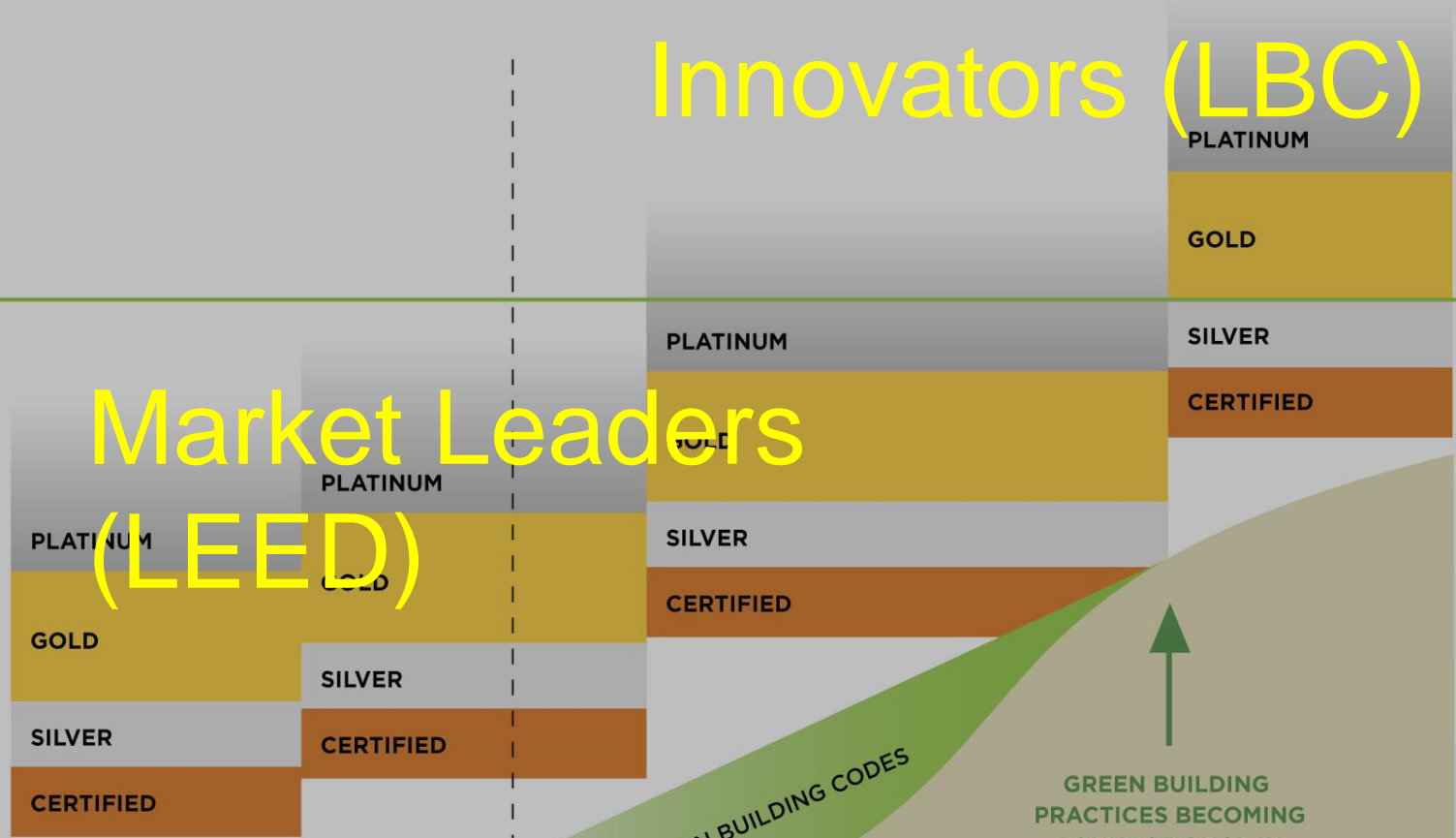
Zero Impact

Negative Environmental Impact

Innovators (LBC)

Market Leaders (LEED)

Minimum Requirements



Present Day

Time

TRADITIONAL BUILDING CODES

GREEN BUILDING CODES

GREEN BUILDING PRACTICES BECOMING FOUNDATIONAL IN BUILDING CODES

PLATINUM

GOLD

SILVER

CERTIFIED

PLATINUM

PLATINUM

GOLD

SILVER

SILVER

CERTIFIED

CERTIFIED

PLATINUM

SILVER

CERTIFIED

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

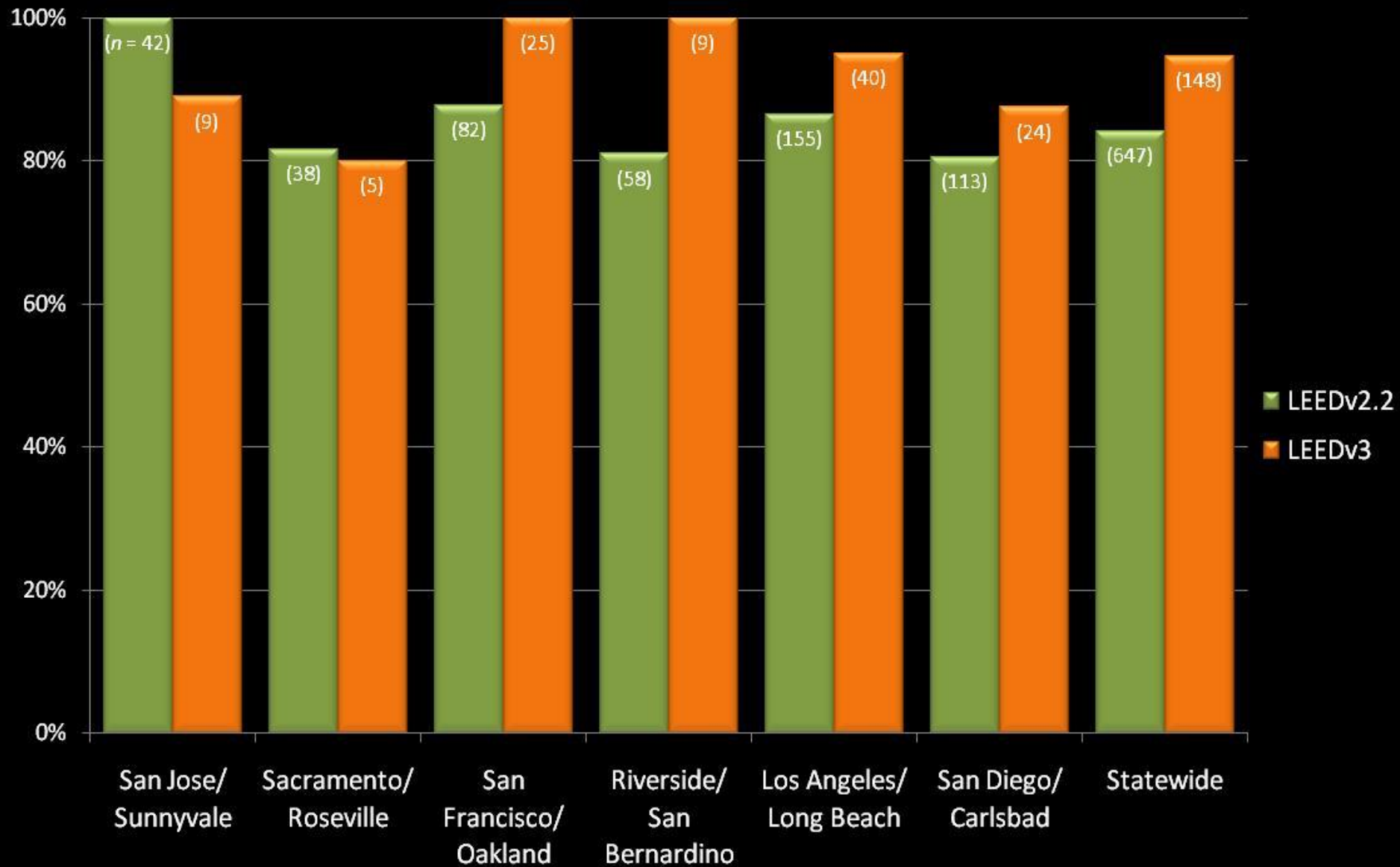
2016 likely code changes

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



What is Leadership in the C&D Industry?





LEED
v4

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



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Audited. Validated. Certified.



Certification Process



Requirements



Get Started

Welcome to RCI

The re-use of Construction and Demolition (C&D) waste materials reserves more raw

Latest News

RCI's Executive Director to appear
on TalkWithGreenGuy.com



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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**

12 Month Recycling Rate Average 62.17%

	2014											2015
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
Rate w/ ADC	59.05%	58.81%	57.76%	59.78%	64.69%	68.88%	58.84%	64.10%	65.87%	65.05%	68.29%	61.02%
Rate w/o ADC	32.12%	39.84%	36.90%	37.81%	40.98%	39.16%	35.74%	41.48%	41.75%	41.05%	45.64%	37.18%

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Innovation



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LIVING BUILDING CHALLENGE: ACHIEVED

Bullitt Center, Seattle

Energy	100% onsite
Water	100% onsite
Sewer	No hookup
Waste	<3%
Red List Chemicals	zero
Regs. Changed	12+



MATERIALS

NET POSITIVE WASTE



14

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.²⁸

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:

MATERIAL	MINIMUM DIVERTED/WEIGHT
Metal	99%
Paper & Cardboard	99%
Soil & Biomass	100%
Rigid foam, Carpet & Insulation	95%
All others - combined weighted average ²⁹	90%

For all project types, there must be dedicated infrastructure for the collection of recyclables and compostable food scraps.

Summary of C&D Requirements

	Total Diversion Amount	Source separation required?	WTE/ Incineration considered recycling?	ADC considered recycling?	Waste Generation Minimization Option?	Third Party Facility Verification?
CALGreen Code 2013	50%	No	Yes	Yes	<2 lbs/sf	-
CALGreen Code 2016	65%	No	Yes	Yes	<2 lbs/sf	Tier measure
Int'l Green Const. Code 2015	50%	No	Yes	Yes	No	-
ASHRAE 189.1 2014	50%	No	No	No	<1.2lbs/sf	-
LEED 2009	50%/75%	No	biomass only	Yes	No	Pilot Credit
LEED v4	50%/75%	Yes	biomass only	No	<2.5lbs/sf	Pilot Credit
Living Building Challenge	90%+	Yes	No	No	No	-



Thank You