

C&D in LEED v4

Wes Sullens

Program Manager, [StopWaste.Org](#) of Alameda County, California
Member, LEED Materials & Resources Technical Advisory Group
Member, ASHRAE 189.1 Standard for High-Performance Green Buildings

July 18, 2013



Alameda County, California local government agency

Runs programs for waste prevention, waste diversion, education, green building, recycled materials, and sustainable landscaping

Provides model policies and tools for local programs: green building, C&D, sustainable landscaping, bag bans, mandatory commercial recycling

All cities and the county of Alameda have C&D policies and green building ordinances

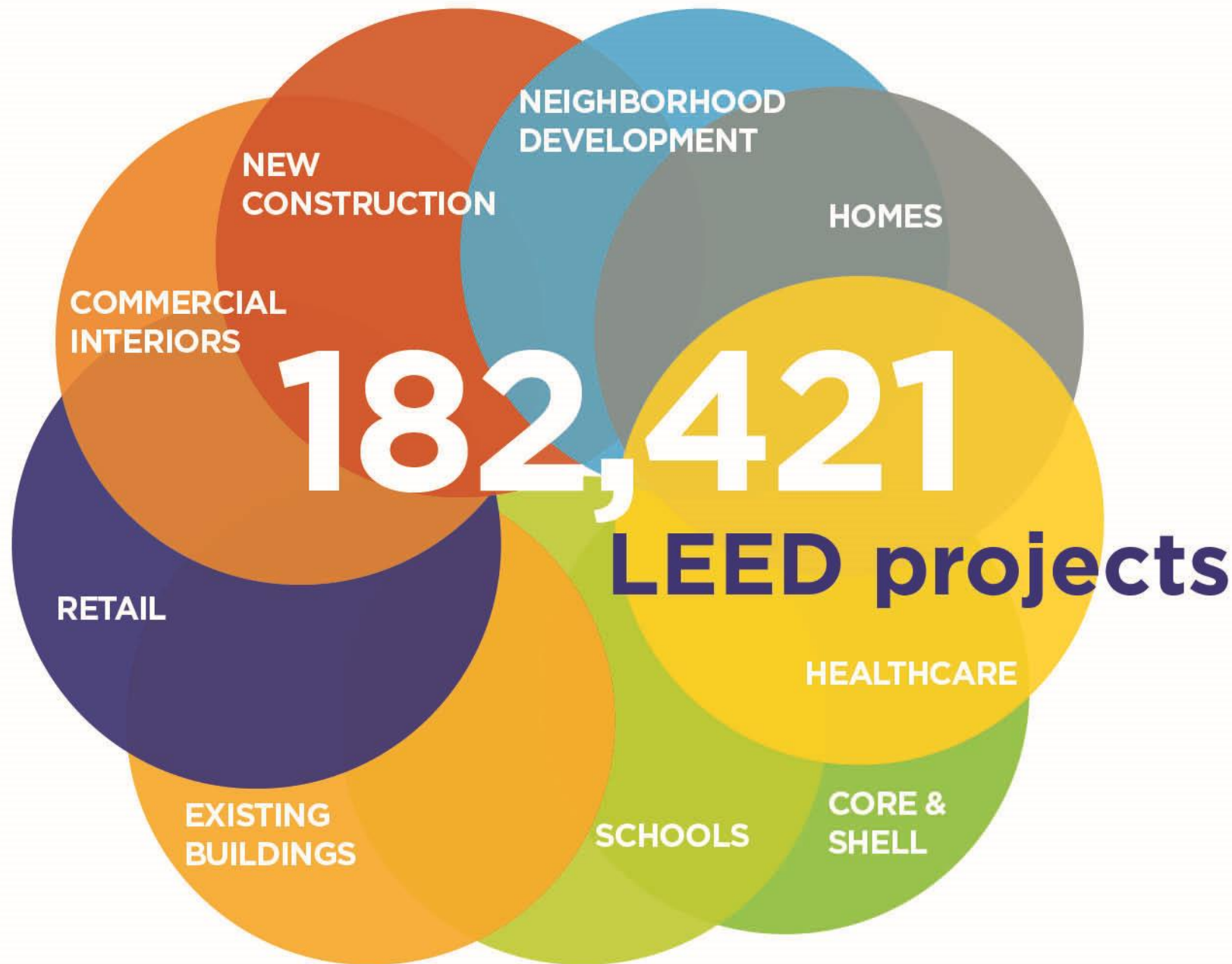
501c3 Nonprofit
Member driven
Consensus based
Industry-led



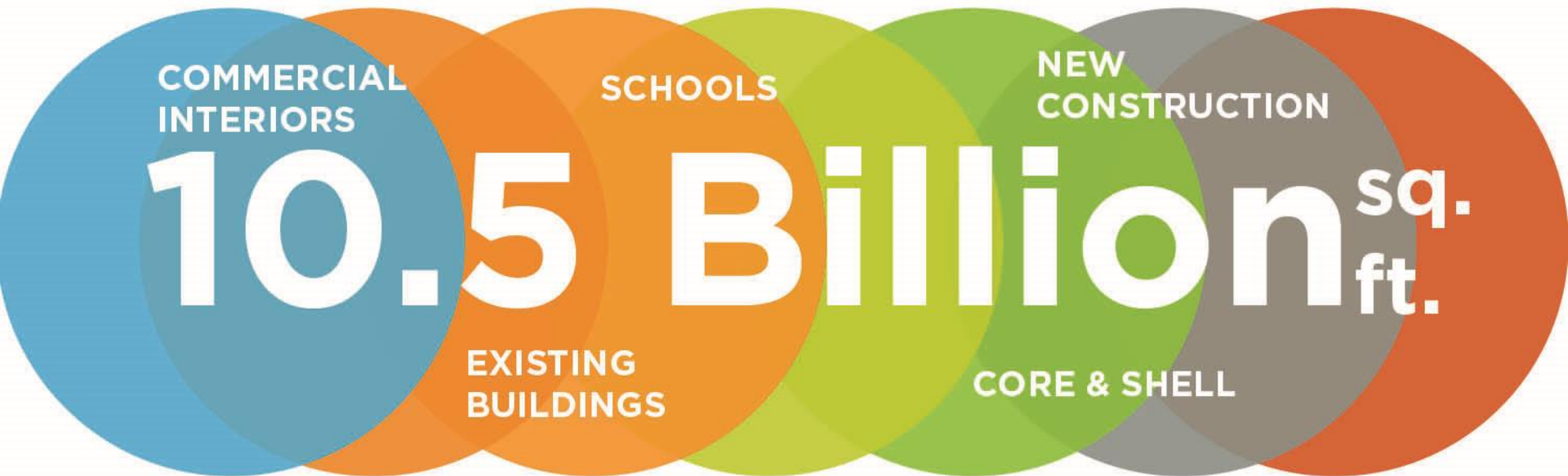
www.usgbc.org



Leadership in Energy & Environmental Design



LEED CERTIFIED & REGISTERED COMMERCIAL PROJECTS



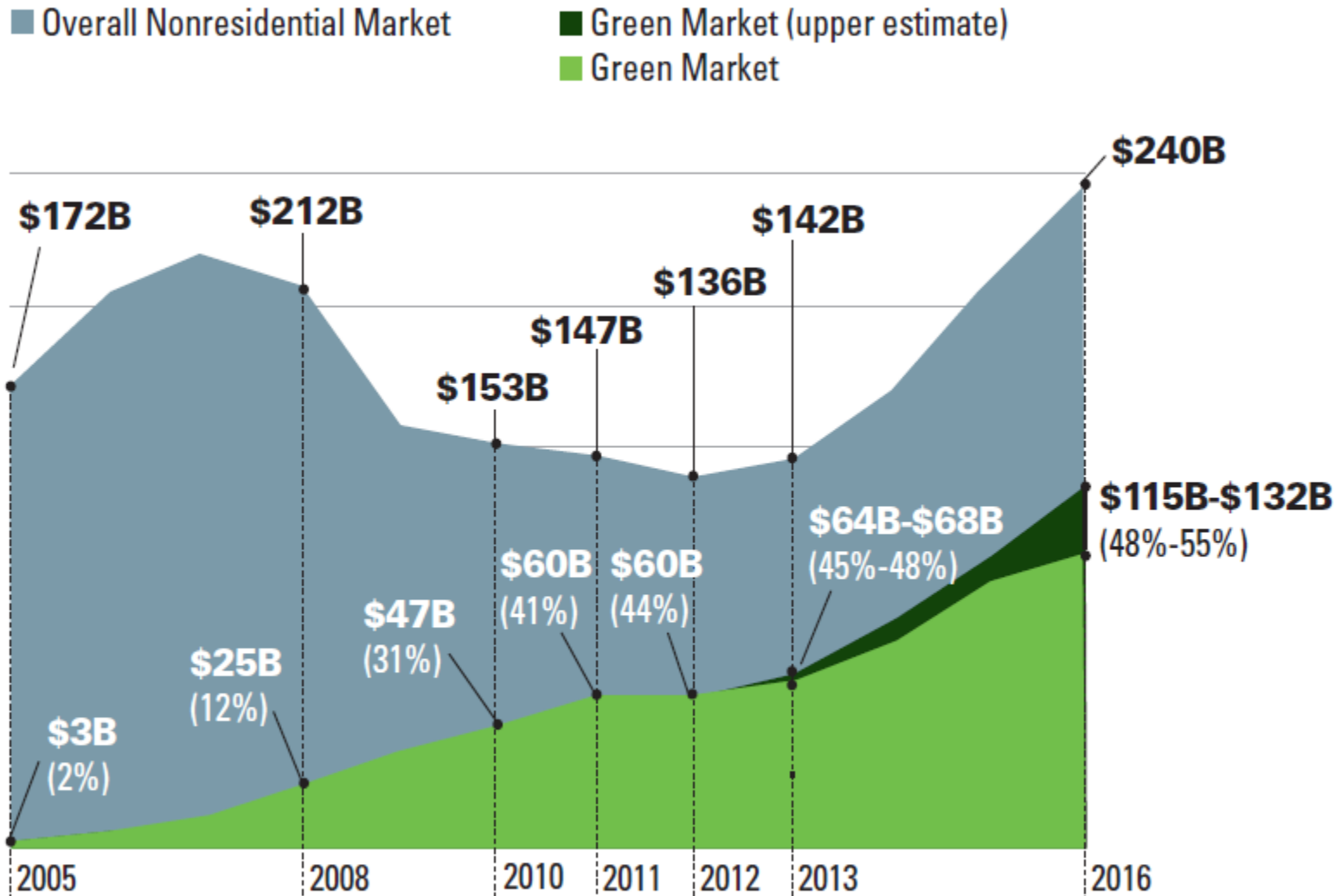
1.5 MILLION

square feet certifies to LEED per

DAY



NONRESIDENTIAL Green Building Market (2005-2016)



Source: McGraw-Hill Construction, as of October 15, 2012. See note on page 2 for description of McGraw-Hill Construction's green market sizing.



LEED
v4

LEED Green Building Rating Systems

NEW
CONSTRUCTION
MAJOR RENOVATIONS

EXISTING
BUILDINGS
OPERATIONS
MAINTENANCE

COMMERCIAL
INTERIORS

CORE
AND
SHELL
DEVELOPMENT

RETAIL

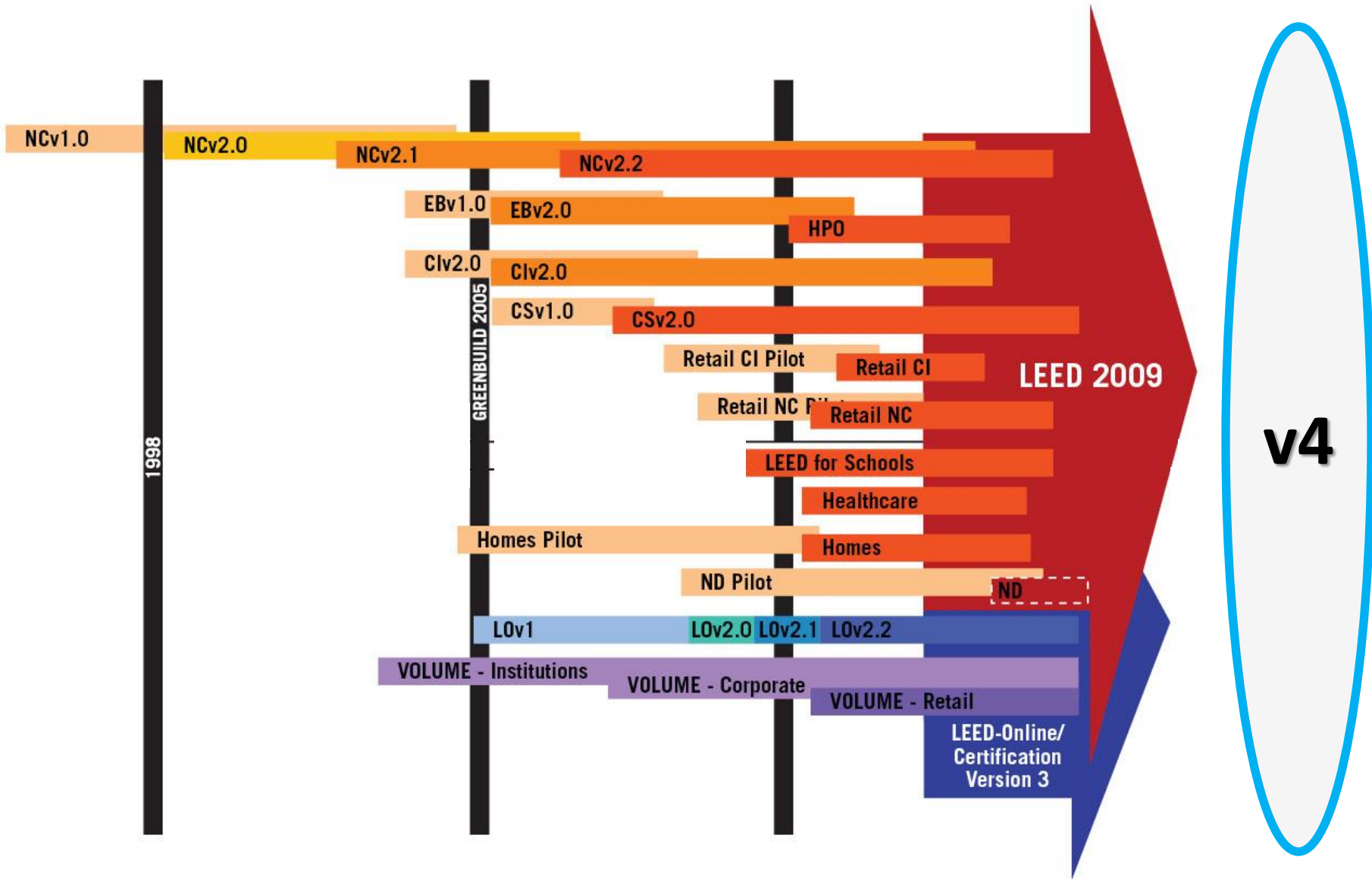
SCHOOLS

HOMES

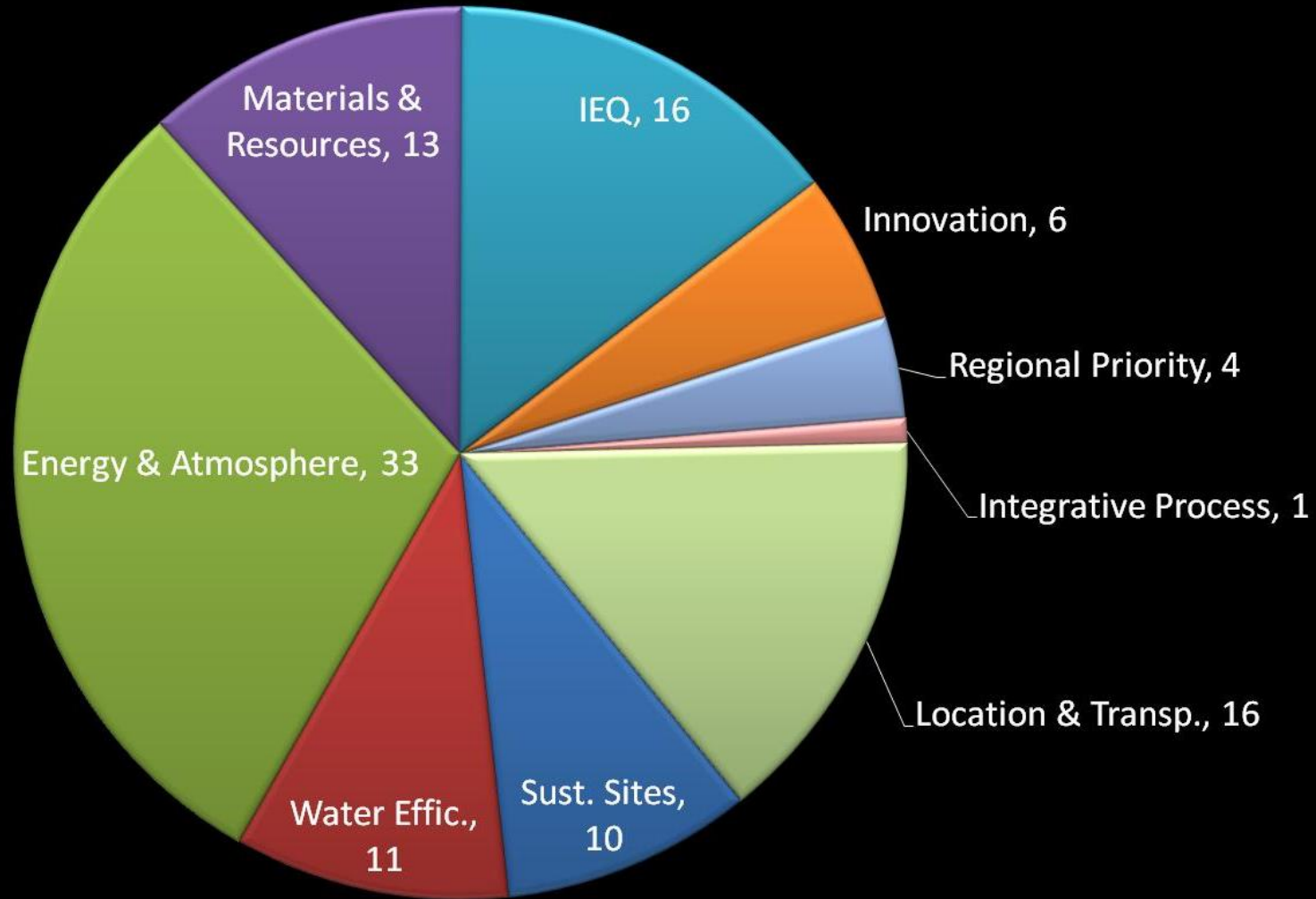
NEIGHBORHOOD
DEVELOPMENT

HEALTHCARE

HISTORY OF LEED LAUNCHES



LEED v4 Credit Categories & Possible Points



LEED v3 & LEED v4

Certified 40 to 49 points

Silver 50 to 59 points

Gold 60 to 79 points

Platinum 80 to 110

LEED v4: Highlights

International Focus

- 40% of projects registering today are int'l



LEED v4:
ONE GLOBAL LEED

LEED v4: Highlights

Focus on Performance

- Increased reward for IAQ testing
- New prerequisites - whole building meters (water/energy)
- Bike-able area required for bike racks / changing rooms
- Restructured Materials & Resources category to focus on systematic material performance
- Low-Emitting Materials - Tvoc budget, not VOC content



LEED v4 TECHNICAL IMPROVEMENTS: MATERIALS & RESOURCES





LEED v4 TECHNICAL IMPROVEMENTS: MATERIALS & RESOURCES

Highlights:

Life cycle thinking approach to category.

Optional whole building life cycle assessment for new construction.

Stronger reuse credit options.

Focus on product transparency and outcomes through Building Disclosure & Optimization credits.

New material ingredients option for supply chain optimization.

M&R Category Possible Points

LEED 2009

Storage and Collection of Recyclables	P
Building Reuse—Walls, Floors, and Roof	3
Building Reuse—Interior Non-Structural	1
Constr. Waste Mgmt. (50%, 75%, 95%* <i>EP</i>)	3
Materials Reuse (5%, 10%)	2
Recycled Content (10%, 20%)	2
Regional Materials (10%, 20%)	2
Rapidly Renewable Materials	1
Certified Wood	<u>1</u>
Total Possible Points	15*

M&R Category Possible Points

LEED 2009

Storage and Collection of Recyclables	P
Building Reuse—Walls, Floors, and Roof	3
Building Reuse—Interior Non-Structural	1
Constr. Waste Mgmt. (50%, 75%, 95%* EP)	3
Materials Reuse (5%, 10%)	2
Recycled Content (10%, 20%)	2
Regional Materials (10%, 20%)	2
Rapidly Renewable Materials	1
Certified Wood	1
	<hr/>
Total Possible Points	15*

LEED v4

Storage and Collection of Recyclables	P
C&D Waste Mgmt. Planning	P
Building Life Cycle Impact Reduction	5
Building Product Disclosure & Optimization	
Environmental Product Declarations	2
Material Ingredients	2
Sourcing of Raw Materials	2
C&D Waste Management	
50% + 3 Materials Streams, no ADC	1
75% + 4 Materials Streams, no ADC	1
*EP: Third-party verified facility rates	1
	<hr/>
	14*

Reuse emphasized in v4



PRESERVATION GREEN LAB:

**Looking for the Greenest Building?
Start with the one that already exists.**

“...it can take 10 to 80 years for a new energy efficient building to compensate, through efficient operations, for the climate change impacts created by its construction.”

2011 Report by the National Trust for Historic Preservation

Reuse in LEED v4

- Called “Building Life-Cycle Impact Reduction”
 - New buildings: Life-Cycle Analysis (LCA) [3 points]
 - Existing Building Reuse [1-5 points]
 - Historic building reuse [5 points]
 - Abandoned/blighted building reuse [5 points]
 - Building and reuse [up to 4 points]
 - *Reuse materials from off-site can be included in the calculations for building reuse*

Recycled Content Products in v4

- Now included under the *Building product disclosure and optimization - sourcing of raw materials* credit [1 point]
 - *Recycled content. Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost.*
 - *EPR. Products purchased from a manufacturer (producer) that participates in an extended producer responsibility program are valued at 50% of their cost.*
 - *EPDs: Environmental Product Declarations often report on recycled content, allowing another possible way to contribute towards LEED points.*

LEEDv4 C&D Credit Updates

What is Leadership in the C&D Industry?



LEED v4 C&D Overview

What is Leadership in C&D?

- Stimulate markets for recovered materials
 - Follow the hierarchy of reduce, reuse, recycle, then waste-to-energy or landfill
 - Eliminate the categorization of Alternative Daily Cover as recycling
- Jobsite best practices for diversion
 - Source-separation for higher quality reuse/recycled materials
 - Salvage followed by demolition
 - Manufacturer take-back programs
 - Transparent and verified WMPs and diversion accounting
- Enhanced tracking & verification of diversion rates
 - Third-party verified recycling rates

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

C&D Credit Changes from LEED 2009

- A compliance option has been added for total project waste reduction per gross floor area of the project
- Multiple waste streams must be diverted to earn the credit for waste diversion
- ADC has been specifically excluded from diversion calculations (in LEED 2009 it was allowed to count as diverted waste)
- Waste-to-Energy may count as a diversion method if the facility meets European requirements for waste management and emissions into air, soil, surface water and groundwater
- For the purposes of LEED, wood waste converted to bio-fuel or “wood-derived fuel” is not considered waste-to-energy and is exempted the criteria above.

C&D Pilot Credit (Extra Credit)

DRAFT... Not released yet

Intent: Seed the market for verified recycling diversion rates at C&D processing facilities

For a Pilot credit,

...use a recycling facility certified by the Recycling Certification Institute or other approved program.

LEED Pilot Credit Library

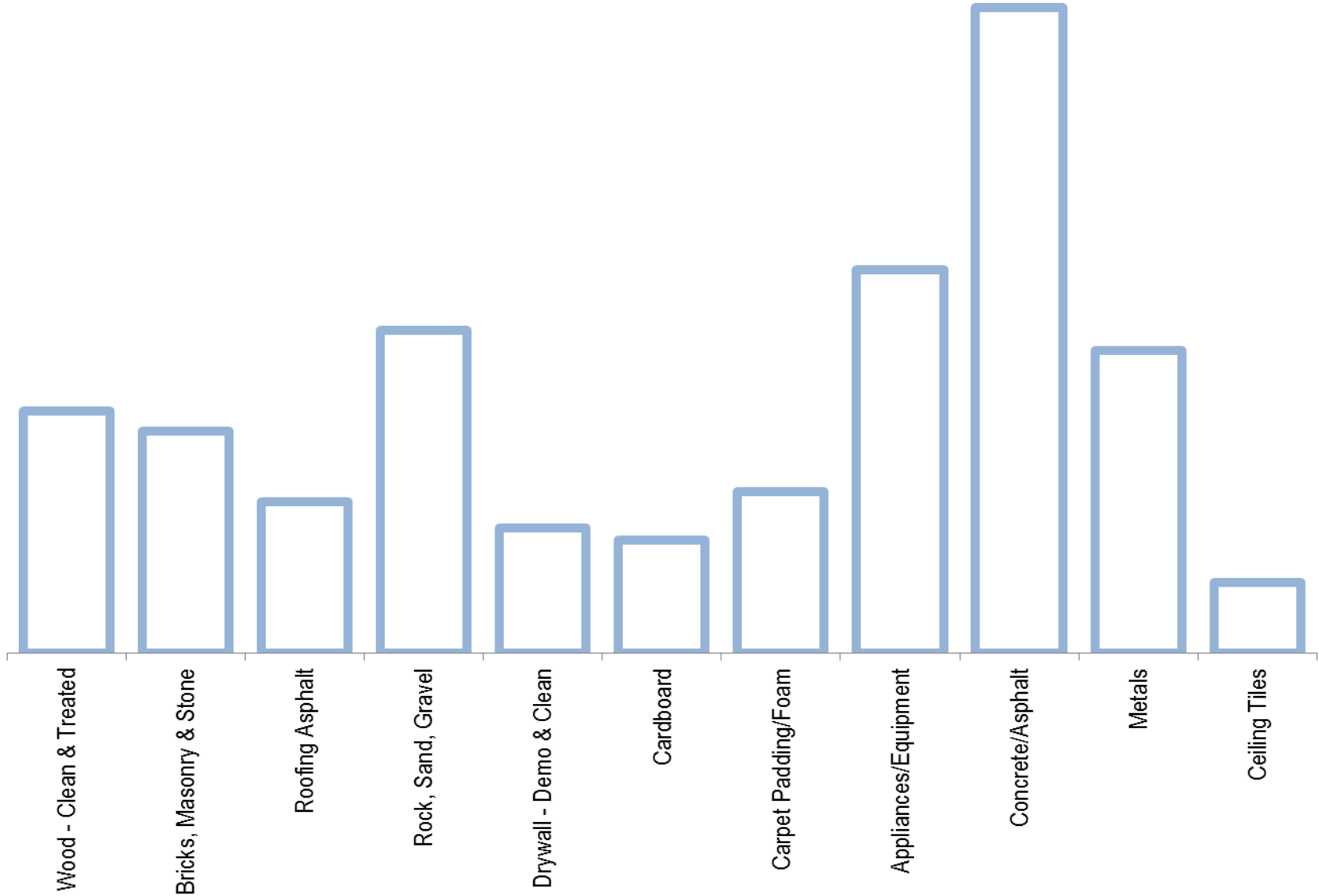
The LEED Pilot Credit Library is a rating system development tool designed to test new and revised LEED credit language, alternative compliance paths, and new or innovative green building technologies and concepts.

- Currently all LEEDv4 C&D credits are available as “pilot credits,” even if the projects have been registered or are being certified to a previous version of LEED
- A pilot credit for third-party facility diversion rates is in development and will be available soon (to reference RCI)

LEED v4 Materials Streams

Typical Construction & Demolition Materials Generation

Materials Generation (Not Necessarily To Scale)

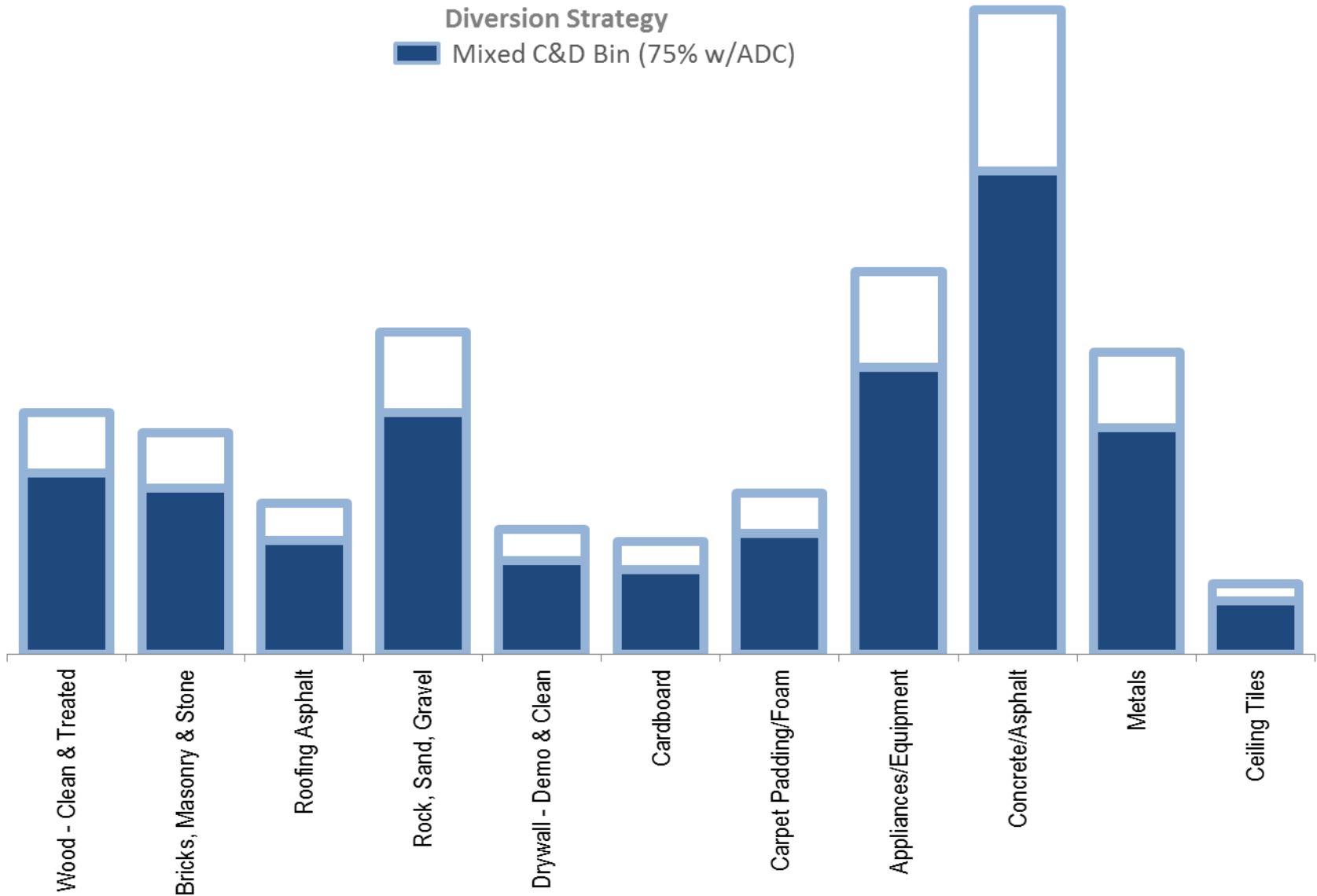


**CURRENT ACCEPTABLE PRACTICE
(LEED 2009)**

LEED 2009 Recycling (2 points)

Diversion Strategy

Mixed C&D Bin (75% w/ADC)

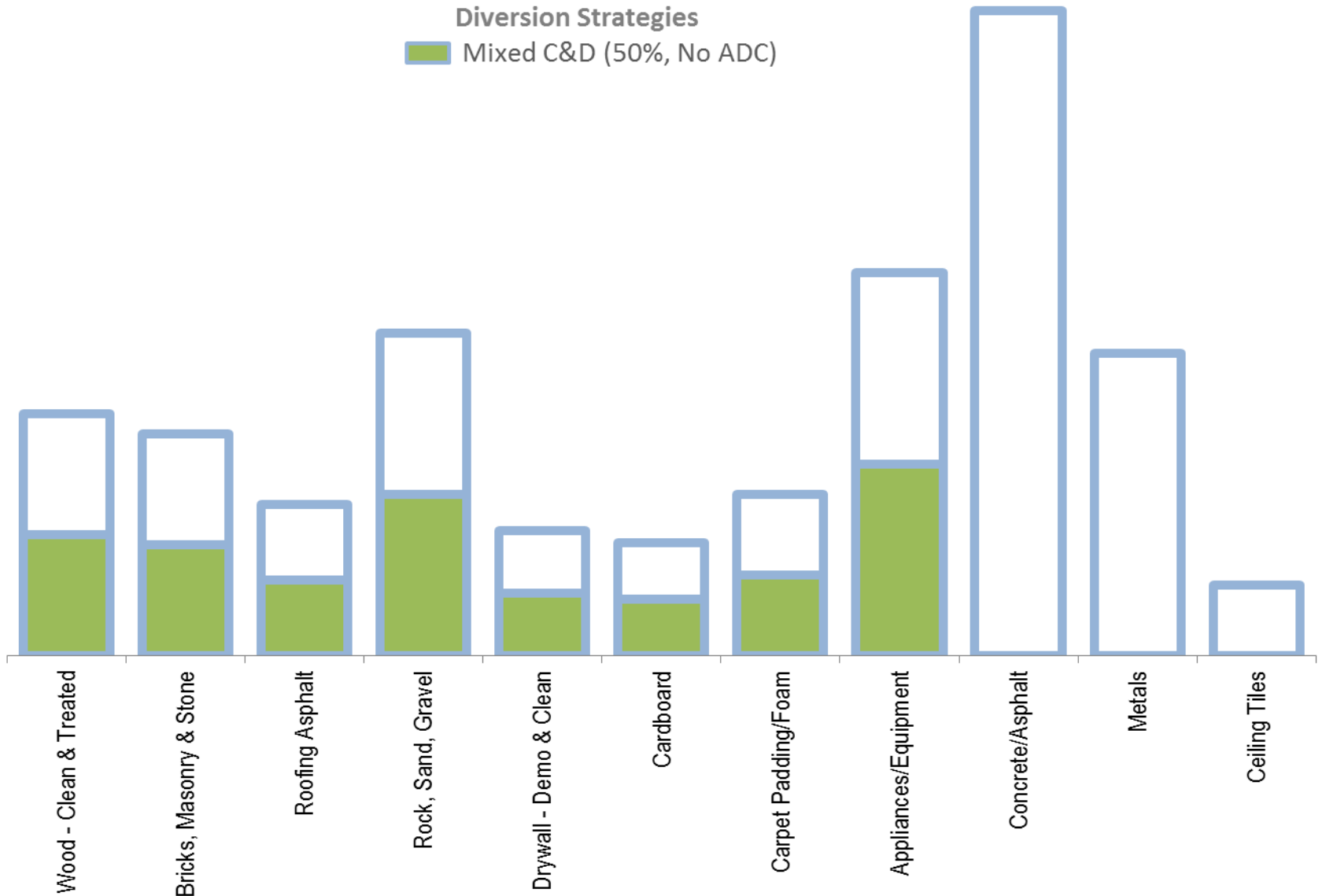


LEED V4 PROPOSED COMPLIANCE VIA 'MATERIALS STREAMS'

Construction & Demolition Materials Recycling Strategies

Diversion Strategies

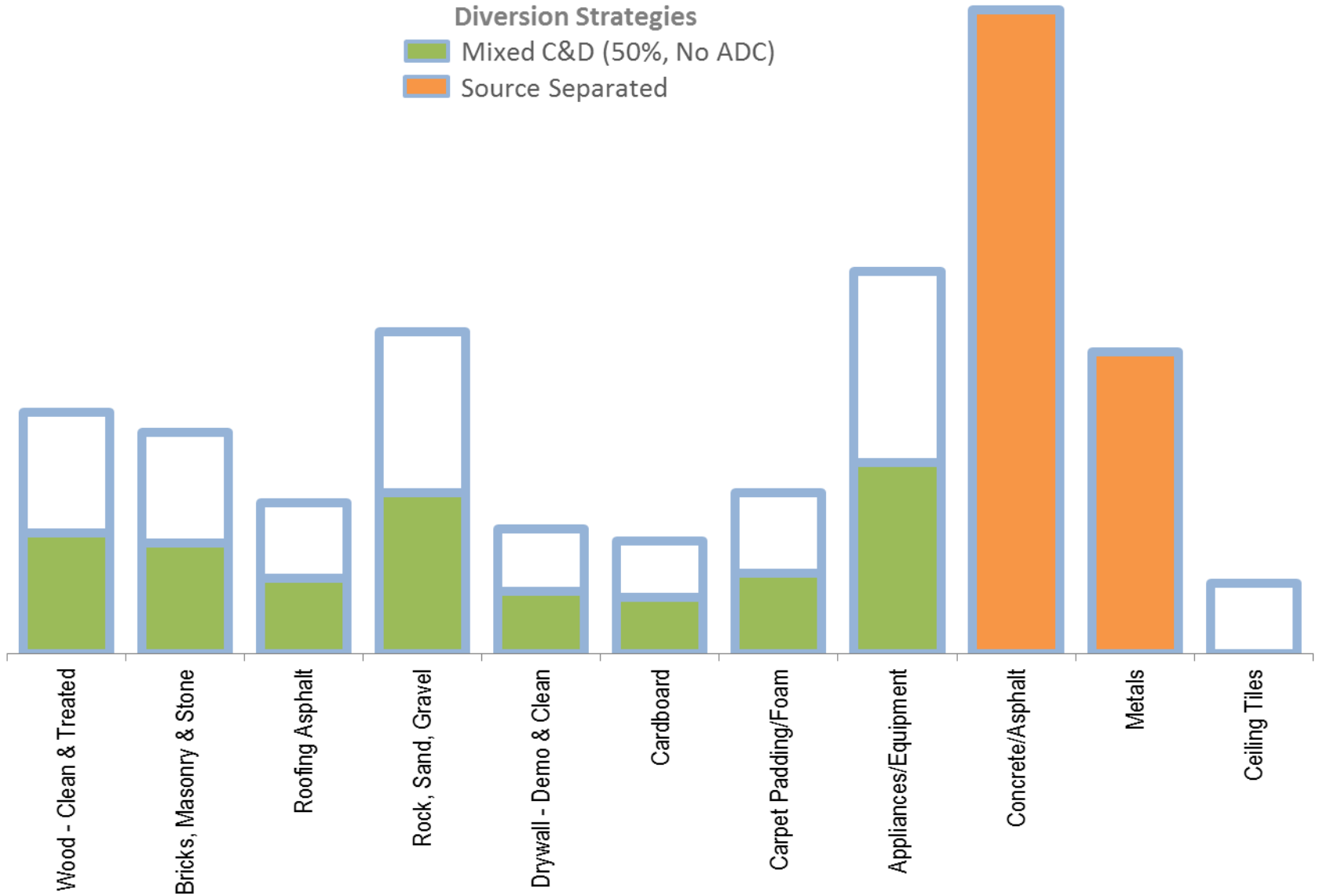
Mixed C&D (50%, No ADC)



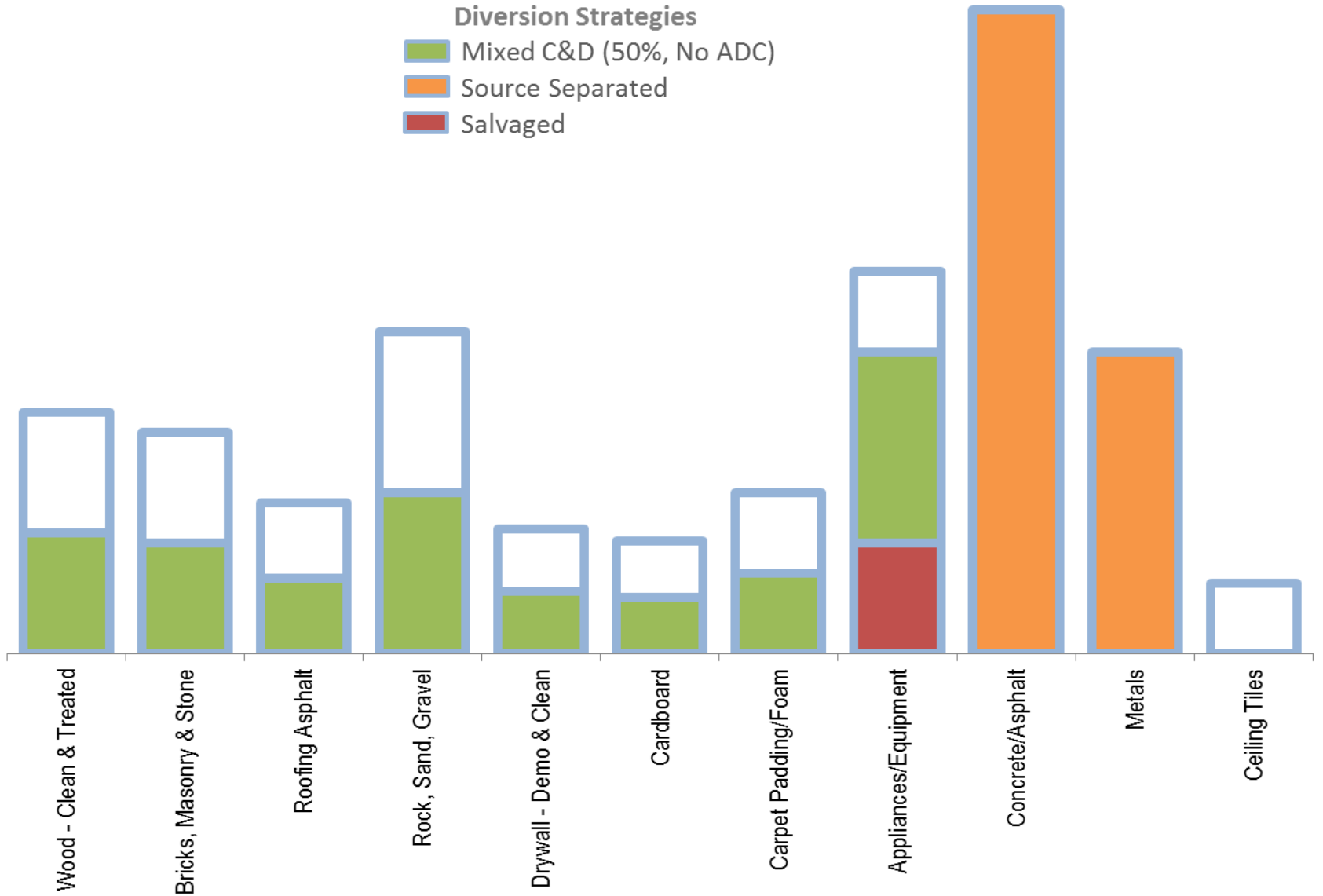
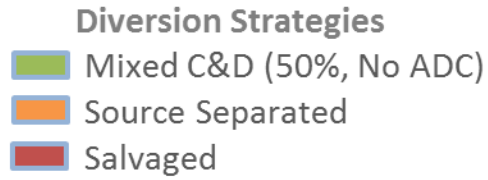
Construction & Demolition Materials Recycling Strategies

Diversion Strategies

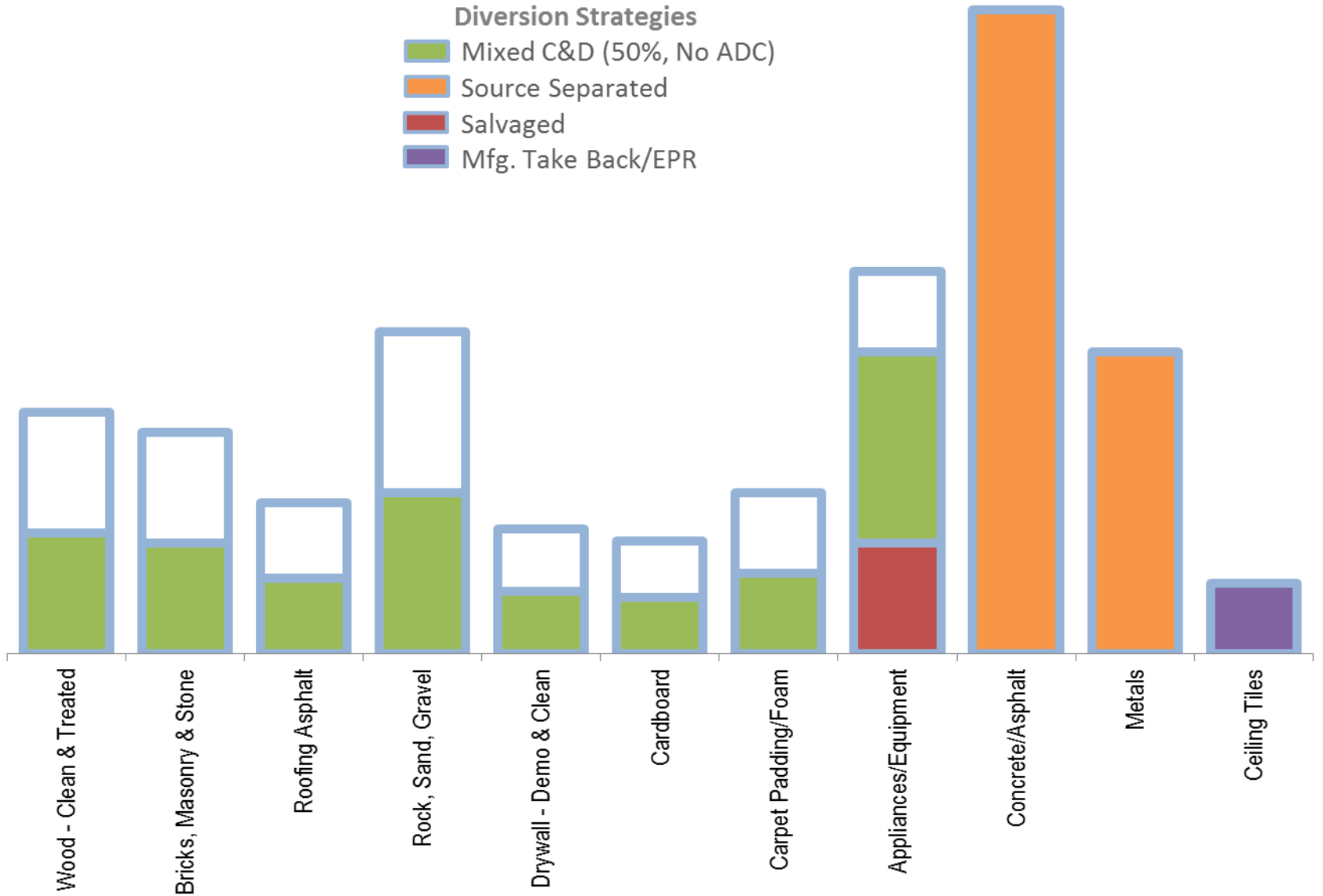
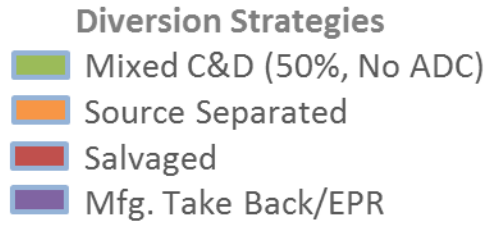
- Mixed C&D (50%, No ADC)
- Source Separated



Construction & Demolition Materials Recycling Strategies



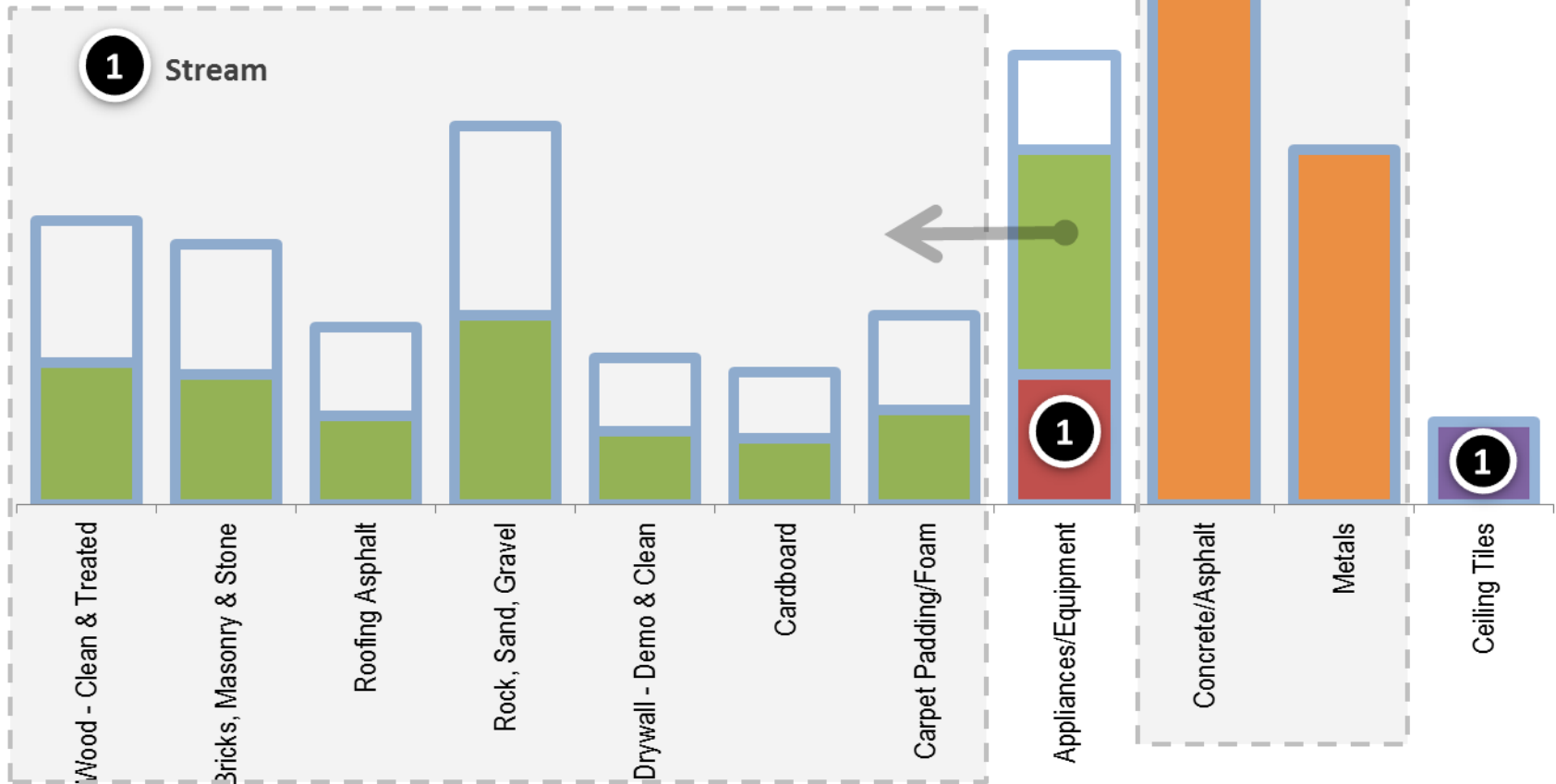
Construction & Demolition Materials Recycling Strategies



Diversion Materials "Streams" in LEED v4

This scenario shows 5 "Streams" in LEED v4

- Diversion Strategies**
- Mixed C&D (50%, No ADC)
 - Source Separated
 - Salvaged
 - Mfg. Take Back/EPR





JOIN

USGBC by March 1



REGISTER

to vote April 1 - 30



VOTE

for LEED v4 June 1 - 30



USE

v4 starting November 2013

*(v4 is the required rating system
for projects starting June 2015)*

Other Codes & Rating Systems following suit:

- GreenPoint Rated (California-based residential green building program) revisions will exclude ADC from diversion.
- ASHRAE 189.1 Standard for High Performance Green Buildings
 - Nonresidential standard for jurisdictions that adopt the International *green* Construction Code (IgCC)
 - 2013 addendum will be out for public comment soon
 - ADC and incineration not considered ‘diversion’
 - Need letters of support
 - IgCC revisions start end of 2013



Resources & Contact

www.usgbc.org/v4

www.stopwaste.org/c&d

www.recyclingcertification.org

www.greenhalosystems.com

www.builditgreen.org

www.iccsafe.org

www.ashrae.org

Wes Sullens
StopWaste of Alameda County
Oakland, CA
510-891-6500
wsullens@stopwaste.org