

# **San Francisco's Green Building Code: Adaptation and Implementation**

**USGBC-NCC Diablo East Bay Branch  
Contra Costa County Climate Leaders (4CL)**

## **CALGreen: Compliance and Beyond**

**February 3, 2011**

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**SF Environment**

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**SF Environment**  
Our home. Our city. Our planet.

# Outline

1. S.F. Green Building Policy – From Incentives to Mandates
2. Chapter 13C of the S.F. Building Code (“Green Building Requirements”)
3. CALGreen and the 2010 amendments
4. The Regional Perspective – rating systems, market penetration; BACC recommendations

# Climate Action Plan

For San Francisco

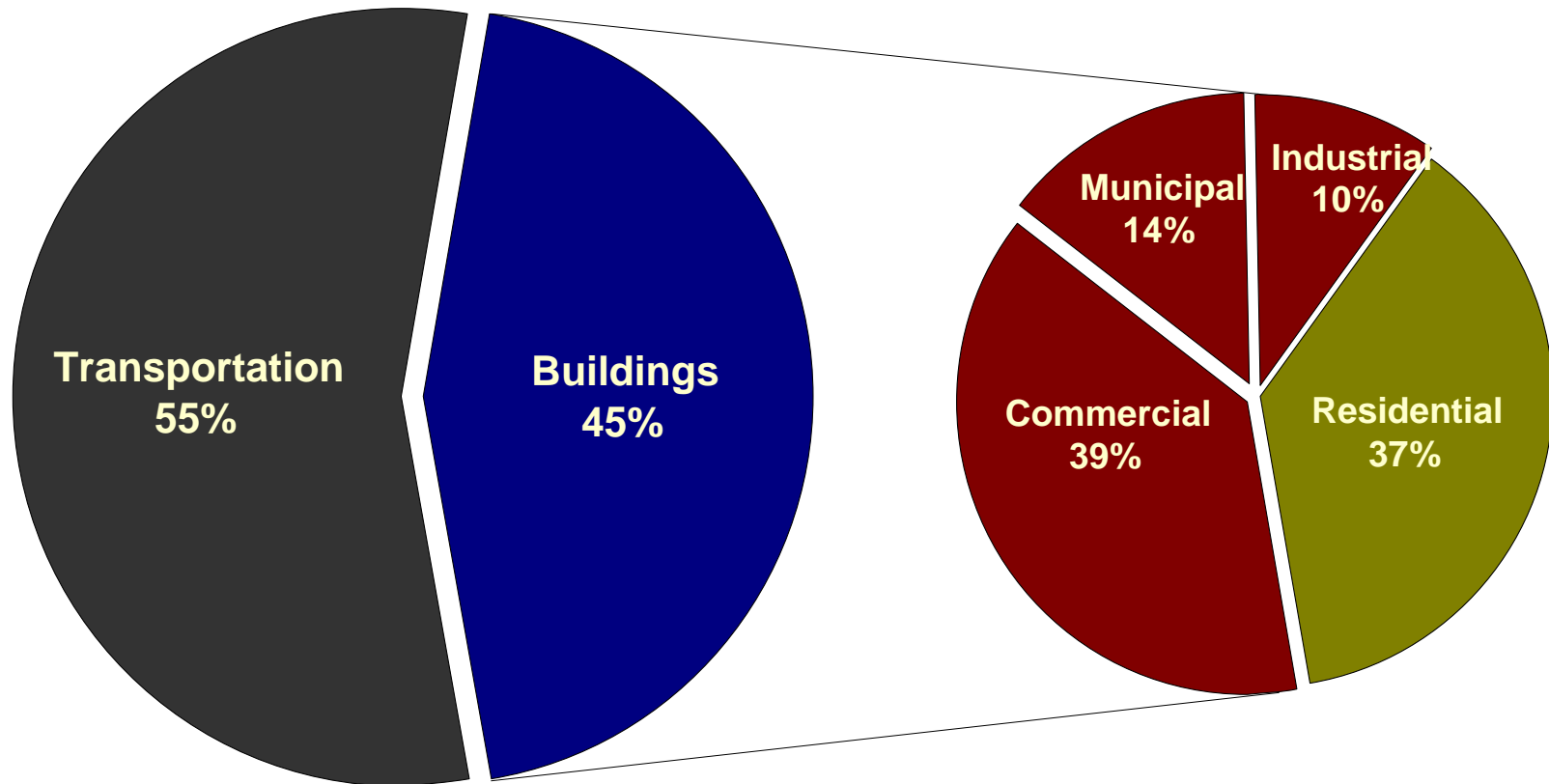
Local Actions to Reduce Greenhouse Gas Emissions



San Francisco Department of the Environment • San Francisco Public Utilities Commission

September 2004

# San Francisco Greenhouse Gas Emissions (2005)



Sources: PG&E, Hetch Hetchy Water and Power, CA. Dept of Transportation, MTC, Muni, BART.

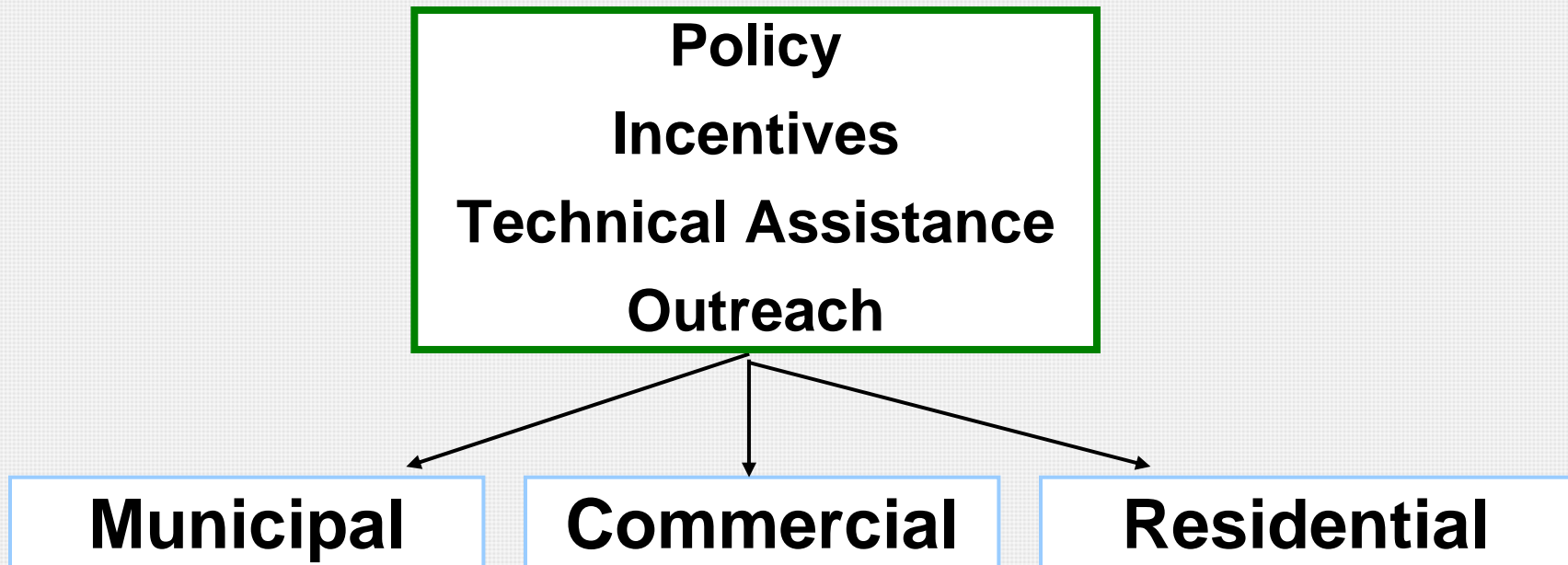


## **Mission**

- Improve, enhance, and preserve the environment
- Promote San Francisco's long-term well being

# **Green Building Role**

Enhance environmental performance to  
reduce costs while increasing efficiency and livability





# Leading by Example



122 LEED AP Staff

# Priority Permit Incentive - 2007

## Environmental Review and Building Permit

Standard Timeframe – 2007 – 2008



0

6 - 9  
months

LEED Gold Timeframe – 2007 - 2008



0 1 month

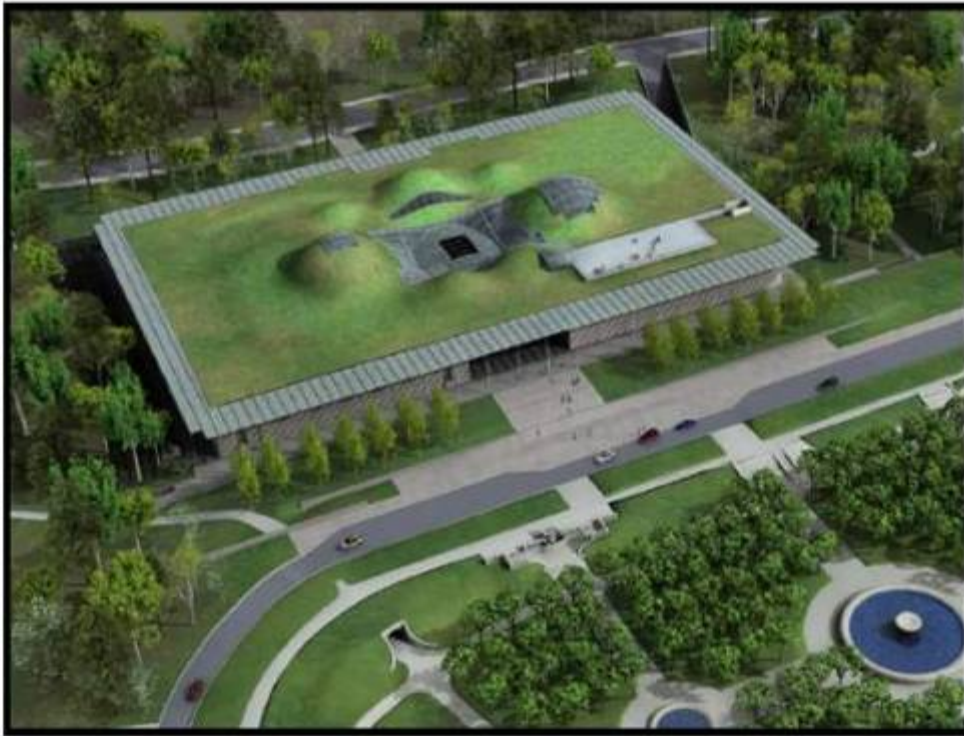


City and County of San Francisco  
**Planning Department**



# The Mayor's Task Force on Green Building

For the City and County of San Francisco



## REPORT AND RECOMMENDATIONS

June 2007

### Scope

- Commercial & Residential
- New Construction

### Composition

- Owners
- Developers
- Financial
- Architects
- Engineers
- Contractors

### Emphasis

- Predictability
- Substantive requirements
- Design Flexibility





*August 4, 2008*

# Green Building Labels

## LEED Rating System U.S. Green Building Council



- Points define four certification levels
- Focused on commercial new & retrofit
  - 9000+ rated projects since 2000

## Green Point Rated System Build It Green



- 50+ points define degree of 'Green'
  - Focused on single/multi family residential
- Goal of 10,000 units rated by end of 2008

- Two complementary standards have emerged as leaders:
  - Widely recognized and consensus-based
  - Consistent and quantifiable rating criteria, 'menu' of options/choices
  - Independent 3<sup>rd</sup>-party verification



# 2008 Green Building Requirements

	2008	2009	2010	2011	2012
New Commercial					
Large ≥ 25k ft	LEED Certified	LEED Silver			LEED Gold
Mid-Size 5k – 25k sq ft	LEED checklist + Local Priority Measures				
New Residential					
High Rise ≥ 75' height	LEED Certified		LEED Silver		
Midsize 5+ units	GreenPoints Checklist	25 GreenPoints	GreenPoint Rated	GreenPoint Rated - 75 Points	
Small ≤4 units	GreenPoints Checklist	25 GreenPoints	GreenPoint Rated		GreenPoint Rated - 75 Pts
Renovations					
First Time Tenant >25k sq ft	LEED Certified	LEED Silver			LEED Gold
Major Alteration >25k sq ft	LEED Certified	LEED Silver			LEED Gold



# 2011 Green Building Requirements

	2008	2009	2010	2011	2012
New Commercial					
Large ≥ 25k ft	LEED Certified	LEED Silver		LEED Silver + 8 CALGreen measures	LEED Gold + 8 CALGreen measures
Mid-Size 5k – 25k sq ft	LEED checklist + Local Priority Measures			CALGreen/LEED & 15% Title 24 2008	
Small & Other <5k or Other	None			CALGreen & 15% Title 24 2008	
New Residential					
High Rise ≥ 75' height	LEED Certified		LEED Silver		
Midsize 5+ units	GreenPoints Checklist	25 GreenPoints	GreenPoint Rated	GreenPoint Rated - 75 Points	
Small ≤4 units	GreenPoints Checklist	25 GreenPoints	GreenPoint Rated		GreenPoint Rated - 75 Pts
Renovations					
First Time TI >25k sq ft	LEED Certified	LEED Silver			LEED Gold
Major Alteration >25k sq ft	LEED Certified	LEED Silver			LEED Gold



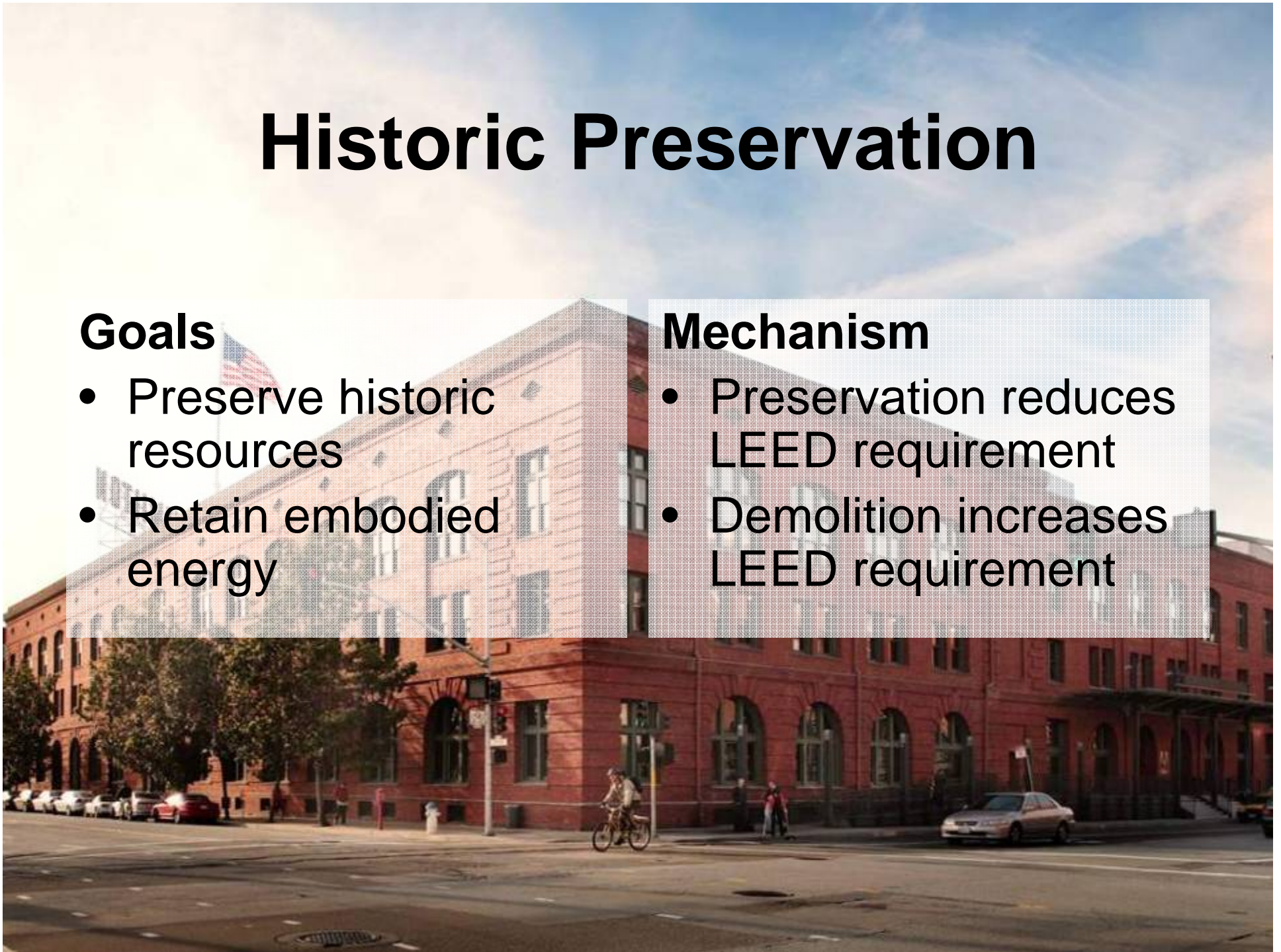
# Historic Preservation

## Goals

- Preserve historic resources
- Retain embodied energy

## Mechanism

- Preservation reduces LEED requirement
- Demolition increases LEED requirement





Green Building Ordinance: Summary of Requirements  
Table 1: Performance Standards

# SUMMARY - DRAFT

Building Type  Occupancy and Size  Code Reference	New Construction				Interiors and Major Alterations		
	New Large Commercial	All Other New Non-Residential	New High-Rise Residential	All Other New Residential	Large Commercial Interiors	Major Alterations to Commercial	Major Alterations to Residential
	A, B, I, M ≥25,000 sq. ft.	E, F, H, L, S, U any size, or A, B, I, M <25,000 sq. ft.	R 5+ units and ≥ 75' height to highest occupied floor	R 1+ units and < 75' height to highest occupied floor	A, B, I, M ≥ 25,000 sq. ft.	B, M >25,000 sq. ft.	R >25,000 sq. ft.
	13C.5.103.1	13C.5.103.2	13C.4.103.2	13C.4.103.1	13C.5.103.4	13C.5.103.3	13C.4.103.3
Overall Requirement	2011: LEED Silver 2012: LEED Gold	None	LEED Silver, or GreenPoint Rated	GreenPoint Rated	2011: LEED Silver 2012: LEED Gold	2011: LEED Silver 2012: LEED Gold	LEED Silver or GreenPoint Rated
Base Number of Points Required (Retention of historic features or demolition may adjust points required. See Table 2 & 3)	2011: 50 points 2012: 60 points	-	LEED: 50 points GPR: 75 points	GreenPoint Rated 75 points	2011: 50 points 2012: 60 points	2011: 50 points 2012: 60 points	LEED: 50 points GPR: 75 points
Construction Debris Management Divert at least 75% of construction debris (LEED credit MR 2, 2 points)	Required	Required for A,B,I,M >5,000 sq. ft.	Required	Construction and Demolition Debris Recovery Ordinance (only) Requires use of registered hauler(s) to registered facilities which divert >65% of debris.			
Energy Efficiency Exceed Title 24 2008 by at least 15%. (LEED projects may alternatively exceed ASHRAE 90.1 2007 by 15%)	Required	Required	Required	Required (ASHRAE alternative does not apply)	Required	Meet LEED prerequisites	Meet LEED or GPR prerequisites
Commissioning of Building Systems	Meet LEED prerequisite EAp1 and Credit EA3	Required for new non-residential greater than 10,000 sq feet (13C.5.410.2)	LEED prerequisite EAp1	-	-	-	-
Renewable Energy 1% on-site renewable energy (LEED EA2); OR purchase 35% renewable energy (LEED EA6); OR meet 25% energy performance compliance margin (LEED EA1)	Required as of 1/1/2012	Required for new A,B,I,M greater than 5,000 sq. ft. as of 1/1/2012	-	-	-	-	-
Water Efficiency Minimum reduction in potable water use	30% reduction (LEED credit WE3)	20% reduction (13C.4.303.1)	30% reduction (LEED credit WE3)	20% reduction (13C.4.303.1)	20% reduction (LEED prerequisite WEp1)	20% reduction (LEED prerequisite WEp1)	LEED: WEp1 GPR: Meet SF Housing Code Ch12A
Stormwater Management Comply with SFPUC Stormwater Design Guidelines, including as applicable LEED SS 6.1 and 6.2.	Required as applicable See SFWATER.org - "Stormwater Management"				-	Stormwater controls only required if project disturbs >5,000 square feet of ground surface	
Construction Activity Pollution Prevention Meet SFPUC Best Management Practices	Stormwater Pollution Prevention Plan required (LEED SSp1)	Stormwater Pollution Prevention Plan Required for projects disturbing more than 5,000 sq ft	Stormwater Pollution Prevention Plan required (LEED SSp1)	Stormwater Pollution Prevention Plan Required for projects disturbing more than 5,000 sq ft	-	Stormwater Pollution Prevention Plan Required for projects disturbing more than 5,000 sq ft	
Indoor Air Quality Management During Construction	Implement IAQ Management Plan (LEED credit EQ 3.1)	Cover ducts and mechanical equipment during construction (13C.5.504.3)	-	GreenPoint Rated includes this CalGreen measure	-	-	-
Low Emitting Materials Use low- emitting materials for adhesives, sealants, caulks, paints, coatings, carpets, flooring systems, and composite wood	Meet via LEED credits IEQ4.1, IEQ4.2, IEQ4.3, and IEQ 4.4	Meet 13C.5.504.4.1 through 13C.5.504.4.6.1	-	GreenPoint Rated includes this CalGreen measure	Meet via LEED credits IEQ4.1, IEQ4.2, and IEQ4.3		
Additional Specific Local Required Measures (CalGreen)	Required	Required	-	-	First time tenant improvements only	n/a (New construction only)	
Recommended Submittal Form Single template that summarizes requirements to be met, and verification	"LEED" (Includes all SFBC 13C required measures)	"Specific Local Measures Only"	"LEED" or "GPR"	"GPR"	"LEED"	"LEED"	"LEED" or "GPR"



# SUBMITTAL FORM (LEED)- DRAFT

LEED for New Construction and Major Renovation 2009 Project Scorecard				Note: Projects 1 & Shell, Comm Green Building LEED Checklist	
Pre	1	2	3	4	5
<b>Sustainable Sites</b> 26 Points					
<b>SS-1 Construction Activity Pollution Prevention</b> <b>4</b> <b>Points</b>					
SS-1.1	1	2	3	4	5
SS-1.2	1	2	3	4	5
SS-1.3	1	2	3	4	5
SS-1.4	1	2	3	4	5
SS-1.5	1	2	3	4	5
SS-1.6	1	2	3	4	5
SS-1.7	1	2	3	4	5
SS-1.8	1	2	3	4	5
SS-1.9	1	2	3	4	5
SS-1.10	1	2	3	4	5
SS-1.11	1	2	3	4	5
SS-1.12	1	2	3	4	5
SS-1.13	1	2	3	4	5
SS-1.14	1	2	3	4	5
SS-1.15	1	2	3	4	5
SS-1.16	1	2	3	4	5
SS-1.17	1	2	3	4	5
SS-1.18	1	2	3	4	5
SS-1.19	1	2	3	4	5
SS-1.20	1	2	3	4	5
SS-1.21	1	2	3	4	5
SS-1.22	1	2	3	4	5
SS-1.23	1	2	3	4	5
SS-1.24	1	2	3	4	5
SS-1.25	1	2	3	4	5
SS-1.26	1	2	3	4	5
SS-1.27	1	2	3	4	5
SS-1.28	1	2	3	4	5
SS-1.29	1	2	3	4	5
SS-1.30	1	2	3	4	5
SS-1.31	1	2	3	4	5
SS-1.32	1	2	3	4	5
SS-1.33	1	2	3	4	5
SS-1.34	1	2	3	4	5
SS-1.35	1	2	3	4	5
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SS-1.37	1	2	3	4	5
SS-1.38	1	2	3	4	5
SS-1.39	1	2	3	4	5
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SS-1.61	1	2	3	4	5
SS-1.62	1	2	3	4	5
SS-1.63	1	2	3	4	5
SS-1.64	1	2	3	4	5
SS-1.65	1	2	3	4	5
SS-1.66	1	2	3	4	5
SS-1.67	1	2	3	4	5
SS-1.68	1	2	3	4	5
SS-1.69	1	2	3	4	5
SS-1.70	1	2	3	4	5
SS-1.71	1	2	3	4	5
SS-1.72	1	2	3	4	5

## VERIFICATION

**Option 1:**

Verification of compliance for this project will be provided by USGBC/GBCI certification under the LEED Rating system. Green Building Compliance Professional of Record is not required.

Permit Applicant – Sign &amp; Date

## QR

**Option 2:**

This project will not be LEED certified. The Green Building Compliance Professional of Record for this project is:

Name

Firm

Architectural or Engineering License

☐ I am a LEED Accredited Professional.

Certified LEED Projects Completed: \_\_\_\_\_

To the best of my knowledge, it is my professional opinion the Green Building requirements of the City of San Francisco will be met for the above referenced project. I have been retained by the project sponsor to review all submittal documents and assure that approved construction documents and construction properly reflect the Green Building requirements of Chapter 13C. I will notify the Department of Building Inspection if I believe to the best of my knowledge that the project will, for any reason, not substantially comply with these green building requirements, or if I am no longer the Green Building Compliance Professional of Record for this project.

Licensed Professional: Sign & Date

Affix professional stamp:

San Francisco  
Requirements  
Information Form  
Form option

## VERIFICATION

**Option 1:**

Verification of compliance for this project will be provided by USGBC/GBCI certification under the LEED Rating system. No Green Building Compliance Professional of Record is required.

Permit Applicant – Sign &amp; Date

OR

Option 2:

This project will not be LEED certified. The Green Building Compliance Professional of Record for this project is:

Name \_\_\_\_\_

Firm

Architectural or Engineering License

☐ I am a LEED Accredited Professional  
# of Certified LEED Projects Completed:

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Licensed Professional: Sign & Date

Affix professional stamp:

Submittal Template:

Project Name

LEED

# SUBMITTAL FORM (SM COMM.)- DRAFT

## INDOOR WATER USE COMPLIANCE FORMS

### **PRESCRIPTIVE APPROACH**

Each fixture must not exceed the maximum flow rates at 20% reduction in Table 130.5.203.2.3.

[illegible]

1. *Individuals and their water class with an effective value of 1.38 gallons in last*  
*high-flow basin. The effective value calculated as mean (1.32 gallons) (4.81 feet). The effective value is the average flow value value*  
*combined with 4.806 (1.23/2.81).*  
*(last flow basin - the effective value calculated as mean (1.38 gallons) (4.81 feet). The effective value is defined as the average, average*  
*value of effective value and last flow value of 1.38 gallons (4.81 feet) is defined as mean with 4.806 (1.23/2.81) and 4.81 (1.23/2.81).*



## PERFORMANCE APPROACH

The proposed water use from Worksheet WS-1 must not exceed the total daily baseline water use from Worksheet WS-2.

[illegible]

1. The data are made available to researchers on a non-confidential basis.

2. The data are made available to the CDC, Department of Health and Human Services, and the CDC National Center for HIV/AIDS Epidemiology and Prevention for research purposes.

3. The data are made available to the CDC, Department of Health and Human Services, and the CDC National Center for HIV/AIDS Epidemiology and Prevention for research purposes.

4. The data are made available to the CDC, Department of Health and Human Services, and the CDC National Center for HIV/AIDS Epidemiology and Prevention for research purposes.

[illegible]

Proposed water use	10
$(\text{FWU from WS-1}) \times (0.05) =$	Allowable water use

1. The fully available water shall be increased or decreased if water use is not restricted to the mean.  
 2. The water use restriction shall apply to all agricultural lands, with the exception of crops of agricultural value as outlined in section 10.02C, which shall not be subject to the restriction.  
 3. The water use restriction shall apply to all agricultural lands, with the exception of crops of agricultural value as outlined in section 10.02C, which shall not be subject to the restriction.

[illegible]

City and County of San Francisco  
2011 Green Building Requirements  
Summary and Verification Form  
**Specific Locally Required Measures Only**

## REQUIREMENTS

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BlockLot

Address

Primary Occupancy

Gross Building Area

Check the box by each measure to indicate that you intend to comply with the listed requirement. For each requirement, use the "Plan Set Location" column to indicate where in the submittal documents compliance with the requirement can be verified. An abbreviated summary of each requirement is included for reference. Projects seeking LEED certification may voluntarily use the "LEED" submittal as an alternative to this form.

Specific Measures Required by San Francisco Building Code Chapter 13C	Plan Set Location (Sheet & Detail)
-----------------------------------------------------------------------	---------------------------------------

Bicycle parking: Provide short-term and long-term bicycle parking for 5% of total motorized parking capacity each, or meet San Francisco Planning Code Sec. 155, whichever is greater (or LEED credit SS5.4.3), (13C.5.106.4).	<input type="checkbox"/>
Designated parking: Provide stall marking for low-emitting, fuel efficient, and carpooling pool vehicles; approximately 4% of total spaces, (13C.5.106.5)	<input type="checkbox"/>
Light pollution reduction: Contain lighting within each source. No more than .01 horizontal footcandle 15 beyond site (or LEED credit SS 6), (13C.5.106.6)	<input type="checkbox"/>
Energy Efficiency: Demonstrate a 15% energy use reduction compared to 2006 California Energy Code, Title 24, Part 6, (13C.5.201.1.1)	<input type="checkbox"/>
Water Meters: Provide submeters for spaces projected to consume more than 1,000 gpd/day, or more than 100 gpd/day if in building over 50,000 sq. ft, (13C.5.303.1)	<input type="checkbox"/>
Indoor Water Efficiency: Reduce overall use of potable water within the building by 20% for showers, lavatories, kitchen faucets, wash fountains, water closets, and urinals, (13C.5.303.3)	<input type="checkbox"/>
Solid Waste: Provide space for storage, collection, and loading of recycling, composting and trash. (13C.5.410.1)	<input type="checkbox"/>
Commissioning: For new buildings greater than 10,000 square feet, commissioning shall be included in the design and construction of the project to verify that the building systems and components meet the owner's project requirements. (13C.5.410.2)	<input type="checkbox"/>
OR for buildings less than 10,000 square feet, testing and adjusting of systems is required. (13C.5.410.4)	<input type="checkbox"/>
Protect duct openings and mechanical equipment during construction (13C.5.504.3)	<input type="checkbox"/>
Adhesives, sealants, and caulks: Comply with VOC limits in SCAQMD Rule 116B VOC limits and California Code of Regulations Title 17 for aerosol adhesives, (13C.5.504.4.1)	<input type="checkbox"/>
Paints and coatings: Comply with VOC limits in the Air Resources Board Architectural Coatings Suggested Control Measure and California Code of Regulations Title 17 for aerosol paints, (13C.5.504.4.2)	<input type="checkbox"/>
Carpet: All carpet must meet one of the following: 1. Carpet and Rug Institute Green Label Plus Program 2. California Department of Pesticide Health Standard Practice for the testing of VOCs (Specification 01300) 3. GREENING 140 at the Gold level 4. Scientific Certification Systems Sustainable Choice AND Carpet cushion must meet CR1 Green Label, AND Carpet adhesive must not exceed 50 g/L VOC content. (13C.5.504.4.4)	<input type="checkbox"/>
Composite wood: Meet CARB Air Toxics Control Measure for Composite Wood, (13C.5.504.4.5)	<input type="checkbox"/>
Resilient flooring systems: For 50% of floor area requiring resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program, (13C.5.504.4.6)	<input type="checkbox"/>
Air Filtration: MERV-8 filters in regularly occupied spaces of mechanically ventilated buildings. (13C.5.504.5.3)	<input type="checkbox"/>
Acoustical Control: Wall and roof ceilings STC 50, exterior windows STC 30, party walls and floor-ceiling STC 40, (13C.5.507.4)	<input type="checkbox"/>
CFCs and Halons: Do not install equipment that contains CFCs or Halons. (13C.5.508.1)	<input type="checkbox"/>
Stormwater Control Plan: Projects disturbing >5,000 square feet must implement a Stormwater Control Plan meeting SFPUC Stormwater Design Guidelines	<input type="checkbox"/>
<b>ADDITIONAL REQUIREMENT FOR NEW A, B, I, OR M OCCUPANCY PROJECTS 5,000 - 25,000 SQUARE FEET</b>	
Construction Waste Management - Divert 75% of construction and demolition debris, including diversion from compliance with Construction & Demolition Debris Ordinance	<input type="checkbox"/>

Medline®

## VERIFICATION

The Green Building Compliance Professional of Record for this project is:

---

Name \_\_\_\_\_

Firm

Architectural or Engineering License

☐ I am a LEED Accredited Professional  
# of Certified LEED Projects Completed: \_\_\_\_\_

To the best of my knowledge, it is my professional opinion the Green Building requirements of the City of San Francisco will be met for the above referenced project. I have been retained by the project sponsor to review all submittal documents and assure that approved construction documents and construction properly reflect the Green Building requirements of Chapter 13C. I will notify the Department of Building Inspection if I believe to the best of my knowledge that the project will, for any reason, not substantially comply with these green building requirements, or if I am no longer the Green Building Compliance Professional of Record for this project.

Licensed Professional: Sign & Date

Affix professional stamp:

**Submittal Template:  
Specific Locally  
Required Measures  
Only**

Project Name

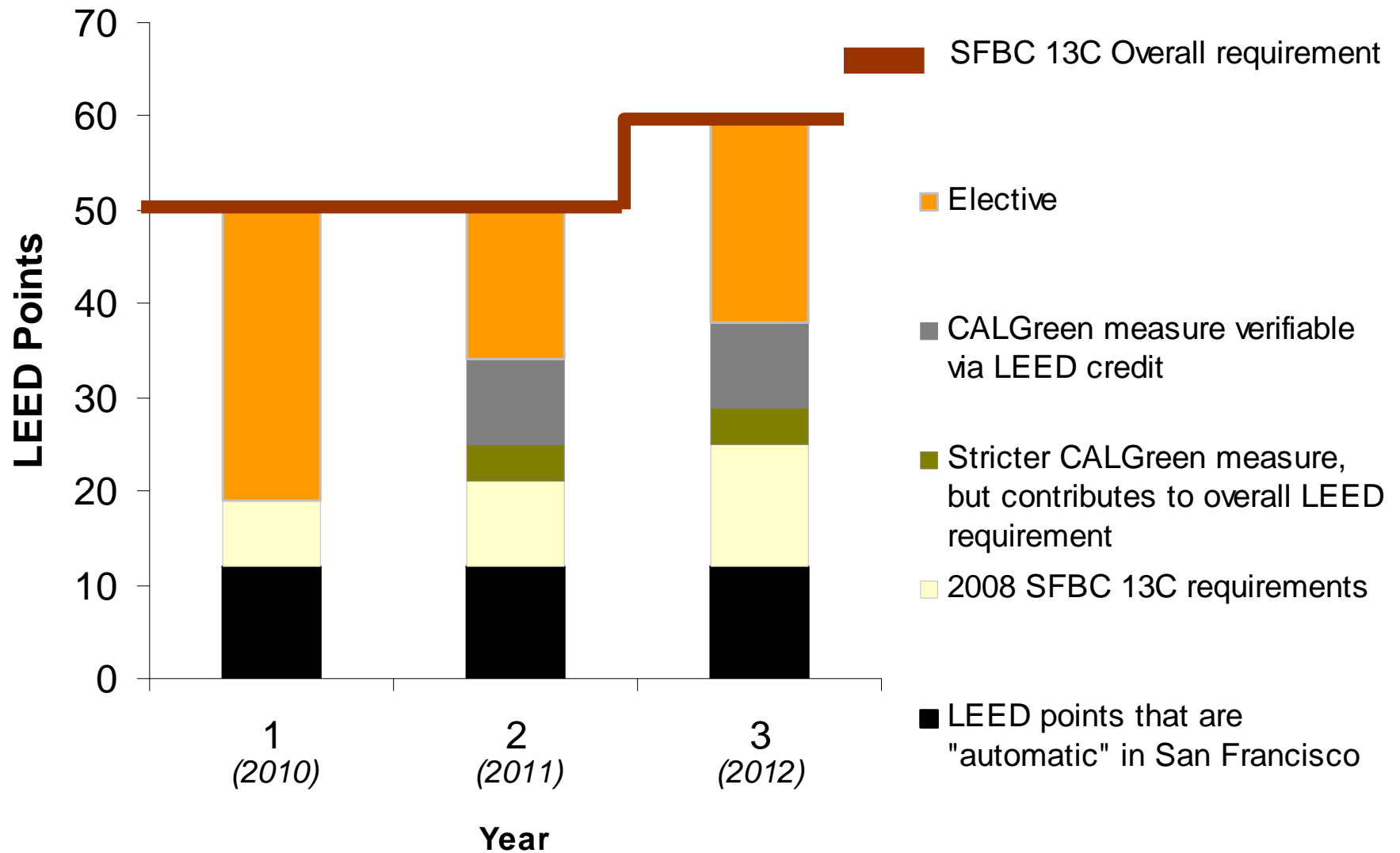
Specific Locally  
Required  
Measures Only

**Green Building Submittal: San Francisco Building Code Chapter 13C**  
City and County of San Francisco  
This submittal form for use until Dec. 31, 2011

Specific Locally  
Required  
Measures Only

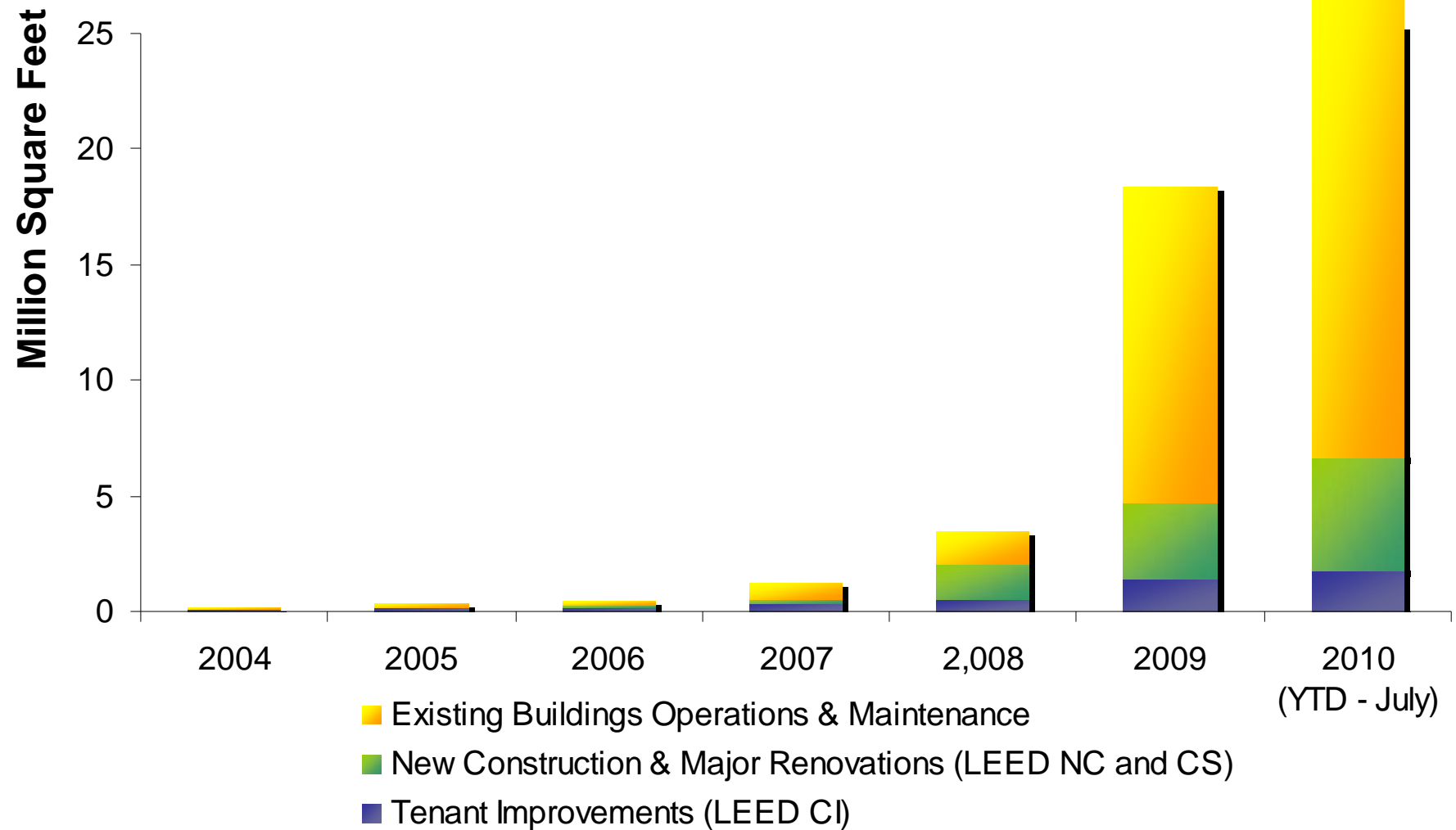


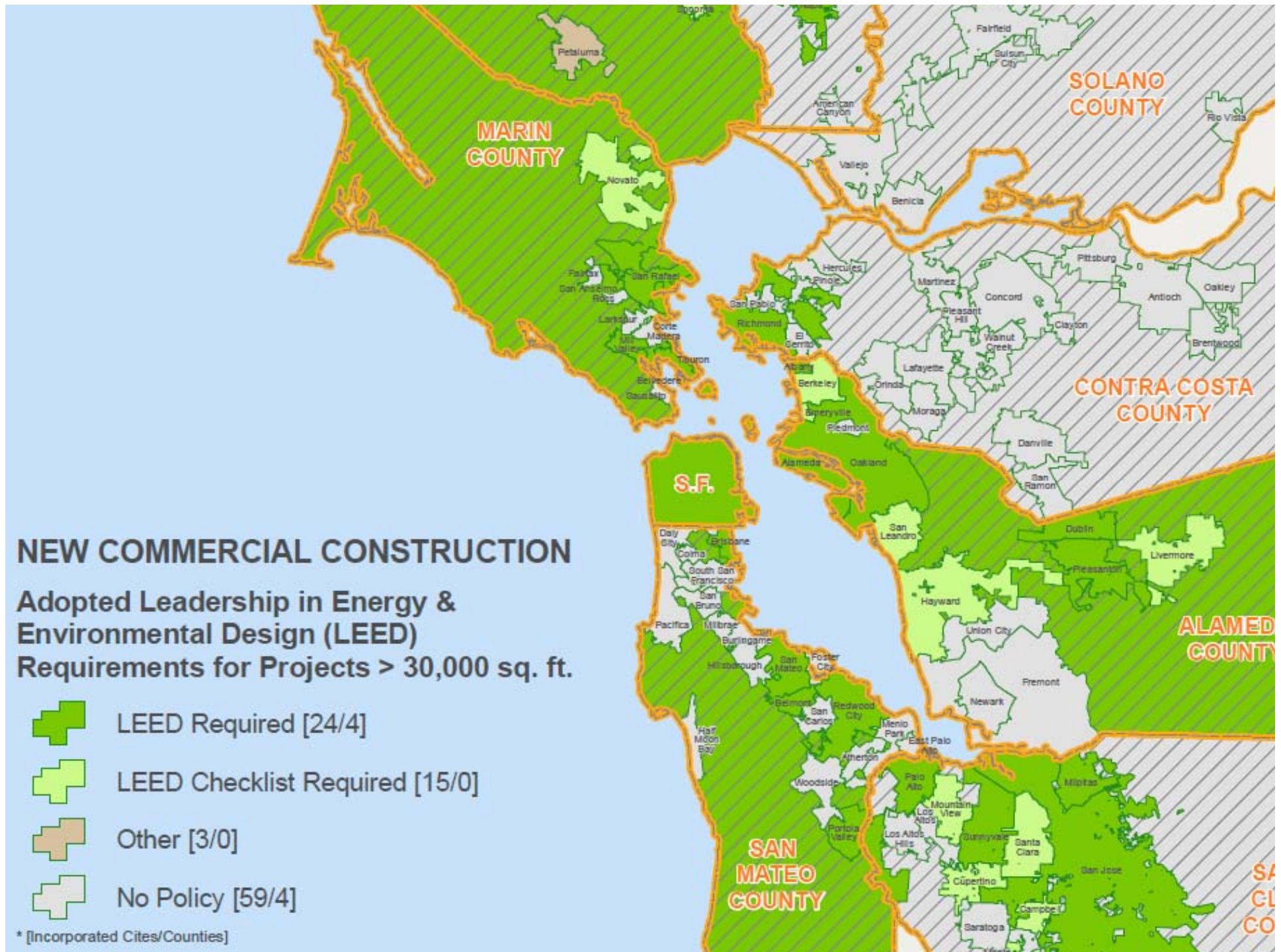
# Effect of CALGreen on San Francisco Building Code Chapter 13C Requirements for B and M Occupancies



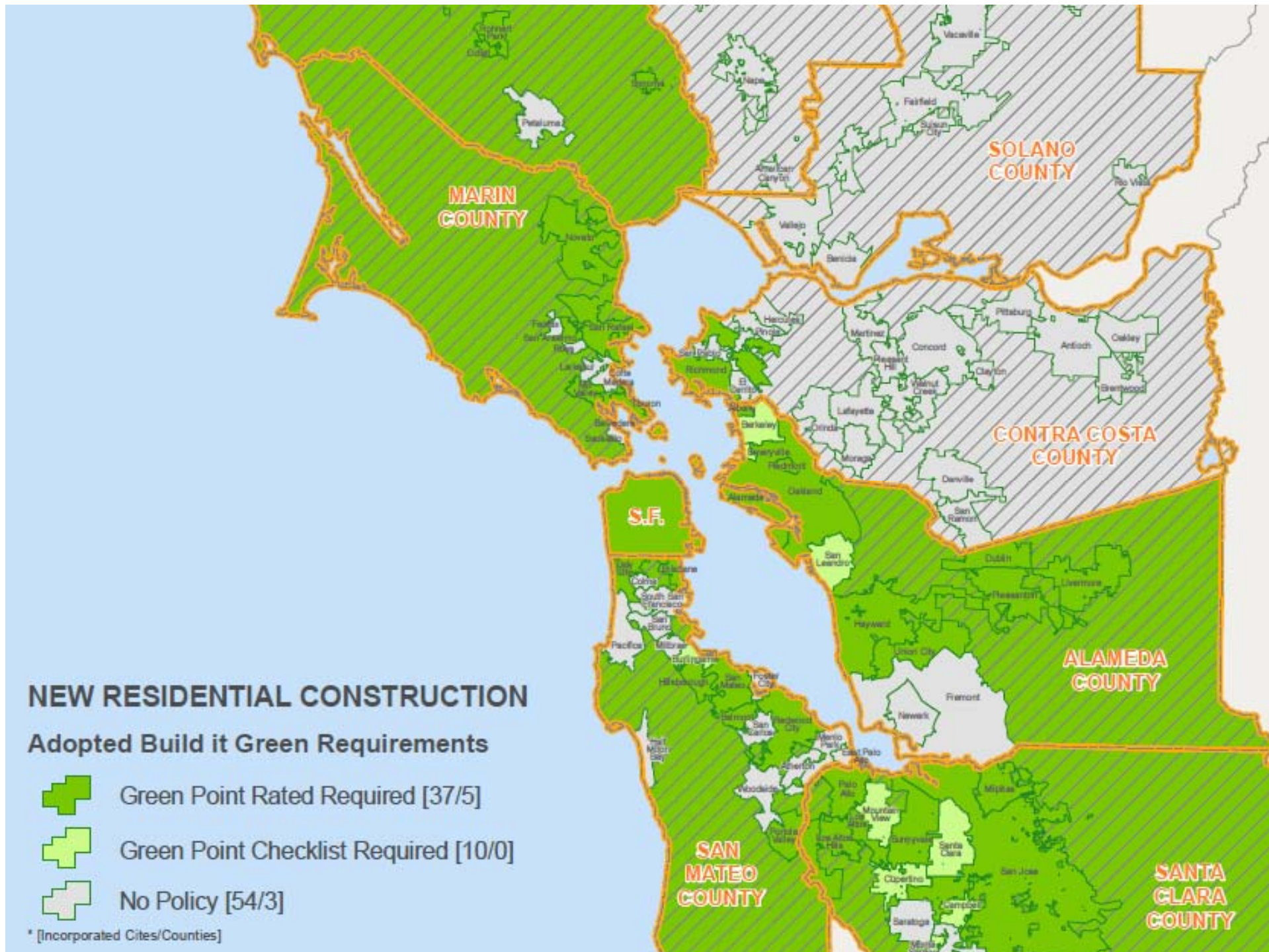
# LEED Certified Space in San Francisco

(cumulative)











- Mandatory CALGreen- “It’s the law”
- Combination of
  - Basic quality practices
  - New areas
  - Duplication/subtle changes to other code

## Strengths of Labels Relative to Tiers

- Clearly defined & tested
- Common guidelines and verification
- Highest standards – no ceiling
- Recognition beyond code
- Require beyond-code energy efficiency
- Reinforce voluntary application of labels



1. Prioritize education and enforcement of CALGreen mandatory provisions
2. Continue to use LEED/GPR for “reach” codes
3. If using a CALGreen Tier as a “reach” code, accept LEED/GPR in lieu of the Tier



# Resources

## San Francisco Dept. of Environment

[www.sfenvironment.org/greenbuilding](http://www.sfenvironment.org/greenbuilding)

Tel: (415) 355-3700

**Barry Hooper**

[Barry.Hooper@sfgov.org](mailto:Barry.Hooper@sfgov.org)

**Rich Chien**

[Richard.Chien@sfgov.org](mailto:Richard.Chien@sfgov.org)

## Dept. of Building Inspection

[www.sfgov.org/dbi](http://www.sfgov.org/dbi)

## Planning Department

[www.sfgov.org/planning](http://www.sfgov.org/planning)





*Thank You!*