

***BIC Regular Meeting
of
July 20, 2022***

Agenda Item 8

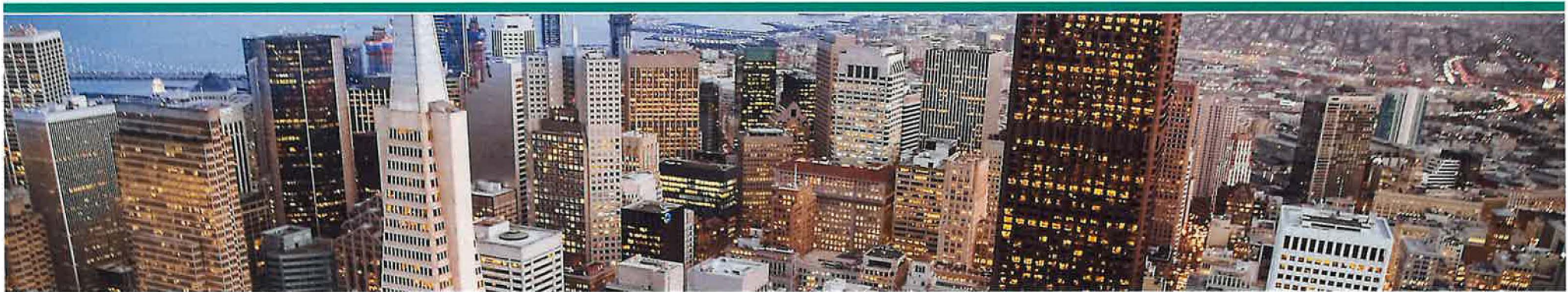


SF Environment
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Overview of SF Green Building Code

Barry Hooper, Dept of Environment

July 20, 2022



Agenda



1. Why is there a SF Green Building Code?
2. What's required?
3. How it works: Implementation
4. Changes to California codes that affect San Francisco

Construction and operation of buildings impacts



Health



Safety



Resilience



Equity

Stakeholder recommendations



- Clear requirements
- Firm standards
- Flexible options
- Comprehensive applicability
- Tailor requirements to building uses



Timeline



2006:
Municipal

2011:
CalGreen

2017: EV
Ready

2009: New
Construction &
Alterations

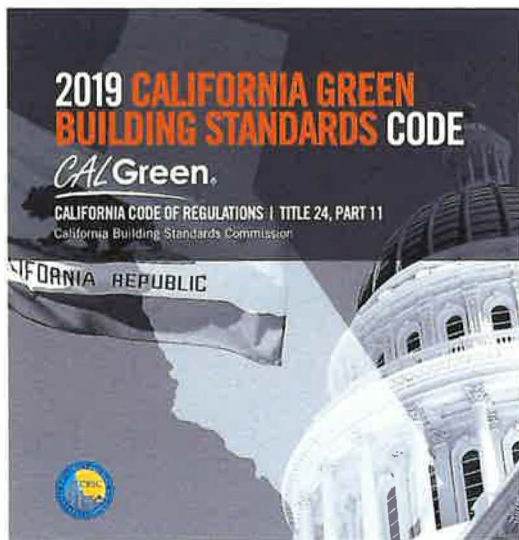
2016:
Better
Roofs

2020: All-
Electric New
Construction

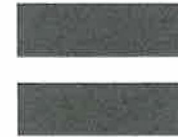


Image courtesy: ARUP

San Francisco Green Building Code



Local
amendment
s



San
Francisco
Green
Building
Code

Led by DBI with support from SF Environment



DBI is responsible for implementing local requirements critical to

- Public safety
- Health
- Meeting climate goals – benefitting health and safety

Examples adopted and in effect today

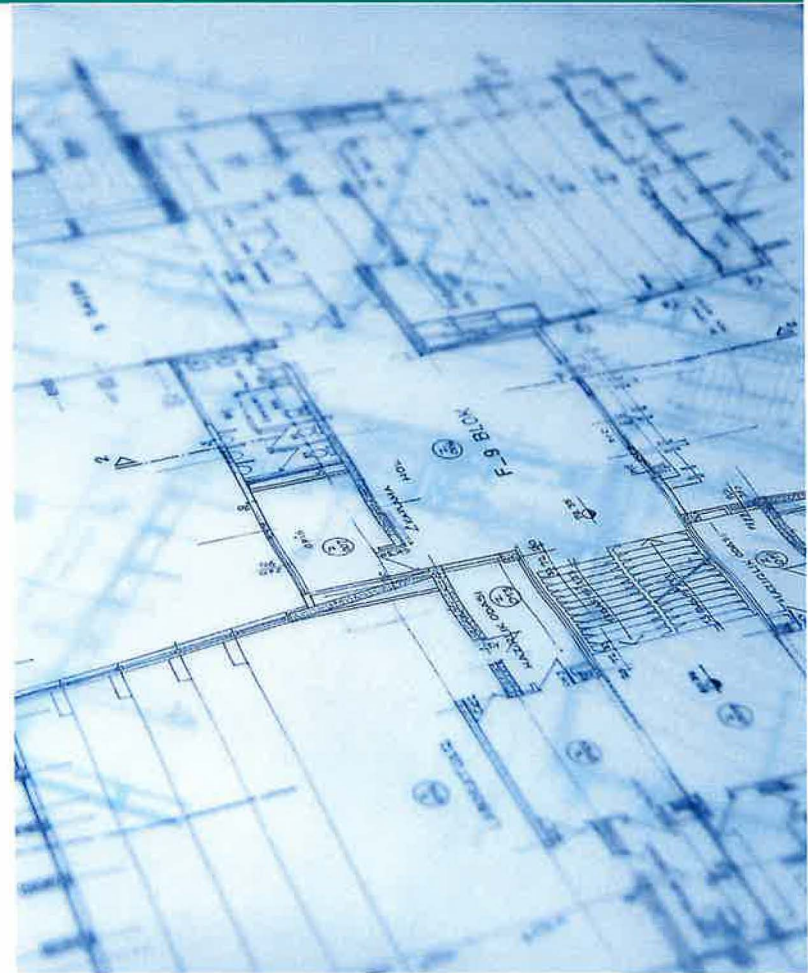
- Energy efficiency
- All-electric new construction
- Solar and living roofs
- Water efficiency
- Wiring for electric vehicle charging
- Zero waste construction and operation
- Indoor air quality and ventilation
- Low-GWP refrigerants...



Green Building Regulations



- Admin Bulletin 93 summarizes:
 - San Francisco Green Building Code
 - Relevant sections of other codes (Planning Code, Public Health, Environment Code, etc.)
- Provides procedures and forms for SFGBC implementation



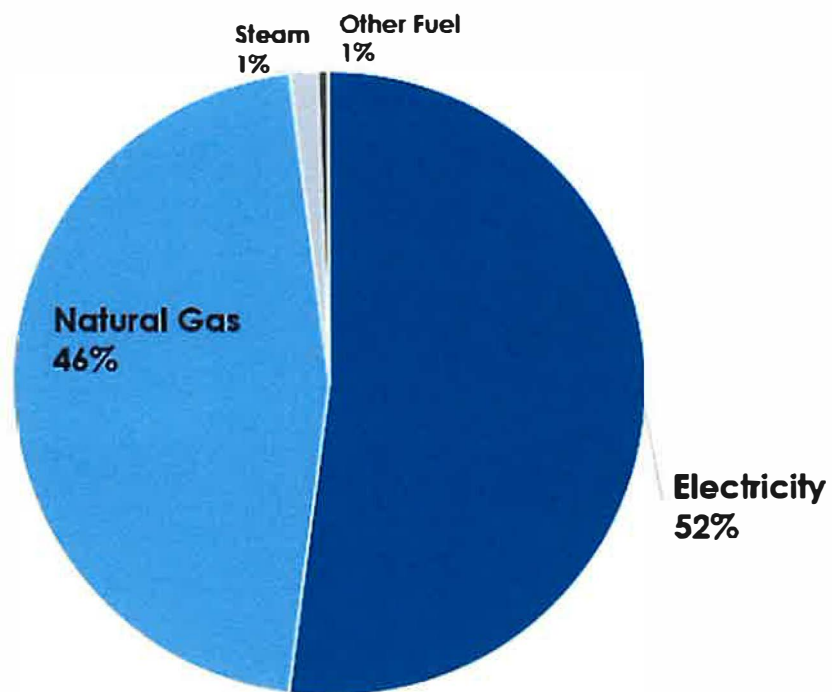


Progress

Carbon emissions from San Francisco buildings

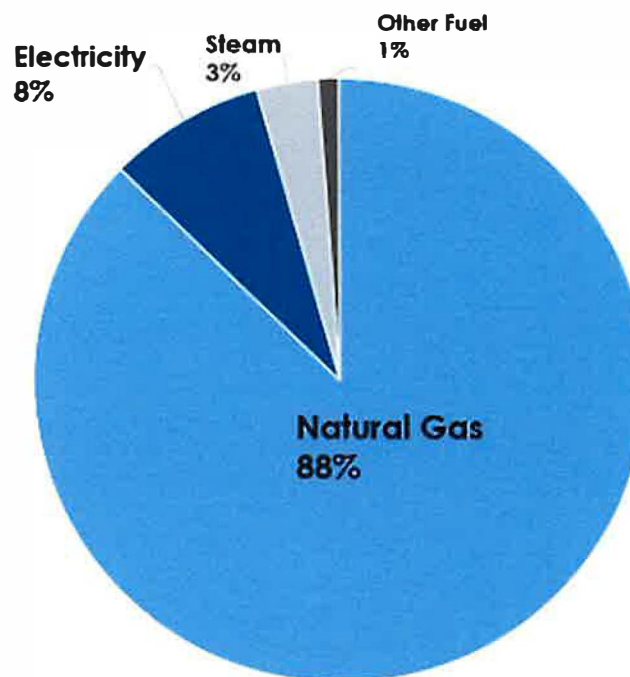


1990



Total Building Emissions:
4.4 Million mtCO₂e

2019



Total Building Emissions:
1.9 Million mtCO₂e

Noteworthy changes in California 2022 green codes



CalGreen 2022

- Electric vehicle charging: Entirely rewritten

California's EV requirements for 2022 echo SF 2017 EV Ready Ordinance

California Energy Standards 2022

- Solar PV prescriptively required by 2022 CA Energy Standards for most new buildings
 - Previously only new low-rise residential
 - Enhanced energy efficiency can reduce PV
 - Recognizes taller buildings have less space for PV
- Building Electrification
 - 2022 Energy Standards favor heat pumps
 - Improved consistency for multifamily
 - New 'source energy' metric

Affects 2016 Better Roofs Ordinance

Favorable to all-electric construction

Electric vehicles – Key Terms



Three terms define how easy it will be to charge an EV in a given space:

EV Capable: A parking stall has

- Space to accommodate a vehicle and an electric vehicle charger (EV charger)
- Space and capacity in the electric panel for a future circuit for EV charging

EV Ready: Same as above – but a full circuit has been installed

EV Charger installed

Changes in CalGreen 2022 – Electric vehicles



New Construction

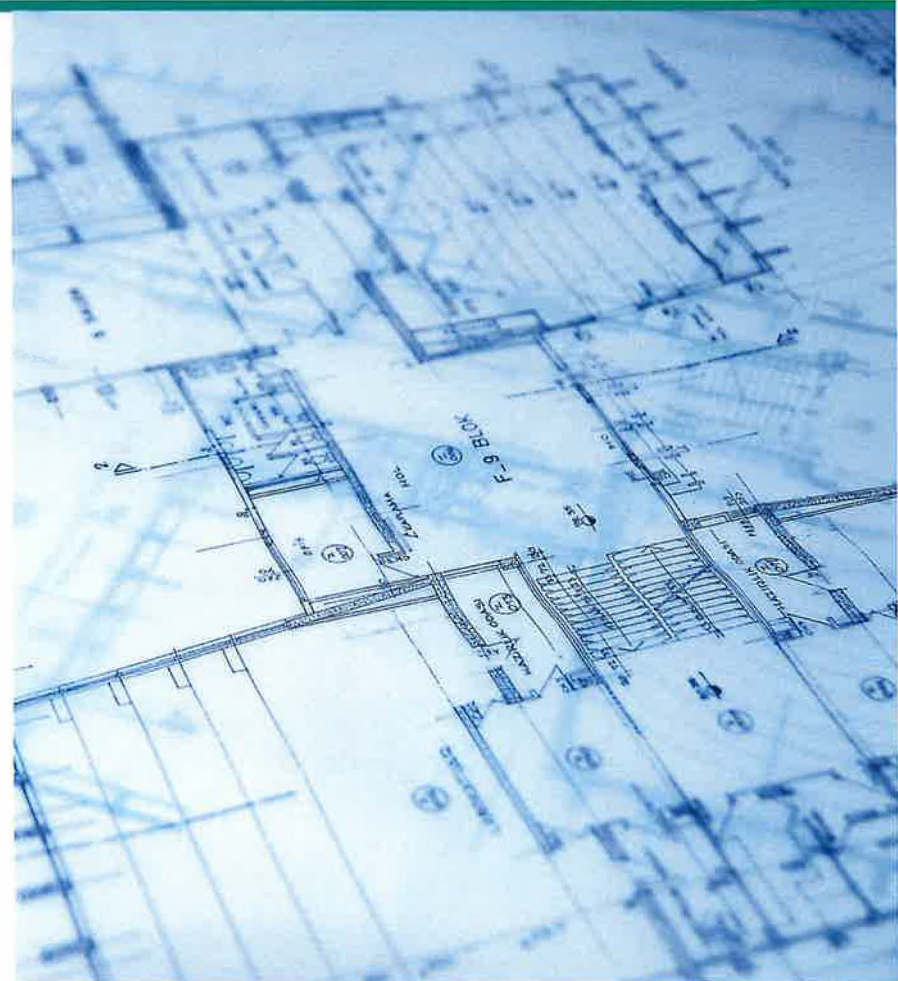
Scale and Occupancy	Requirement	Parking Spaces Affected (percentage of total)			
		CalGreen 2019	SFGBC 2019	CalGreen 2022	SFGBC 2022
<20 unit multifamily	Capable (space and electric capacity)	10%	20%	10%	10%
	Ready (full electric circuit)	1 space	10%	25%	25%
20+ unit multifamily	Capable	10%	20%	20%	20%
	Ready	0%	10%	25%	25%
	Install EV Chargers	-	-	5%	5%
Non- residential	Capable	6%	20%	20%	20%
	Ready	1 space	10%	10%	10%
	Install EV Chargers	-	-	5%	5%

Changes in CalGreen 2022 – Electric vehicles



Alterations

- CalGreen 2022:
 - Multifamily: EV new construction provisions apply to alterations
 - Non-residential: No requirement for existing buildings
 - SFGBC EV Ready provisions apply to 'Major Alterations' to existing multifamily and non-residential buildings (*since 2017*)



Better Roofs



California Energy Standards 2022

- Prescriptively require PV on all new residential and most non-residential new construction
- Consider shading, other uses of roofs, and energy efficiency
- Supersede local requirements, but allow building codes to reduce area available for PV

SFGBC 2022

(Sections 4.201.2 and 5.201.1.2)

- Continues to allow living roof area contributing to stormwater compliance to reduce solar PV
- Compatible with 2022 Energy Standards



Summary



CalGreen 2022 EV requirements

- Support the intent of 2017 EV Ready Ordinance
- Require installation of EV chargers
- Will improve access to electric vehicle charging in multifamily
- Support EV charging in existing residential buildings
- Avoiding excessive impact to electric service capacity

California Energy Standards 2022

- Require solar PV
- Accommodate living roofs
- Better support electrification

Takeaways

- SFGBC 2022 harmonizes with 2022 California codes
- California's new provisions for 2022 align with San Francisco objectives for clean buildings and clean transportation

Thank You



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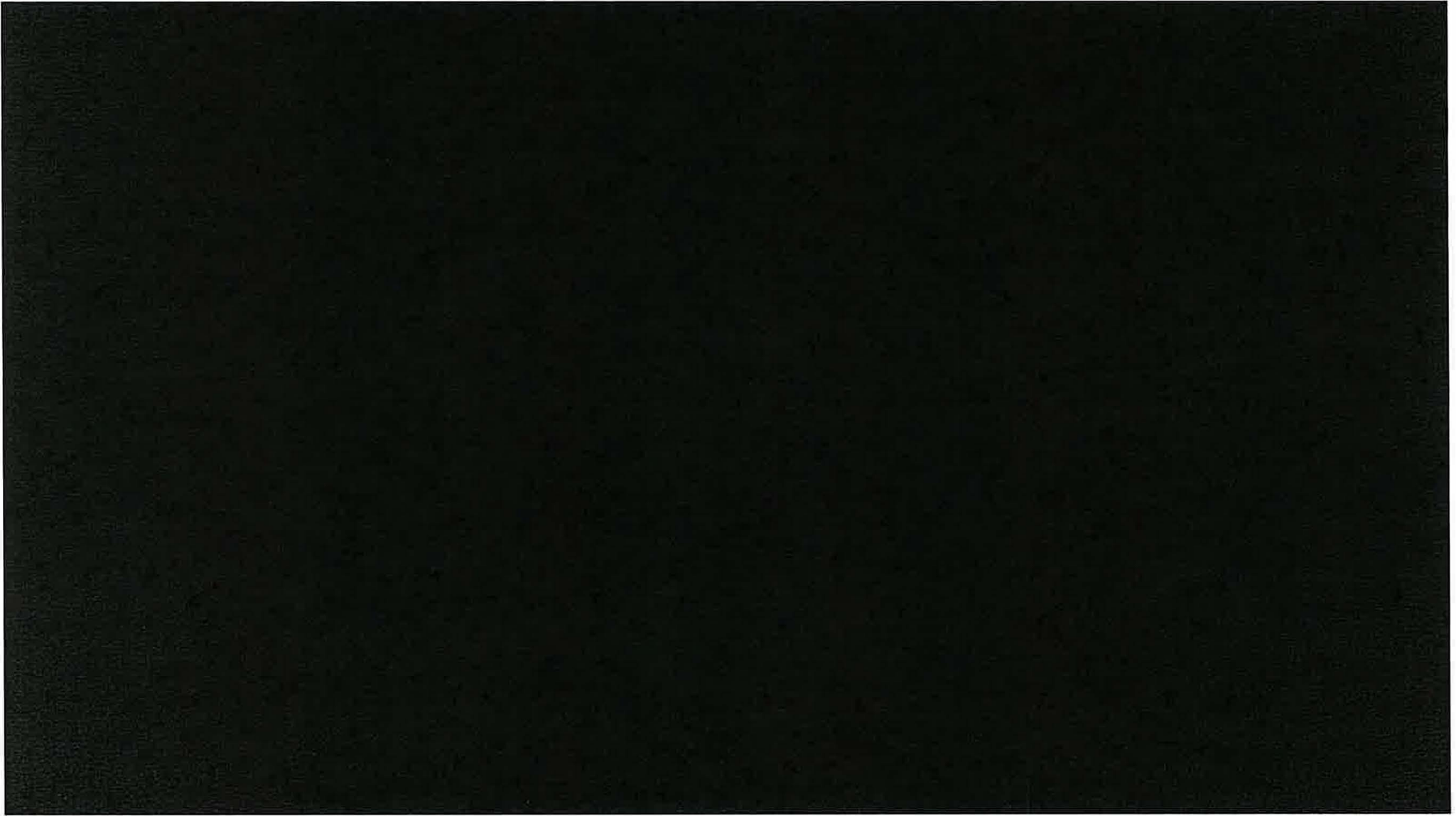
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End of SHOW – all after this are alternative

San Francisco Green Building Code



(Alternative to Slide 9)



California Green Building Standards

+



California Energy Efficiency Standards

+



City Code Leveraging Green Building Labels

Key Areas of Leadership by DBI

(with assistance of Dept of Environment)



New Buildings and Major Alterations must:

- Be energy efficient (SFGBC and Title 24 Part 6)
- Install solar electric, solar thermal, or living roof (new buildings 10 floors or less)
- Have electric service for electric vehicle charging (SFGBC)



Zero Emissions Buildings in 3 Steps



1. Energy efficiency

2. Supply renewable electricity

3. Electrify appliances

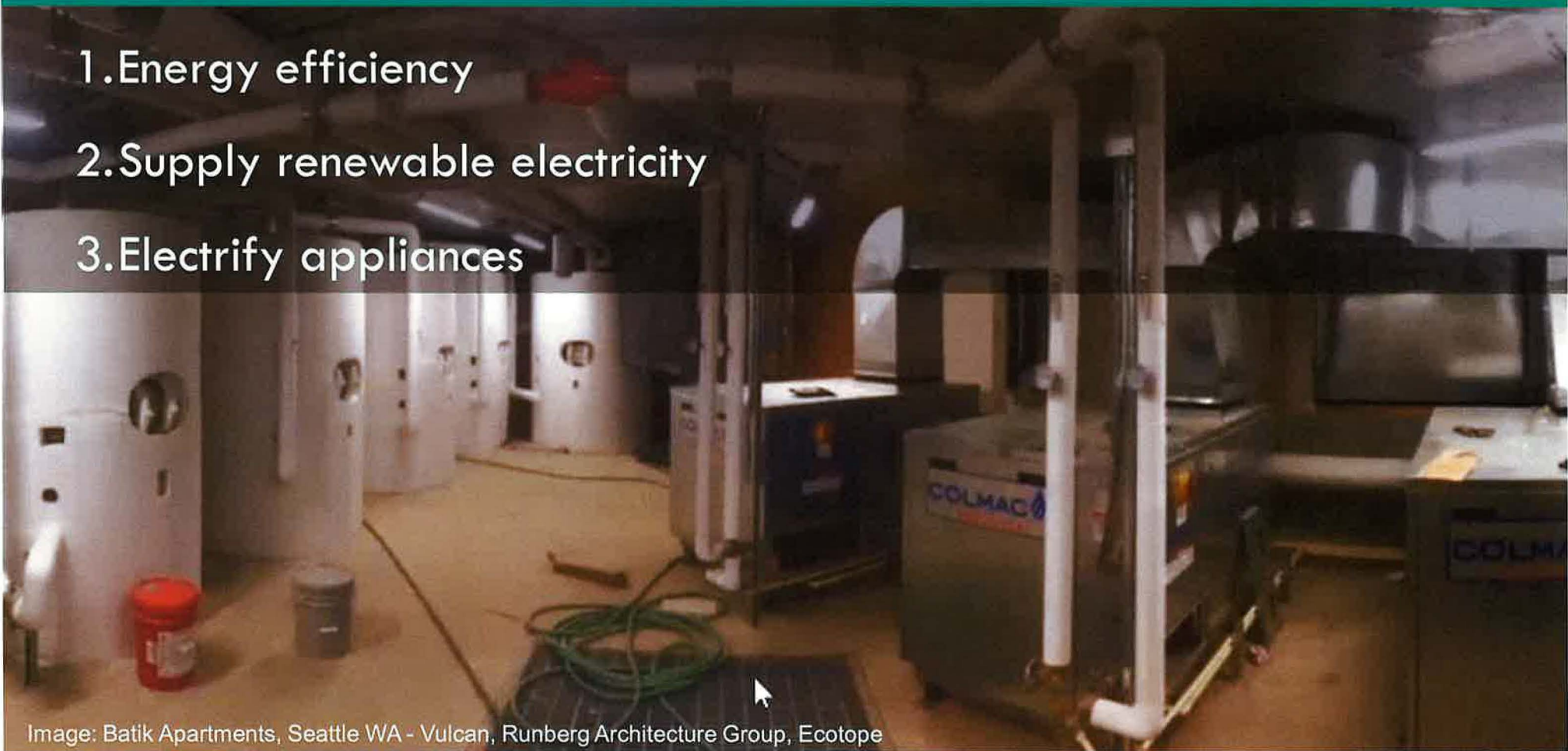


Image: Batik Apartments, Seattle WA - Vulcan, Runberg Architecture Group, Ecotope

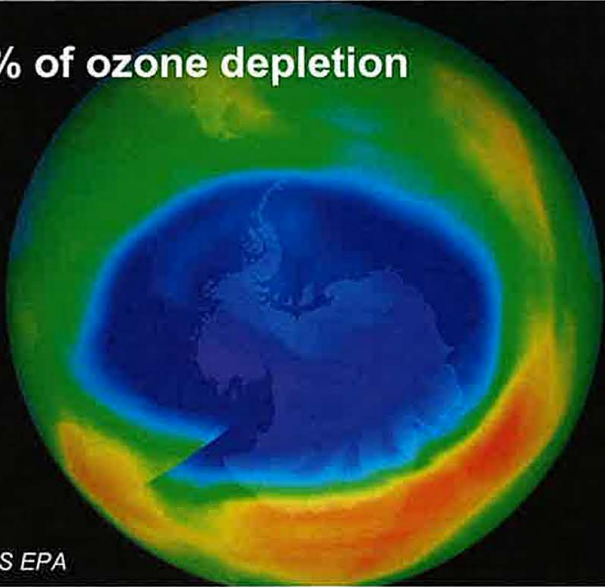
Better Roofs Ordinance



EV Ready Ordinance



40% of ozone depletion



US EPA

40% of raw material use



Worldwatch Institute

85% of city water use



SFPUC UWMP

30% of solid waste



USGBC

41% of SF carbon emissions



SF Dept of Environment

Image: Dave Rauenbuehler

More NOx than vehicles



BAAQMD



Net Zero Emissions Commitments



New Construction by 2020



All Buildings by 2040

Affordable Housing is Leading the Way



Casa Adelante: TNDC/CCDC, Mithun, YA Studio, Association for Energy Affordability

Ordinance: Electrification of Municipal Buildings



Ordinance: All-Electric Preferred in New Construction



Maceo May Apartments: Swords to Plowshares, Chinatown Community Development Center, Mithun, AEA

Ordinance: All-Electric New Construction



SFSU Student Housing Block 6: Gould Evans, Point Energy Innovations, BuildGroup

Climate Change is Impacting San Francisco Today

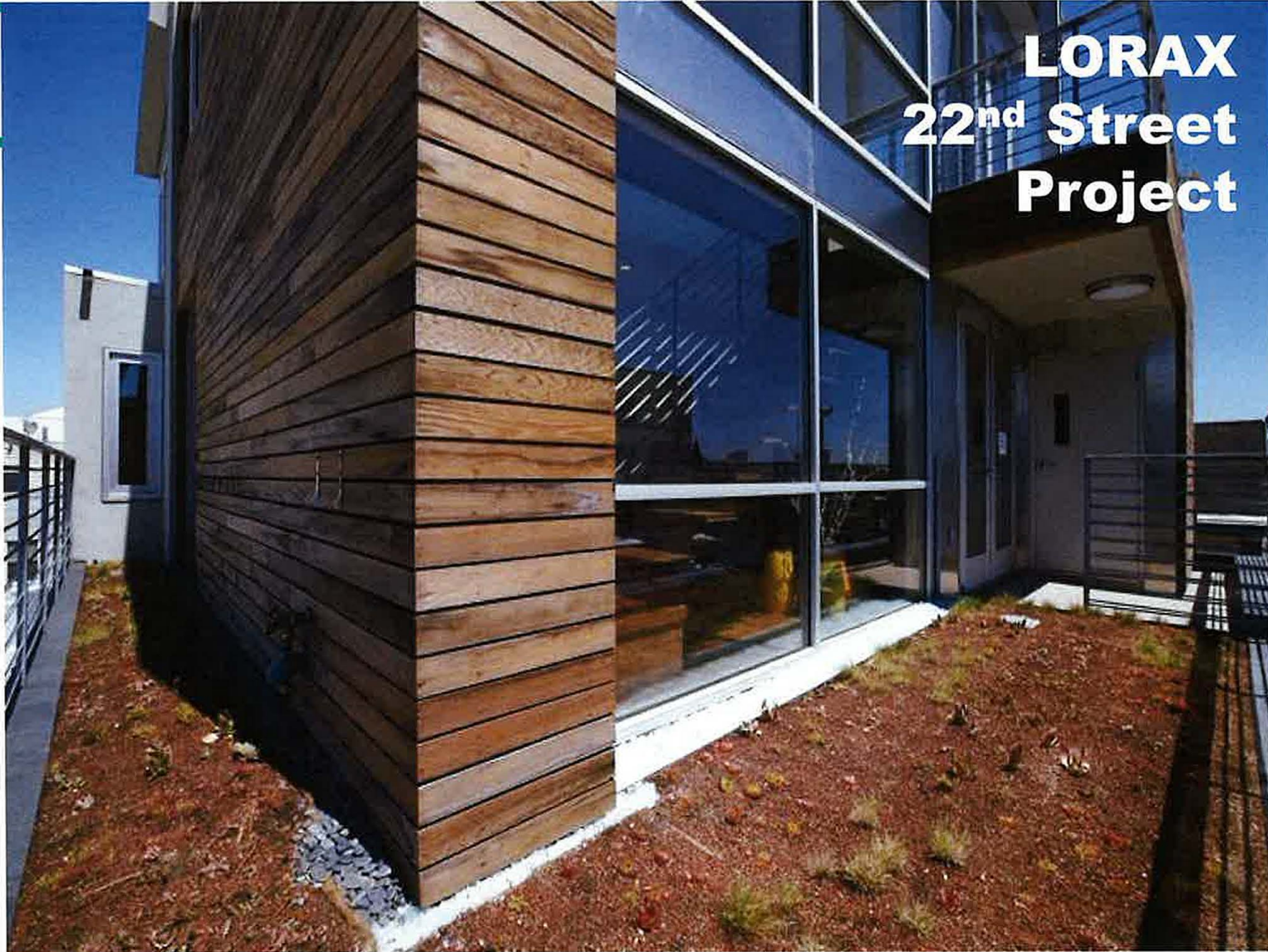


AP/Eric
Risberg

Folsom Dore Apartments



**LORAX
22nd Street
Project**





Global Climate Action Summit

