



Proposed Update: Environment Code Chapter 7

November 2021

This memo presents the proposed update to Chapter 7 of the San Francisco Environment Code and provides (1) a brief background of the purpose and development of the legislation; (2) an overview of, and justification for, the revisions; (3) a summary of significant revisions; (4) a snapshot of the stakeholder and legislative timeline; and (5) a comparison matrix of existing and proposed legislation.

- Background
- Overview and Justification
- Significant Revisions
- Stakeholder and Legislative Timeline
- Comparison Matrix

Background

San Francisco's green building program emerged in 1996 with a focus on energy efficient design trainings for city staff. In 1999, two Resource Efficient Building Ordinances were adopted by the Board of Supervisors to codify a policy and program requiring and promoting green building practices to increase energy efficiency; save city financial resources; reduce the environmental impacts of demolition, construction, and operation of buildings; and create healthy, productive workplaces for city employees and visitors. These policies evolved into Environment Code Chapter 7: Green Building Requirements for City Buildings. Chapter 7 now needs to be updated to address the city's climate action and net-zero carbon goals instituted in the intervening years, as well as align with the latest versions of other chapters of the Environment Code. In addition, this is an opportunity to simplify and refine Chapter 7's organization and language. The update will guide the design, development, and renovation of municipal buildings to continue to lead by example and validate emerging policy themes for citywide implementation.

As established by the Board of Supervisors, one responsibility of the Municipal Green Building Task Force is to advise the Department of the Environment on the content of Chapter 7. The Task Force consists of one member of the public appointed by the mayor and a representative with building design, construction, and/or finance experience from each of the following city departments and divisions:

- Department of Building Inspection
- Department of the Environment
- Department of Public Health
- Office of City Administrator, Office of Resilience and Capital Planning
- Office of the City Administrator, Real Estate Division
- Port of San Francisco
- Recreation and Parks Department, Capital and Planning Division
- San Francisco Fire Department
- San Francisco International Airport
- San Francisco Municipal Transportation Agency, Capital Programs and Construction Division
- San Francisco Planning, Citywide Planning Division
- San Francisco Public Library, Facilities Division
- San Francisco Public Utilities Commission, Power Enterprise
- San Francisco Public Utilities Commission, Water Enterprise
- San Francisco Public Utilities Commission, Wastewater Enterprise
- San Francisco Public Utilities Commission, Infrastructure
- San Francisco Public Works, Building Design and Construction Division
- San Francisco Public Works, Design and Engineering Division

- San Francisco Public Works, Landscape Architecture Division
- San Francisco Public Works, Project Management

The Task Force and its subcommittee met regularly from November 2020 to July 2021 to suggest and review content of the draft Chapter 7 update, when the Task Force unanimously recommended the set of proposed changes as a substantively complete draft to advance as necessary toward adoption.

Overview and Justification

Buildings are a distinguishing element of human civilization, reflecting our history, culture, and sense of place while providing programmatic functionality, security, and protection from the elements. However, typical design, construction, and maintenance practices still have significant negative environmental impacts. In San Francisco, buildings are responsible for 41% of carbon emissions.

While San Francisco has some of the most progressive green building codes and standards, these requirements must continue to amplify measurable and meaningful climate action to be relevant and responsive for the years to come. Since the current version of Chapter 7 was adopted, the building industry has been identifying and implementing solutions that prioritize resilience and are ready for inclusion in local code. The Municipal Green Building Task Force proposes to leverage these existing forward-looking initiatives and collaborations with global experts to bring Chapter 7 and San Francisco's municipal portfolio into its next stage of leadership and maturation.

Significant Revisions

The revisions to Chapter 7 include updated findings and definitions, improved organization of requirements, and refined legislative language. Substantive changes relate to (1) green building rating systems; (2) electrification of existing building systems; (3) energy resilience; (4) building material management; and (5) embodied carbon reductions.

Green Building Rating Systems

- LEED® version 4.1 as a basis of instead of LEED® version 4.0; this simplifies documentation requirements without compromising stringency of program prerequisites and credits.
- Provision to explore applicability of green building rating systems for non-building projects (e.g., landscapes, infrastructure, other structures).

Electrification of Existing Building Systems

- Department-led inventory of natural gas equipment, to be completed by 2023.
- As natural gas equipment is retired/failed, replace with electric equipment. Electric service infrastructure may be upgraded, depending on the scope of work.

Energy Resilience

- For new construction or major renovation of critical community institutions (i.e., public safety facilities, health clinics, community centers, libraries, and emergency management facilities), install photovoltaic and battery storage to sustain emergency energy loads.
- For new construction or major renovation of other buildings, implement energy efficiency and decreased grid dependency with at least one of the following: installation of photovoltaics and battery storage to sustain emergency energy loads; annual site zero net energy; set a design energy use intensity that is 50% better than national median by project type; 10% improvement over ASHRAE 90.1- 2019 (option

only available to buildings with heavy process loads).

Building Material Management

- Instead of targeting a 75% rate of recovery at the jobsite, prioritize source separation of materials based on current markets. At a minimum, separate concrete, metal, clean solid wood, clean/unpainted drywall, carpet, and carpet padding.
- For tenant improvement projects, generate less than 10 pounds of waste per square foot.

Embodied Carbon Reductions

- Complete a strategies worksheet (provided by SFE) during schematic design and at the end of the project to maximize opportunities for embodied carbon reductions.
- For new construction and major renovations, conduct a life cycle assessment and demonstrate a 10% reduction in greenhouse gas emissions compared to a baseline building. For tenant improvements, either complete the life cycle assessment or reuse furniture and other nonstructural elements.
- Collect environmental product declarations from manufacturers.

Stakeholder and Legislative Timeline

Month	Action
Mar 2019 – Present	<ul style="list-style-type: none"> • Education sessions about significant revision topics at the Municipal Green Building Task Force (MGBTF) meetings, as well as other public events and conferences
Oct 2019	<ul style="list-style-type: none"> • MGBTF discuss and agree on proposed schedule and scope of update
Mar 2020	<ul style="list-style-type: none"> • Legislation paused due to COVID-19
Nov 2020 – Jul 2021	<ul style="list-style-type: none"> • Reconvene MGBTF meetings to discuss new schedule, recommit to scope of update • Monthly MGBTF meetings to discuss each section, with a particular focus on each of the five themes under Sec. 704: Requirements (i.e., Green Building Rating Systems, Energy Optimization, Responsible Production and Consumption, Human and Environmental Health, and Water Conservation)
Feb – Mar 2021	<ul style="list-style-type: none"> • Convene a MGBTF Energy + Resilience Subcommittee, with three meetings dedicated to developing new Energy Optimization requirements
Jun – July 2021	<ul style="list-style-type: none"> • 1st and 2nd drafts of consolidated content shared with select city departments
July 2021	<ul style="list-style-type: none"> • MGBTF unanimous recommendation that the updated content be recognized as a substantively complete draft to advance as necessary toward adoption
Aug 2021 – April 2022	<ul style="list-style-type: none"> • 3rd draft shared with select city departments, Mayor’s Office, and city department directors for review • Present to Commission on Environment Policy Committee • Present to Directors Working Group • 3rd draft shared with Capital Planning Committee • Finalize legislation and engage city attorney’s office to draft official version • Introduce update at the full Board of Supervisors (BOS) • Hearing at BOS Budget & Finance Committee • First reading at the full Board of Supervisors • Second reading at the full Board of Supervisors

Comparison Matrices

The table below summarizes proposed changes to Environment Code Chapter 7. See page 5 for a more detailed matrix comparing existing content to proposed content. Items are labeled to indicate one of five actions: (1)

Retained – no change; (2) Updated – revised language without substantive changes to requirements; (3) Modified – revised requirement; (4) Added – new requirement; or (5) Removed – deleted.

REFERENCE SECTION	ACTION(S)	DESCRIPTION
700. Findings and Purpose	Updated	Provided more recent references to building industry impacts.
701. Definitions	Retained Updated Added Removed	Portions carried over, portions clarified, portions added to explain new terminology, portions deleted because no longer referenced in the chapter.
702. Municipal Green Building Task Force (MGBTF)	Retained Removed	Portions relocated to MGBTF Bylaws, portions relocated to proposed Section 702 - Roles and Responsibilities.
703. Duties of the Department of the Environment	Updated	Relocated to proposed Section 702 - Roles and Responsibilities.
704. Duties of City Departments	Updated	Relocated to proposed Section 702 - Roles and Responsibilities.
705. LEED Certification Requirements for Municipal Construction Projects	Modified	Relocated to proposed Section 704 - Responsibilities, (a) Green Building Rating Systems. Includes more recent LEED references and new content.
706. Locally-Required Measures for Municipal Construction Projects	Retained Updated Added Removed	Relocated to proposed Section 704 - Responsibilities. Portions carried over, portions clarified, portions added to expand requirements in several impact areas (e.g., energy optimization, responsible production and consumption, human and environmental health, and water conservation), portions deleted.
707. Collection, Storage, and Loading of Recyclable & Compostable Materials	Updated	Relocated to proposed Section 704 - Responsibilities, (c) Responsible Production and Consumption.
708. Construction and Demolition Debris Management	Retained Updated Modified Removed	Portions relocated to proposed Section 704 - Responsibilities, (c) Responsible Production and Consumption, portions relocated to regulations (to be updated in parallel to Environment Code Chapter 7), portions clarified, portions deleted because of redundancies with Environment Code Chapter 14, and portions deleted to align with new proposed requirements.
709. Water Conservation Retrofit Requirements	Removed	Deleted because of reference to expired program.
710. Reserved	n/a	-
711. Indoor Environmental Quality (IEQ)		Deleted because of reference to expired program.
712. Report to the Board of Supervisors	Updated	Relocated to proposed Section 702 - Roles and Responsibilities.
713. Waivers	Updated	Relocated to proposed Section 705 - Waivers.
714. Preemption	Updated	Relocated to proposed Section 703 - Applicability.

EXISTING

PROPOSED

- Building and construction impacts in United States and San Francisco
- Consistent with Precautionary Principle
- Global recognition of US Green Building Council and LEED®
- Value of green building – financial and ecological benefits
- California Energy Commission goal of Net Zero Energy by 2030

700. Findings and Purpose.

700. Findings.

Updated

[See "Proposed" column for list of terms]

701. Definitions.

701. Definitions.

Retained

"Commission" "Department" "Design Phases" "Director" "LEED Scorecard" "Natural Gas" "Person"

Updated

"All-Electric" "Building" "City Department" "City Leasehold" "City-Owned Department" "City Representative" "Construction and Demolition Debris" "Contractor" "Green Business Certification Inc." "Indoor Air Quality" "Leadership in Energy and Environmental Design" "LEED Accredited Professional With Specialty" "LEED Online" "LEED Project Administrator" "Major Renovation" "Municipal Construction Project" "New Construction" "Tenant Improvement"

Added

"Critical Community Institution" "Embodied Carbon" "Green Building Rating System" "Maintenance" "Material Reduction and Recovery Plan" "Non-Building Project" "Small Project" "Tier 1 Emergency Loads" "Tier 2 Priority Loads" "Tier 3 Discretionary Loads" "Virtual Warehouse"

Removed

"Alternative Daily Cover" "Beneficial Reuse" "BioMass Energy Generation" "CALGreen" "Commissioning Process" "Deconstruction" "Demolition Project" "Design Development Phase" "Disposal" "Diversion" "Diversion Rate" "Green Material" "Hazardous Material" "Indoor Environmental Quality" "Landfill" "Land-disturbing Activity" "Minimum Project Requirements" "Mixed Construction & Demolition Debris" "Recover" "Recycle" "Recycling Facility" "Registered Facility" "Registered Transporter" "Reuse" "Source Reduction" "Source-Separated Materials" "United States Green Building Council" "Waiver Request" "Whole Building Major Renovation" "Zero Net Energy"

- Establishment and Purpose
- Membership
- Bylaws and professional credentials
- SFE member role
- Public member term limits

702. Municipal Green Building Task Force. (MGBTF)

702. Roles and Responsibilities.

Consolidated multiple Sections under a single heading

Municipal Green Building Task Force

Removed and Relocated to MGBTF Bylaws

- Member professional credential requirements
- SFE member role
- Public member term limits

Department of the Environment

Updated and Relocated from Sec. 712

- Report to the Board of Supervisors

City Departments

Removed (outdated program reference)

- SFPUC energy/water technical project design review assistance

- General duties under this Chapter
- Guidance, rules, and regulations
- Interdepartmental work orders

703. Duties of the Department of the Environment.

703. Applicability.

Updated, Relocated from Sec. 705 and 714

- Preemption
- Exemptions (Updated, Added)

- Comply with Chapter requirements
- Grant SFE Access to LEED Online
- Provide reports/presentations to MGBTF
- Designate MGBTF representation
- Provide outreach and education
- Attend trainings
- SFPUC: Provide energy/water technical project design review assistance

704. Duties of City Departments.

704. Requirements.

Consolidated multiple Sections under a single heading. Items Retained/Added/Updated/Modified/Removed as indicated below:

704(a) Green Building Rating Systems

- (1) LEED (Modified, Relocated from Sec. 705) (credit reference: 🌿)
- (2) Other Green Building Rating Systems (Added)

704(b) Energy Optimization.

- (1) Local Requirements (Retained)
 - (A) Electric Service To City Departments And Facilities
 - (B) Better Roofs Ordinance
- (2) Commissioning (Retained) 🌿
- (3) Building Electrification (Retained)
- (4) Electrification of Existing Building Systems (Added)
- (5) Energy Resilience (Added)

Removed (Redundant requirement): Minimum Energy Performance

704(c) Responsible Production and Consumption

- (1) Building Material Management
 - (A) Local Requirement: C&D Debris Recovery Ordinance (Retained)
 - (B) Material Reduction & Recovery Plan (Updated, Relocated from Sec. 708), Source Separation (Added)
 - (C) Waste Prevention, Tenant Improvements (Added) 🌿
- (2) Material Reuse: Virtual Warehouse (Updated, Relocated from Sec. 707)
- (3) Material Recovery: Adequate storage, Universal waste collection (Updated, Relocated from Sec. 707)
- (4) Embodied Carbon (Added)
 - (A) Strategies checklist
 - (B) Life Cycle Assessment 🌿
 - (C) Environmental Product Declarations 🌿

Removed: Waste hierarchy (Relocated to Ch 14), 75% diversion

704(d) Human and Environmental Health

- (1) Indoor Air Quality (IAQ)
 - (A) Enhanced Indoor Air Quality Strategies (Retained) 🌿
 - (B) Low-Emitting Materials (Modified) 🌿
 - (C) Construction IAQ Management Plan (Retained) 🌿
 - (D) Indoor Air Quality Assessment, Air Testing (Modified) 🌿
- (2) Toxics Reduction and Pollution Prevention
 - (A) Product Transparency, hazards disclosure (Added) 🌿
 - (B) Environmentally Preferable Products (Retained)
- (3) Biodiversity and Wildlife Habitat (Added)

Removed (outdated program reference): IEQ problem tracking

704(e) Water Conservation

Local Requirements:

- (1) Construction Site Runoff Ordinance (Retained)
- (2) Stormwater Management Ordinance (Retained)
- (3) Indoor Water Use Reduction (Retained) 🌿
- (4) Water Efficient Irrigation Ordinance (Added)

Removed (outdated program reference): Water Conservation Retrofit Requirements

- Applicability/exemptions
- LEED certification requirements
 - >10,000 Gross Square Feet
 - 10,000+ Gross Square Feet
- Compliance with Section 706

705. LEED Certification Requirements for Municipal Construction Projects.

705. Waivers.

Updated

- Stormwater Management
- Construction Site Runoff
- Indoor Water Use Reduction
- Renewable Energy Efficiency, Better Roofs, and Energy Resilience
 - Electric Service To City Departments And Facilities
 - LEED prerequisite: Minimum Energy Performance
 - Net energy consumption target
 - Net Zero Energy feasibility
 - Better Roofs Ordinance
 - Solar + Storage Analysis
 - Building Electrification
- Commissioning
- Construction Debris Management
- Indoor Air Quality
- Low Emitting Materials
- Toxics Reduction and Pollution Prevention

706. Locally-Required Measures for Municipal Construction Projects.

- Adequate storage
- Surplus Furniture, Equipment, Computers and Supplies: Virtual Warehouse
- Universal waste collection

707. Collection, Storage & Loading of Recyclable & Compostable Materials.

- Applicability, Waste Hierarchy, Construction Debris Management
- Construction and Demolition Debris Management Plan (CDDMP)
- Summary of Diversion; Disposal
- Final Diversion Report
- Retention of Records
- Revenue
- Enforcement

708. Construction and Demolition Debris Management.

- Water Closets and Urinals
- Shower Heads
- Faucets and Faucet Aerators

709. Water Conservation Retrofit Requirements.

710. Reserved.

- IEQ problem tracking

711. Indoor Environmental Quality (IEQ).

- Compliance report
- Assessment of Chapter's purpose
- Recommended changes

712. Report to the Board of Supervisors.

- Emergency
- Cost Prohibitive
- Alternate Compliance
- Other

713. Waivers.

- No conflict with federal or state law or with a requirement of any government agency

714. Preemption.