

2010
San Francisco Building Code

Amendments to the

2010 California Green Building Standards Code

(Omitting amendments to 2010 California Building Code and 2010 California Residential Code which do not pertain to energy)

Operative date: January 1, 2011

Chapter 13C
GREEN BUILDING REQUIREMENTS

The City and County of San Francisco adopts the 2010 Cal Green Code as amended by the City & County of San Francisco and herein printed as Chapter 13C of the San Francisco Building Code.

Replace the chapters as follows:

CHAPTER 13C.1
ADMINISTRATION GENERAL

SECTION 13C.101
GENERAL

13C.101.1 Title. These regulations shall be known as the ~~California~~ San Francisco Green Building Standards Code and may be cited as such and will be referred to herein as "this code". ~~It is intended that it shall also be known as the CAL Green Code.~~ The ~~California~~ San Francisco Green Building Standards Code is ~~Part 11 of twelve parts~~ Chapter 13C of the official compilation and publication of the adoption, amendment and repeal of building regulations to the ~~California Code of Regulations, Title 24, also referred~~ San Francisco Building Inspection Commission Amendments to as the California Building Standards Code.

13C.101.2 Purpose. The purpose of this ~~code chapter~~ is to ~~improve public~~ promote the health, safety and general welfare of San Francisco residents, workers, and visitors by ~~enhancing the design and construction of buildings through minimizing the use of building concepts having a reduced negative impact, or positive environmental impact and encouraging sustainable construction practices~~ waste of energy, water and other resources in the ~~following categories:~~

- ~~1. Planning and design.~~
- ~~2. Energy efficiency.~~
- ~~3. Water efficiency and conservation.~~
- ~~4. Material conservation and resource efficiency.~~
- ~~5. Environmental quality.~~

construction and operation of buildings in the City and County of San Francisco and by providing a healthy indoor environment. The green building practices required by this chapter will also further the goal of reducing the greenhouse gas emissions in the City and County of San Francisco to 20 percent below 1990 levels by the year 2012, as stated in Board of Supervisors Resolution No. 158-02 and the City's 2004 Climate Action Plan.

13C.101.3 Scope. The provisions of this code shall apply to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure, unless other wise indicated in this code, as well as alterations to existing buildings throughout the State of California. City and County of San Francisco.

~~It is not the intent that~~ While this code substitute or be identified as meeting references the standards of green building programs, the City and County of San Francisco does not confer certification requirements of under any green building program.

13C.101.3.1 State-regulated Regulated buildings, structures and applications. Provisions of this code shall apply to the following buildings, structures, and applications regulated by state agencies as referenced in the Matrix Adoption Tables and as specified in Sections 103 through 106, except where modified by local

~~ordinance pursuant to Section 101.7. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by statute. Provisions of this code shall apply to all occupancy types regulated by the San Francisco Building Code, including: A, B, E, F, H, I, L, M, R, S, and U as defined by California Building Code Title 24 Section 302 (2010) as amended.~~

- ~~1. State owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California and regulated by the Building Standards Commission. See Section 103 for additional scoping provisions.~~
- ~~2. Energy efficiency standards regulated by the California Energy Commission~~
- ~~3. Low rise residential buildings constructed throughout the State of California, including but not limited to, hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory built housing and other types of dwellings containing sleeping accommodations with or without common toilets or cooking facilities regulated by the Department of Housing and Community Development. See Section 104 for additional scoping provisions.~~
- ~~4. Public elementary and secondary schools, and community college buildings regulated by the Division of the State Architect. See Section 105 for additional scope provisions.~~
- ~~5. Qualified historical buildings and structures and their associated sites regulated by the State Historical Building Safety Board within the Division of the State Architect.~~
- ~~6. General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 106 for additional scoping provisions.~~
- ~~7. Graywater systems regulated by the Department of Water Resources and the Department of Housing and Community Development.~~

~~**13C.101.4 Appendices.** Provisions contained in the appendices of this code are not mandatory unless specifically adopted by a State agency or adopted by a city, county, or city and county in compliance with Health and Safety Code Sections 18930 and 18941.5, respectively, for Building Standards Law; Health and Safety Code Section 17950 for State Housing Law; and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 101.7 of this code. [Reserved]~~

~~**13C.101.5 Referenced codes and standards.** The codes and standards referenced elsewhere in this code shall be considered part of the requirements of this code to the extent prescribed ~~extent~~ of each such reference.~~

~~**101.5.1 Building.** The provisions of the California Building Code and California Residential Code, as applicable shall apply to the construction, alteration, movement, enlargement, replacement, repair, use and occupancy, location, maintenance, removal and demolition of every structure or any appurtenances connected or attached to such buildings or structures.~~

~~**101.5.2 Electrical.** The provisions of the California Electrical Code shall apply to the installation of electrical systems, including but not limited to, alterations, repair, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.~~

~~**101.5.3 Mechanical.** The provisions of the California Mechanical Code shall apply to the installation, alterations, repair and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air conditioning and refrigeration systems, incinerators and other energy related systems.~~

~~**101.5.4 Plumbing.** The provisions of the California Plumbing Code shall apply to the installation, alteration,~~

~~repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances where connected to a water or sewage system.~~

~~**101.5.5 Fire prevention.** The provisions of CCR, Title 19, Division 1 and CCR, Title 24, Part 2 and Part 9 relating to fire and panic safety as adopted by the Office of the State Fire Marshal shall apply to all structures, processes and premises for protection from the hazard of fire, panic and explosion.~~

~~**101.5.6 Energy.** The provisions of the California Energy Code shall apply to the minimum design and construction of buildings for energy efficiency.~~

13C.101.6 Order of precedence and use.

~~**13C.101.6.1 Differences.** In the event of any differences between these building standards and the standard reference documents, the text of ~~these building standards~~ this Chapter shall govern. ~~In the event a local amendment to this code results in differences between these building standards and the amendment, the text of the amendment shall govern.~~~~

~~**13C.101.6.2 Specific provision.** Where a specific provision varies from a general provision, the specific provision shall apply.~~

~~**13C.101.6.3 Conflicts.** When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, any provision contained elsewhere in the San Francisco Municipal Code, or any regulation or requirement adopted by the Public Utilities Commission or other City agency under its Charter authority, the most restrictive requirement shall prevail.~~

~~**13C.101.6.4. Explanatory notes.** Explanatory material, such as references to web sites or other sources where additional information may be found, is included in this code in the form of notes. Notes are informational only and are not enforceable requirements of this code.~~

~~**13C.101.7 City, county, or city and county amendments, additions or and deletions.** This code is intended to set mandatory minimum Green Building Standards and include optional tiers that may, at the discretion of any city, county or city and county, be applied. This chapter includes the amendments, deletions, and additions necessary to enforce California green building minimum mandatory measures as well as maintain stricter local standards.~~

~~This code does not limit the authority of city, county, or city and county governments to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1. The effective date of amendments, additions, or deletions to this code for cities, counties, or cities and counties filed pursuant to Section 101.7.1 shall be the date on which it is filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.~~

~~Local modifications shall comply with Health and Safety Code Section 18941.5(b) for Building Standards Law, Health and Safety Code Section 17958.5 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.~~

~~**101.7.1 Findings and filings.**~~

~~1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical, or geological conditions. For the purpose of this section, climatic, topographical, or geological conditions include local environmental conditions as established by the city, county, or city and county.~~

2. ~~The city, county, or city and county shall file the amendments, additions, or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.~~

3. ~~Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development at 1800 3rd Street, Room 260, Sacramento, CA 95811.~~

4. ~~The city, county, or city and county shall obtain California Energy Commission approval for any energy related ordinances consistent with Public Resources Code Section 25402.1(h)(2) and Title 24, Part 1, Section 10-106. Local governmental agencies may adopt and enforce energy standards for newly constructed buildings, additions, alterations, and repairs provided the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by Part 6. Such local standards include, but are not limited to, adopting the requirements of Part 6 before their effective date, requiring additional energy conservation measures, or setting more stringent energy budgets.~~

~~**101.8 Alternate materials, designs and methods of construction.** The provisions of this code are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternate shall be approved on a case-by-case basis where the enforcing agency finds that the proposed alternate is satisfactory and complies with the intent of the provisions of this code and is at least the equivalent of that prescribed in this code in planning and design, energy, water, material resource efficiency and conservation, environmental air quality, performance, safety, and the protection of life and health. Consideration and compliance provisions for occupancies regulated by adopting state agencies are found in the sections listed below.~~

- ~~1. Section 1.2.2 in the California Building Code (CBC) for the California Building Standards Commission~~
- ~~2. Section 104.11 of Chapter 1, Division II for the Division of the State Architect.~~
- ~~3. Section 1.8.7, Chapter 1, Administration, Division 1, of the 2010 California Building Code and Section 1.2.6, Chapter 1, Administration, Division 1, of the 2010 California Residential Code for the Department of Housing and Community Development.~~
- ~~4. Section 7-104, 2010 California Administrative Code for the Office of the Statewide Health Planning and Development.~~

~~**101.9 Effective date of this code.** Only those standards approved by the California Building Standards Commission that are effective at the time an application for a building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the appropriate application checklist and the History Note page of this code.~~

~~**101.10 Mandatory requirements.** This code contains both mandatory and voluntary green building measures. Mandatory and voluntary measures are identified in the appropriate application checklist contained in this code.~~

~~**13C.101.10 Equivalency.** Wherever reference is made to the LEED® or GreenPoint Rated systems, a comparable equivalent rating system may be used if approved by the Director. The applicable LEED®, GreenPoint Rated or equivalent versions of performance standards for applications subject to this chapter are:~~

~~LEED® for Green Interior Design and Construction v2009~~

~~LEED® for Building Design and Construction v2009~~

~~GreenPoint Rated (GPR) Single Family New Home Construction – v2009-11 version~~

GreenPoint Rated (GPR) New Multifamily Construction – v2009-11 version
LEED® for Homes v2009 (applicable as an equivalent compliance path for residential projects of 4 stories or greater, where CalGreen mandatory measures are not required.)

Wherever specific LEED® prerequisites or credits are cited, such references are to LEED® BD&C 2009. More recent LEED® and GreenPoint Rated versions may be used, provided the credits and points achieved are as or at least as stringent as LEED® BD&C 2009 or GPR 2009-11.

Wherever the LEED® or GreenPoint Rated systems include a minimum energy or other performance requirement, the permit applicant may choose to meet the minimum performance requirements with an alternative equivalent method approved by the Director.

Compliance with any of these requirements may be verified and/or certified by any means, including third-party review, as approved by the Director.

13C.101.11 Effective use of this code. The following steps may be used to establish which provisions of this code are applicable to a specific occupancy:

1. Establish the type of occupancy.
2. ~~Verify which state agency has authority for the established occupancy by reviewing the authorities list in Sections 103 through 106.~~
3. ~~Once the appropriate agency has been identified, find~~ Find the chapter which covers the established occupancy.
3. ~~The Matrix Adoption Tables at the beginning of Chapters 4 and 5~~ Identify the mandatory green building measures necessary to meet the minimum requirements of this code for the established occupancy in chapters 4 and 5.
5. ~~Voluntary tier measures are contained in Appendix Chapters A4 and A5. A Checklist containing each green building measure, both required and voluntary is provided at the end of each appendix chapter. Each measure listed in the application checklist has a section number which correlates to a section where more information about the specific measure is available.~~
6. ~~The Application Checklist identifies which measures are required by this code and allows users to check off which voluntary items have been selected to meet voluntary tier levels if desired or mandated by a city, county or city and county.~~
4. Administrative Bulletin 93, provided by the Department of Building Inspection, summarizes how the requirements of this code may be met. Appendices to Administrative Bulletin 93 include tabular summaries of required measures, and provide submittal forms.

SECTION 102 CONSTRUCTION DOCUMENTS AND INSTALLATION VERIFICATION

102.1 Submittal documents. ~~Construction documents and other data shall be submitted in one or more sets with each application for a permit. Where special conditions exist, the enforcing agency is authorized to require additional construction documents to be prepared by a licensed design professional and may be submitted separately.~~

Exception: The enforcing agency is authorized to waive the submission of construction documents and other data not required to be prepared by a licensed design professional.

102.2 Information on construction documents. Construction documents shall be of sufficient clarity to

indicate the location, nature and scope of the proposed green building feature and show that it will conform to the provisions of this code, the California Building Standards Code, and other relevant laws, ordinances, rules and regulations as determined by the enforcing agency.

102.3 Verification. Documentation of conformance for applicable green building measures shall be provided to the enforcing agency. Alternate methods of documentation shall be acceptable when the enforcing agency finds that the proposed alternate documentation is satisfactory to demonstrate substantial conformance with the intent of the proposed green building measure.

SECTION 103 BUILDING STANDARDS COMMISSION

103.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

1. All occupancies.

Application—New construction, unless otherwise indicated in this code, of State buildings (all occupancies), including buildings constructed by the Trustees of the California State University and the Regents of the University of California and all occupancies where no state agency has the authority to adopt building standards applicable to such buildings.

Enforcing Agency—State or local agency specified by the applicable provisions of law.

Authority Cited—Health and Safety Code Sections 18930.5, 18934.5 and 18938 (b).

Reference—Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

8. — University of California, California State Universities, and California Community Colleges. Application—Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities, and California Community Colleges.

Enforcing Agency—State or local agency specified by the applicable provisions of law.

Authority Cited—Government Code Section 14617.

Reference—Government Code Section 14617.

3. Existing State Owned Buildings, including those owned by the University of California and by the California State University.

Application—Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.

Enforcing Agency—State or local agency specified by the applicable provisions of law.

Authority Cited—Government Code Section 16600.

Reference—Government Code Sections 16600 through 16604.

4. Unreinforced Masonry Bearing Wall Buildings.

Application—Minimum seismic strengthening standards for buildings specified in Appendix Chapter 1 of the California Code for Building Conservation, except for buildings subject to building standards adopted pursuant to Part 1.5 (commencing with Section 17910).

Enforcing Agency—State or local agency specified by the applicable provisions of law.

Authority Cited—Health and Safety Code Section 18934.6.

Reference—Health and Safety Code Sections 18901 through 18949.

SECTION 104 DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

104.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

1. Housing construction. Application—Hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. Sections of this code which pertain to applications listed in this section are identified in the Matrix Adoption Table using the abbreviation “HCD 1.”

Enforcing agency—Local building department or the Department of Housing and Community Development.

Authority Cited—Health and Safety Code Sections 17921, 17922 and 19990.

Reference—Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

SECTION 105 DIVISION OF THE STATE ARCHITECT

105.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated

105.1.1 Application — Public elementary and secondary schools and community colleges. New construction on a new campus site or new construction on an existing site cleared of all existing structures.

Enforcing agency—The Division of the State Architect—Structural Safety (DSA-SS) has been delegated the responsibility and authority by the Department of General Services to review and approve the design and observe the construction of public elementary and secondary schools, and community colleges.

Authority cited—Education Code Sections 17310 and 81142.

Reference—Education Code Sections 17280 through 17317, and 81130 through 81147.

105.1.2 Applicable administrative standards.

1. Title 24, Part 1, California Code of Regulations:

Sections 4 301 through 4 355, Group 1, Chapter 4, for public elementary and secondary schools and community colleges.

2. Title 24, Part 2, California Code of Regulations:

2.1 Sections 1.1 and 1.9.2 of Chapter 1, Division 1.

~~2.2 Sections 102.1, 102.2, 102.3, 102.4, 102.5, 104.9, 104.10 and 104.11 of Chapter 1, Division II.~~

~~**105.1.3 Applicable building standards.** *California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 6, 9, 11 and 12, California Code of Regulations, for school buildings and community colleges.*~~

SECTION 106 OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT

~~**106.1 OSHPD 1.** Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.~~

~~**Application**—General acute care hospitals and acute psychiatric hospitals, excluding distinct part units or distinct part freestanding buildings providing skilled nursing or intermediate care services. For structural regulations: Skilled nursing facilities and/or intermediate care facilities except those skilled nursing facilities and intermediate care facilities of single story, Type V, wood or light steel frame construction.~~

~~**Enforcing agency**—Office of Statewide Health Planning and Development (OSHPD). The office shall enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.~~

~~**106.1.1 Applicable administrative standards.**~~

~~1. Title 24, Part 1, California Code of Regulations: Chapters 6 and 7.~~

~~2. Title 24, Part 2, California Code of Regulations: Sections 101 and 110 of Chapter 1 and Appendix Chapter 1.~~

~~**106.1.2 Applicable building standards.** *California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 11 and 12.*~~

~~**106.1.3 Identification of amendments.** For applications listed in Section 106.1, amendments appear in this code preceded with the acronym [OSHPD 1].~~

~~**Authority**—Health and Safety Code Sections 127010, 127015, 1275 and 129850.~~

~~**References**—Health and Safety Code Sections 19958, 127010, 127015, 129680, 1275 and 129675 through 130070.~~

~~**106.2 OSHPD 2.** Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.~~

~~**Application**—Skilled nursing facilities and intermediate care facilities, including distinct part skilled nursing and intermediate care services on a general acute care or acute psychiatric hospital license, provided either are in a separate unit or a freestanding building. For structural regulations: Single story, Type V skilled nursing facility and/or intermediate care facilities utilizing wood or light steel frame construction.~~

~~**Enforcing agency**—Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility type.~~

~~**106.2.1 Applicable administrative standards.**~~

~~1. Title 24, Part 1, California Code of Regulations: Chapter 7.~~

~~2. Title 24, Part 2, California Code of Regulations: Sections 101 and 110 of Chapter 1 and Appendix~~

Chapter 1.

106.2.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 11 and 12.

106.2.3 Identification of amendments. For applications listed in Section 106.2, amendments appear in this code preceded with the acronym [OSHPD 2].

Authority—Health and Safety Code Sections 127010, 127015, 1275 and 129850.

References—Health and Safety Code Sections 127010, 127015, 1275 and 129680.

106.3 OSHPD 4. Specific scope of application of the agency responsible for enforcement, enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

Application—Correctional treatment centers.

Enforcing agency—Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect—Access Compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.

106.3.1 Applicable administrative standards.

1. Title 24, Part 1, California Code of Regulations: Chapter 7.

2. Title 24, Part 2, California Code of Regulations: Sections 1.1 and 1.10 of Chapter 1, Division 1 and Chapter 1, Division II.

106.3.2 Applicable building standards. California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 11 and 12.

106.3.3 Identification of amendments. For applications listed in Section 106.4, amendments appear in this code preceded with the acronym [OSHPD 4], unless the entire chapter is applicable.

Authority—Health and Safety Code Sections 127010, 127015 and 129790.

References—Health and Safety Code Sections 127010, 127015, 1275 and 129675 through 130070.

**CHAPTER 13C.2
DEFINITIONS**

**SECTION 13C.201
GENERAL**

13C.201.1 Scope. ~~Unless otherwise stated, the~~ The following words and terms shall, for the purposes of this code ~~chapter~~, have the meanings ~~shown in this chapter~~ indicated.

201.2 Interchangeability. ~~Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.~~

201.3 Terms defined in other documents. ~~Where terms are not defined in this code and are defined in the California Building Standards Code or other referenced documents, such terms shall have the meanings ascribed to them as in those publications.~~

201.4 Terms not defined. ~~Where terms are not defined as specified in this section, such terms shall have ordinarily accepted meanings such as the context implies.~~

**SECTION 13C.202
DEFINITIONS**

AUTOMATIC. Automatic means capable of operating without human intervention.

BUILDING ENVELOPE. The ensemble of exterior and demising partitions of a building that enclose conditioned space.

~~**CALIFORNIA BUILDING CODE.** The current version of the California Building Code.~~

~~**CALIFORNIA ELECTRICAL CODE.** The current version of the California Electrical Code.~~

~~**CALIFORNIA ENERGY CODE.** The current version of the California Energy Code, unless otherwise specified.~~

~~**CALIFORNIA MECHANICAL CODE.** The current version of the California Mechanical Code.~~

~~**CALIFORNIA PLUMBING CODE.** The current version of the California Plumbing Code.~~

~~**CALIFORNIA RESIDENTIAL CODE.** The current version of the California Residential Code.~~

CONDITIONED FLOOR AREA. The floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.

CONDITIONED SPACE. A space in a building that is either directly conditioned or indirectly conditioned.

CONDITIONED SPACE, DIRECTLY. An enclosed space that is provided with wood heating, is provided with mechanical heating that has a capacity exceeding 10 Btu/hr-ft², or is provided with mechanical cooling

that has a capacity exceeding 5 Btu/hr-ft², unless the space-conditioning system is designed for a process space. (See “**PROCESS SPACE**”)

CONDITIONED SPACE, INDIRECTLY. Enclosed space, including, but not limited to, unconditioned volume in atria, that (1) is not directly conditioned space; and (2) either (a) has a thermal transmittance area product (UA) to directly conditioned space exceeding that to the outdoors or to unconditioned space and does not have fixed vents or openings to the outdoors or to unconditioned space, or (b) is a space through which air from directly conditioned spaces is transferred at a rate exceeding three air changes per hour.

COOLING EQUIPMENT. Equipment used to provide mechanical cooling for a room or rooms in a building.

DEMOLITION. The removal of sufficient material from an existing building to meet the definition in Planning Code.

DISPOSAL. Means the management of solid waste through landfilling or transformation at permitted solid waste facilities.

DIVERSION. Means activities which reduce or eliminate the amount of solid waste from solid waste disposal for purposes of this code.

ENERGY COMMISSION. The California State Energy Resources Conservation and Development Commission.

~~**ENFORCING AGENCY.** The designated department or agency as specified by statute or regulation.~~

EXFILTRATION. The uncontrolled outward air leakage from inside a building, including leakage through cracks and interstices, around windows and doors, and through any other exterior partition or duct penetration.

GREEN BUILDING. A holistic approach to design, construction, and demolition that minimizes the building’s impact on the environment, the occupants, and the community.

GREENPOINT RATED, GREENPOINTS and GREENPOINTS CHECKLIST. The residential green building rating system and checklist and certification methodology of the non-profit organization Build It Green.

HAZARDOUS WASTE.

(a) Means a waste, defined as a "hazardous waste" in accordance with Section 25117 of the Health and Safety Code, or a combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may do either of the following:

(1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.

(2) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

(b) Unless expressly provided otherwise, "hazardous waste" includes extremely hazardous waste and acutely hazardous waste.

HIGH-RISE RESIDENTIAL BUILDING. A high-rise building that contains Group R residential occupancies.

HISTORICAL RESOURCE. A property that meets the terms of the definitions in Section 21084.1 of the CEQA Statute (The California Environmental Quality Act [Public Resources Code Section 21084.1]) and Section 15064.5 of the CEQA Guidelines, as determined by the San Francisco Planning Department.

INERT SOLIDS OR INERT WASTE. Inert solids or inert waste means a non-liquid solid waste including, but not limited to, soil and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board pursuant to Division 7 (commencing with Section 13000) of the California Water Code and does not contain significant quantities of decomposable solid waste.

INFILTRATION. An uncontrolled inward air leakage from outside a building or unconditioned space, including leakage through cracks and interstices, around windows and doors and through any other exterior or demising partition or pipe or duct penetration.

~~**KITCHEN.** That portion in a residential dwelling unit that is a room or area used for cooking, food storage and preparation and washing dishes, including associated counter tops and cabinets, refrigerator, stove, ovens and floor area.~~

~~**LOW-RISE RESIDENTIAL BUILDING.** A building that is of Occupancy Group R and is three stories or less, or that is a one- or two- family dwelling or townhouse.~~

LARGE COMMERCIAL BUILDING. A commercial building or addition of Group B, M, A, or I occupancy that is 25,000 gross square feet or more.

LEED® and LEED® Checklist The Leadership in Energy and Environment Design rating system, certification methodology, and checklist of the United States Green Building Council (USGBC).

MAJOR ALTERATIONS. Alterations where interior finishes are removed and significant upgrades to structural and mechanical, electrical and/or plumbing systems are proposed where areas of such construction are 25,000 gross square feet or more in Group B, M or R occupancies of existing buildings.

MID-SIZE COMMERCIAL BUILDING. A commercial building of Group B or M occupancy that is 5,000 or more and less than 25,000 gross square feet, and is not a high-rise building.

MID-SIZE RESIDENTIAL BUILDING. A building that contains five or more dwelling units and is not a high-rise building.

NEWLY CONSTRUCTED (or NEW CONSTRUCTION). A newly constructed building (or new construction) is a building that has never before been used or occupied for any purpose and does not include additions, alterations or repairs.

OUTDOOR AIR (Outside air). Air taken from outdoors and not previously circulated in the building.

NEW LARGE COMMERCIAL INTERIORS. First-time tenant improvements where areas of such construction are over 25,000 gross square feet or more in Group B or M occupancy areas of existing buildings.

PLANTS.

Adaptive plants. Adaptive plants are plants that grow well in a given habitat with minimal attention in the form of winter protection, pest protection, irrigation and fertilization once established.

Note: Adaptive plants are considered low in maintenance and are not Invasive plants.

Invasive plants. Invasive plants are both indigenous and non-indigenous species with growth habits that are characteristically aggressive.

Note: Invasive plants typically have a high reproductive capacity and tendency to overrun the ecosystems they inhabit.

Native plants. Native plants are plants that have adapted to a given area and are not invasive.

PROCESS SPACE. A space that is thermostatically controlled to maintain a process environment temperature less than 55° F or to maintain a process environment temperature greater than 90° F for the whole space that the system serves, or that is a space with a space-conditioning system designed and controlled to be incapable of operating at temperatures above 55° F or incapable of operating at temperatures below 90° F at design conditions.

RECYCLE or RECYCLING. The process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. "Recycling" does not include transformation, as defined in Public Resources Code Section 40201.

~~**RESIDENTIAL BUILDING.** (See "low-rise residential building.") Buildings with Group R Occupancy.~~

RESILIENT FLOORING. Refers to non-textile flooring materials which have a relatively firm surface, yet characteristically have "give" and "bounce back" to their original surface profile from the weight of objects that compress its surface. Resilient flooring materials are made in various shapes and sizes including both tile and roll form. Common types of resilient flooring include but are not limited to:

1. Vinyl composition tile
2. Vinyl tile and sheet flooring
3. Linoleum tile and sheet
4. Cork tile and sheet flooring
5. Rubber tile and sheet flooring
6. Polymeric poured seamless flooring
7. Other types of non-textile synthetic flooring

RE-USE. Means the use, in the same form as it was produced, of a material which might otherwise be discarded.

SMALL RESIDENTIAL BUILDING. A building that has four or fewer dwelling units and is not a high-rise building.

SOLID WASTE.

(a) Solid waste means all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated,

or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes.

(b) "Solid waste" does not include any of the following wastes:

- (1) Hazardous waste, as defined in Public Resources Code Section 40141.
- (2) Radioactive waste regulated pursuant to the Radiation Control Law (Chapter 8 (commencing with Section 114960) of Part 9 of Division 104 of the Health and Safety Code).
- (3) Medical waste regulated pursuant to the Medical Waste Management Act (Part 14 commencing with Section 117600) of Division 104 of the Health and Safety Code). Untreated medical waste shall not be disposed of in a solid waste landfill, as defined in Public Resources Code Section 40195.1. Medical waste that has been treated and deemed to be solid waste shall be regulated pursuant to this division.

VAPOR BARRIER. Material that has a permeance rating of one perm or less when tested in accordance with the desiccant method using procedure A of ASTM E96 and that provides resistance to the transmission of ~~water~~ moisture vapor.

CHAPTER 13C.3
GREEN BUILDING

SECTION 13C.301
GENERAL

13C.301.1 Scope. ~~Buildings Newly constructed buildings in the City and County of San Francisco shall be designed to include the green building~~ comply with the measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in under the application checklists and may be included California Green Building Standards Code (CalGreen) in the design and construction of structures covered by this code but are not required unless adopted by a city, county or city and county as manner specified in Section 101.7. this Chapter.

Additional green building requirements established by the City and County of San Francisco in 2008 are mandatory for:

- (1) Newly constructed Group R occupancy buildings,
- (2) Newly constructed buildings of Group B, M, A, and I occupancies that are 5,000 gross square feet or more,
- (3) New first-time build-outs of commercial interiors that are 25,000 gross square feet or more in buildings of Group B or M occupancies, and
- (4) Major alterations that are 25,000 gross square feet or more in existing buildings of Group B, M or R occupancies, where interior finishes are removed and significant upgrades to structural and mechanical, electrical and/or plumbing systems are proposed.

Exempt from additional local requirements beyond CalGreen mandatory measures, unless otherwise noted are:

- (1) Any new building in which laboratory use of any occupancy classification is the primary use, and
- (2) Any building undergoing renovation in which the area of renovation will be primarily for laboratory use of any occupancy classification.

SECTION 13C.302
MIXED OCCUPANCY BUILDINGS

13C.302.1 Mixed occupancy buildings. In mixed occupancy buildings, each portion of a building shall comply with the specific green building CalGreen mandatory measures applicable to each specific occupancy. However, to fulfill any additional local green building requirements, the project sponsor may apply a single required green building standard to the entire building.

SECTION 13C.303
PHASED PROJECTS

13C.303.1 Phased projects. For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction (or newly constructed) shall apply.

13C.303.1.1 Tenant improvements. The provisions Maintenance of this code shall apply only to the initial tenant or occupant improvements to a project. required features. Any structure subject to this chapter shall maintain the green building features required herein, or equivalent, regardless of subsequent alterations, additions, or changes of use, unless subject to subsequent or more stringent requirements.

SECTION 304
VOLUNTARY TIERS

~~304.1 Purpose. Voluntary tiers are intended to further encourage building practices that improve public health, safety and general welfare by promoting the use of building concepts which minimize the building's impact on the environment and promote a more sustainable design.~~

~~304.1.1 Tiers. The provisions of Appendices A4 and A5 outline means of achieving enhanced construction levels by incorporating additional measures. Buildings complying with tiers specified for each occupancy contain additional prerequisite and elective green building measures necessary to meet the threshold of each tier.~~

~~Where there are practical difficulties involved in complying with the threshold levels of a tier, the enforcing agency may grant modifications for individual cases. The enforcing agency shall first find that a special individual reason makes the strict letter of the tier impractical and that modification is in conformance with the intent and purpose of the measure. The details of any action granting modification shall be recorded and entered in the files of the enforcing agency.~~

SECTION 305 [OSHPD 1, 2 & 4]
CALGreen TIER 1 AND CALGreen TIER 2

~~305.1 CALGreen Tier 1 and CALGreen Tier 2 buildings contain voluntary green building measures necessary to meet the threshold of each level.~~

~~305.1.1 CALGREEN Tier 1. To achieve CALGreen Tier I, buildings must comply with the latest edition of "Savings By Design, Healthcare Modeling Procedures" found online at <http://www.energysoft.com/ep/2007SBDHPProcedures.pdf>~~

~~305.1.2 CALGREEN Tier 2. To achieve CALGreen Tier 2, buildings must exceed the latest edition of "Savings By Design, Healthcare Modeling Procedures" by a minimum of 15%.~~

SECTION 306
VOLUNTARY MEASURES

~~**306.1 Purpose.** Voluntary measures are intended to further encourage building practices that improve public health, safety and general welfare by promoting the use of building concepts which minimize the building's impact on the environment, promote a more sustainable design, and high performance educational facilities.~~

~~**306.1.1** The provisions of Appendix A5 outline means of achieving enhanced construction levels by incorporating additional measures.~~

CHAPTER 13C.4
RESIDENTIAL MANDATORY MEASURES REQUIREMENTS

DIVISION 13C.4.1 - PLANNING AND DESIGN

SECTION 13C.4.101
GENERAL

4.101.1 Purpose. ~~The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.~~

13C. 4.101.1 Purpose. This division outlines green building requirements for all newly constructed Group R occupancy buildings as well as major alterations of Group R occupancy buildings to promote the health, safety and welfare of San Francisco residents.

SECTION 13C.4.102
DEFINITIONS

13C.4.102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

~~**WATTLES.** Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.~~

SECTION 13C.4.103
SITE SELECTION (RESERVED) REQUIREMENTS FOR GROUP R OCCUPANCY BUILDINGS

13C.4.103.1 New small and midsize residential buildings.

13C.4.103.1.1 Rating requirements

Effective January 1, 2011, a new building must be GreenPoint Rated and applicants must submit documentation demonstrating that a minimum of 75 GreenPoints from the GreenPoints Single Family New Construction Checklist or the GreenPoints Multifamily New Construction Checklist will be achieved.

13C.4.103.1.2 Stormwater management

In addition to any stormwater measures required in the course of meeting the GreenPoint Rated standard, projects disturbing 5,000 square feet or more in ground area shall meet or exceed the stormwater management controls adopted by the San Francisco Public Utilities Commission, including LEED® SS 6.1® and 6.2 as applicable. All new building projects – including those of less than one acre in area – must

also develop and implement construction activity pollution prevention and site run-off controls adopted by the San Francisco Public Utilities Commission, as applicable.

13C.4.103.2 New high-rise residential buildings

13C.4.103.2.1 Rating requirement

Effective January 1, 2011, permit applicants must submit documentation to achieve LEED® “Silver” certification. Alternatively, this rating requirement may be met by obtaining the GreenPoint Rated designation and submitting documentation demonstrating that a minimum of 75 GreenPoints from the GreenPoint Rated Multifamily New Construction checklist will be achieved.

13C.4.103.2.2 Indoor water use reduction. Permit applicants must submit documentation verifying that a minimum 30 percent reduction in the use of indoor potable water is achieved, as calculated to meet LEED® credit WE3.2.

13C.4.103.2.3 Construction debris management. Permit applicants must submit documentation verifying the diversion of a minimum 75 percent of the projects construction and demolition debris, as calculated to meet LEED® credit MR2.2. The waste management plan necessary to meet this requirement shall be updated as necessary and shall be accessible during construction for examination by the Department of Building Inspection. Permit applicants must also meet the requirements of San Francisco Environment Code Chapter 14 and San Francisco Building Code Chapter 13B (Construction and Demolition Debris Recovery Program.)

13C.4.103.2.4 Stormwater management. Stormwater management shall meet the stormwater management controls adopted by the San Francisco Public Utilities Commission, and shall meet or exceed the applicable LEED® SS 6.1 and SS 6.2 credits.

13C.4.103.2.4.1 Construction activity stormwater pollution prevention. All projects, whether greater or less than one acre, must develop and implement construction activity pollution prevention and site run-off controls adopted by the San Francisco Public Utilities Commission, as well as LEED® prerequisite SSp1, as applicable.

13C.4.103.3 MAJOR ALTERATIONS TO EXISTING GROUP R OCCUPANCY BUILDINGS

13C.4.103.3.1 RATING REQUIREMENT

Effective January 1, 2011, permit applicants must submit documentation to achieve LEED® “Silver” certification. Effective January 1, 2012, applicants must submit documentation achieve a LEED® Gold rating. Alternatively, this rating requirement may be met by obtaining the GreenPoint Rated designation and submitting documentation demonstrating that a minimum of 75 GreenPoints from the GreenPoint Rated Multifamily New Construction checklist will be achieved.

13C.4.103.2.2 LOW-EMITTING MATERIALS

Alterations utilizing LEED® must submit documentation to verify the use of low-emitting materials meeting the LEED® credits EQ 4.1 (adhesives and sealants), EQ 4.2 (paints and coatings), and EQ 4.3 (carpet systems) where applicable.

Alterations utilizing GreenPoint Rated must submit documentation to verify the use of low-emitting materials meeting the GreenPoint Rated Multifamily New Homes measures for low-emitting coatings, adhesives and sealants, and carpet systems.

SECTION 13C.4.104
SITE (Reserved)-HISTORIC PRESERVATION

13C.4.104.1 On-site retention of historical features. For alterations of buildings determined to be historical resources, after demonstrating compliance with all applicable codes, including the 2008 California Building Energy Efficiency Standards (Title 24, Part 6) and the 2010 California Historical Building Code (Title 24, Part 8), the minimum points or credits required under this chapter shall be reduced for retention and in-situ reuse or restoration of certain character defining features, as follows:

TABLE 13C.4.104.A

<u>SIGNIFICANT HISTORICAL ARCHITECTURAL FEATURES</u>	<u>PERCENT RETAINED*</u>	<u>ADJUSTMENT TO MINIMUM LEED POINT REQUIREMENT</u>	<u>ADJUSTMENT TO MINIMUM GREENPOINTS REQUIREMENT</u>
<u>Windows @ principal façade(s)</u>	<u>At least 50%</u>	<u>2</u>	<u>7</u>
<u>Windows @ principal façade(s)</u>	<u>At least 75%</u>	<u>3</u>	<u>11</u>
<u>Windows @ principal façade(s)</u>	<u>100%</u>	<u>4</u>	<u>15</u>
<u>Other windows</u>	<u>At least 50%</u>	<u>1</u>	<u>3</u>
<u>Other windows</u>	<u>100%</u>	<u>2</u>	<u>6</u>
<u>Exterior doors @ principal façade(s)</u>	<u>100%</u>	<u>1</u>	<u>3</u>
<u>Siding or wall finish @ principal façade(s)</u>	<u>80%</u>	<u>1</u>	<u>4</u>
<u>Trim & casing @ wall openings on principal façade(s)</u>	<u>100%</u>	<u>1</u>	<u>3</u>
<u>Roof cornices or decorative eaves visible from right-of-way</u>	<u>100%</u>	<u>1</u>	<u>3</u>
<u>Sub-cornices, belt courses, water tables, and running trim visible from right-of-way</u>	<u>80%</u>	<u>1</u>	<u>3</u>
<u>Character-defining elements of significant interior spaces</u>	<u>At least 50%</u>	<u>2</u>	<u>7</u>
<u>Character-defining elements of significant interior spaces</u>	<u>100%</u>	<u>4</u>	<u>15</u>
<u>Other exterior ornamentation (e.g. cartouches, corbels, quoins, etc.) visible from right-of-way</u>	<u>80%</u>	<u>1</u>	<u>3</u>

*** Retention includes the rehabilitation and repair of character-defining features that conform to the**

Secretary of the Interior's Standards for the Treatment of Historic Properties.

SECTION 13C.4.105

DECONSTRUCTION AND REUSE OF (Reserved) DEMOLITION OF EXISTING STRUCTURES

13C.4.105.1 Adjustments to Rating Requirements for Building Demolition and Density. Applications subject to SFBC Chapter 13C, whereby construction of a new building is proposed within five years of the demolition of a building on the site, where such demolition occurred after the effective date of the Green Building Ordinance - November 3, 2008 - the sustainability requirements for new buildings pursuant to San Francisco Building Code Chapter 13C shall be increased as follows:

13C.4.105.1.1 LEED® Projects. For projects attaining a LEED® certification:

- (1) Where the building demolished was an historical resource, the required points shall be increased by 10 points.**
- (2) Where the building demolished was not an historical resource, the required points shall be increased by 6 additional points.**
- (3) Where the building demolished was not an historical resource and the number of dwellings in the residential portion of the replacement structure are tripled, the required points shall be increased by 5 additional points.**

13C.4.105.1.2 GreenPoint Rated Projects. For projects attaining GreenPoint Rated:

- (1) Where the building demolished was an historical resource, the required points shall be increased by 25 additional points.**
- (2) Where the building demolished was not an historical resource, the required points shall be increased by 20 additional points.**
- (3) Where the building demolished was not an historical resource and the number of dwellings in the residential portion of the replacement structure are tripled, the required points shall be increased by 17 additional points.**

**SECTION 13C.4.106
SITE DEVELOPMENT**

13C.4.106.1 General. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section. The requirements of this section are completely met in the course of compliance with Section 13C.4.103, which is either equivalent or stricter in all of its requirements. This section is therefore included for reference only.

13C.4.106.2 Storm water drainage and retention during construction. Projects, which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site. See 13C.4.103.2.4.1

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the

enforcing agency.

~~3. Compliance with a lawfully enacted storm water management ordinance.~~

13C.4.106.3 Surface drainage. The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales.
2. Water collection and disposal systems.
3. French drains.
4. Water retention gardens.
5. Other water measures which keep surface water away from building and aid in groundwater recharge.

DIVISION 13C.4.2 - ENERGY EFFICIENCY

SECTION 13C.4.201

GENERAL

~~**4.201.1 Scope.** The Department of Housing and Community Development does not regulate mandatory energy efficiency standards in residential buildings. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.~~

~~**Note:** It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency standards. The Department of Housing and Community Development's mandatory green building standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the California Energy Commission.~~

13C.4.201.1 Scope. Most common definitions of a green building include at least a 15% reduction in energy usage when compared to statewide mandatory energy efficiency standards.

13C.4.201.1.1 Energy performance. Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each building's energy use, and compare it to the standard or "budget" building to achieve a 15% compliance margin over Title 24 Part 6 2008 California Energy Standards.

High rise projects utilizing LEED® to meet local green building requirements may alternatively both:

(1) Document compliance with Title 24 Part 6 2008 California Energy Standards, including submittal of all standard Title 24 Part 6 2008 compliance documentation, and

(2) Additionally demonstrate that the project achieves a 15% or greater compliance margin over ASHRAE 90.1 2007 energy cost baseline using the published LEED® 2009 rules. Such analysis must include all on-site building energy use, including exterior and security lighting, elevators, all process loads, and receptacle loads.

DIVISION 13C.4.3 - WATER EFFICIENCY AND CONSERVATION

**SECTION 13C.4.301
GENERAL**

13C.4.301.1 Scope. The provisions of this ~~chapter shall division~~ establish the means of conserving water used indoors, outdoors and in wastewater conveyance. The requirements of this division will be completely met in the course of compliance with Section 13C.4.103, which is either equivalent or stricter in all of its requirements. Therefore, this division is included for reference only.

**SECTION 13C.4.302
DEFINITIONS**

13C.4.302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**SECTION 13C.4.303
INDOOR WATER USE**

13C.4.303.1 20% Savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 20% reduction in potable water use shall be demonstrated by one of the following methods.

1. Each plumbing fixture and fitting shall meet reduced flow rates specified in Table ~~4.303.2~~13C.4.303.1; or
2. A calculation demonstrating a 20% reduction in the building "water use" baseline as established in Table 13C.4.303.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following plumbing fixture and fitting types: water closets, urinals, lavatory faucets and showerheads.

~~**4.303.2 Multiple showerheads serving one shower.** When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20% reduction column contained in Table 4.303.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.~~

~~**Exception:** The maximum flow rate for showerheads when using the calculation method specified in Section 4.303.1, Item 2, is 2.5 gpm @ 80 psi.~~

**TABLE 13C.4.303.1
WATER USE BASELINE¹**

Fixture Type	Flow-rate²	Duration	Daily uses	Occupants³
Showerheads Residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory Faucets Residential	2.2 gpm @ 60 psi	.25 min.	3	
Kitchen Faucets	2.2 gpm @ 60 psi	4 min.	1	
Replacement Aerators	2.2 gpm @ 60 psi			

Gravity tank type Water Closets	1.6 gallons/flush	1 flush	1 male 3 female	
Flushometer Tank Water Closets	1.6 gallons/flush	1 flush	1 male 3 female	
Flushometer Valve Water Closets	1.6 gallons/flush	1 flush	1 male 3 female	
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1 flush	1 male 3 female	
Urinals	1.0 gallons/flush	1 flush	2 male	

Fixture “Water Use” = Flow rate x Duration x Occupants x Daily uses

¹ Use Worksheet WS-1 to calculate baseline water use.

² The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

³ For low rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.

**TABLE 13C.4.303.2
FIXTURE FLOW RATES**

Fixture Type	Flow-rate	Maximum flow rate at ≥ 20% Reduction
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory Faucets Residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi ²
Kitchen Faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Gravity tank type Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Flushometer Tank Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Flushometer Valve Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Urinals	1.0 gallons/flush	.5 gallons/flush

¹ Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.

Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

² Lavatory Faucets shall not have a flow rate less than 0.8 gpm at 20 psi.

13C.4.303.3 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 13C.4.303.3.

**TABLE 13C.4.303.3
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

REQUIRED STANDARDS	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)

Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, non-water urinals	ASME A112.19.19 (vitreous china) ANSI Z124.9–2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A112.18.1/CSA B125.1

**SECTION 13C.4.304
OUTDOOR WATER USE**

13C.4.304.1 Irrigation controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

Note: More information regarding irrigation controller function and specifications is available from the Irrigation Association at <http://www.irrigation.org/SWAT/Industry/ia-tested.asp>.

**SECTION 13C.4.4.305
WATER REUSE SYTEMS
(Reserved)**

DIVISION 13C.4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 13C.4.401 GENERAL

13C.4.401.1 Scope. The requirements of this division are completely met in the course of compliance with Section 13C.4.103, which is either equivalent or stricter in all of its requirements. Therefore, this division is included for reference only. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing, adjusting and balancing.

SECTION 13C.4.402 DEFINITIONS

13C.4.402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

SECTION 13C.4.403 FOUNDATION SYSTEMS (Reserved)

SECTION 13C.4.404 EFFICIENT FRAMING TECHNIQUES (Reserved)

SECTION 13C.4.405 MATERIAL SOURCES (Reserved)

SECTION 13C.4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

13C.4.406.1 Joints and openings. Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations must be sealed in compliance with the California Energy Code.

Exception: Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the ~~enforcing agency.~~ Director of the Department of Building Inspection.

SECTION 13C.4.407

**WATER RESISTANCE AND MOISTURE MANAGEMENT
(Reserved)**

**SECTION 13C.4.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING**

~~4.408.1 Construction waste reduction of at least 50%. Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.~~

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.

~~4.408.2 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency that:~~

1. Identifies the materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
3. Identifies the diversion facility where the material collected will be taken.
4. Identifies construction methods employed to reduce the amount of waste generated.
5. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

~~4.408.2.1 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.~~

~~4.408.2.2 Isolated jobsites. The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.~~

Notes:

1. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at <http://www.ciwmb.ca.gov/ConDemo/>.

13C.4.408.1 Construction waste. The San Francisco Construction and Demolition Debris Ordinance No. 27-06 is stricter than state construction waste requirements, and shall continue to be enforced.

13C.4.408.2 Construction waste management plan. High-rise residential structures must additionally comply with SFBC 13C.4.103.2.4 or the requirements of GreenPoint Rated, as applicable, to submit documentation that a construction waste management plan has been prepared and implemented.

**SECTION 13C.4.409
LIFE-CYCLE ASSESSMENT
(Reserved)**

SECTION 13C.4.410
BUILDING MAINTENANCE AND OPERATION

13C.4.410.1 Operation and maintenance manual. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life-cycle of the structure.
2. Operation and maintenance instructions for the following:
 - a. Equipment and appliances, including water saving devices and systems, HVAC systems, water heating systems and other major appliances and equipment.
 - b. Roof and yard drainage, including gutters and downspouts.
 - c. Space conditioning systems including condenser and air filters.
 - d. Landscape irrigation systems.
 - e. Water reuse systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30-60% and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and importance of diverting water at least five feet away from foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around building, etc.
9. Information about State solar energy and incentive programs available.
10. A copy of all special inspection verifications required by the ~~enforcing agency~~ Director of the Department of Building Inspection or this code.

13C.4.410.2 Solid Waste. Areas must be provided for the storage, collection and loading of recycling, composting and trash. All such areas, including any chute systems, must be designed for equal convenience for all users to separate those three material streams, and must provide space to accommodate a sufficient quantity and type of containers to be compatible with current methods of collection.

DIVISION 13C.4.5 - ENVIRONMENTAL QUALITY

SECTION 13C.4.501 GENERAL

13C.4.501.1 Scope. The requirements of this division are completely met in the course of compliance with Section 13C.4.103, which is either equivalent or stricter in all of its requirements. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

SECTION 13C.4.502 DEFINITIONS

13C.4.502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. Composite wood products does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber as specified in "Structural Glue Laminated Timber" (ANSI A190.1-2002) or prefabricated wood I-joists.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O₃ /g ROC).

Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 13C.4.503
FIREPLACES

13C.4.503.1 General. Any installed gas fireplace shall be a direct-vent sealed-combustion type.

SECTION 13C.4.504
POLLUTANT CONTROL

13C.4.504.1 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection to reduce the amount of dust or debris which may collect in the system.

13C.4.504.2 Finish material pollutant control. Finish materials shall comply with this section.

13C.4.504.2.1 Adhesives, sealants and caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables ~~4.504.1-13C.4.504.1~~ or ~~4.504.2-13C.4.504.2~~ as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

Note: Title 17 may be found at <http://ccr.oal.ca.gov/>

13C.4.504.2.2 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table I of the ARB Architectural Suggested Control Measure as shown in Table ~~4.504.3-13C.4.504.3~~ unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table ~~4.504.3-13C.4.504.3~~, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table ~~4.504.3-13C.4.504.3~~ shall apply.

13C.4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of

Regulation 8 Rule 49.

Notes:

1. Title 17 may be found at <http://ccr.oal.ca.gov/>

2. See Bay Area Air Quality Management District Regulation 8 Rule 49 at <http://www.arb.ca.gov/DRDB/BA/CURHTML/R8-49.HTM>

**TABLE 13C.4.504.1
ADHESIVE VOC LIMIT¹**

LESS WATER AND LESS EXEMPT COMPOUNDS IN GRAMS PER LITER

Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250
Other Adhesive not specifically listed	50
Specialty Applications	Current VOC Limit
PVC Welding	285
CPVC Welding	270
ABS Welding	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	250
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Top and Trim Adhesive	250
Substrate Specific Applications	Current VOC Limit
Metal to Metal	30
Plastic Foams	50
Porous Material (except wood)	50
Wood	30
Fiberglass	80

¹ If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.

¹ For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168, <http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF>.

**TABLE 13C.4.504.2
SEALANT VOC LIMIT**

Less Water and Less Exempt Compounds in Grams per Liter

Sealants	Current VOC Limit
Architectural	250
Marine Deck	760
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420
Sealant Primers	Current VOC Limit
Architectural	
Non Porous	250
Porous	775
Modified Bituminous	500
Marine Deck	760
Other	750

TABLE 4.504.3

VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{2,3}
Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds

Coating Category	Effective 1/1/2010	Effective 1/1/2012
Flat Coatings	50	
Nonflat Coatings	100	
Nonflat - High Gloss Coatings	150	
Specialty Coatings		
Aluminum Roof Coatings	400	
Basement Specialty Coatings	400	
Bituminous Roof Coatings	50	
Bituminous Roof Primers	350	
Bond Breakers	350	
Concrete Curing Compounds	350	
Concrete/Masonry Sealers	100	
Driveway Sealers	50	
Dry Fog Coatings	150	

Faux-Finishing Coatings	350	
Fire-Resistive Coatings	350	
Floor Coatings	400	
Form-Release Compounds	250	
Graphic Arts Coatings (Sign Paints)	500	
High Temperature Coatings	420	
Industrial Maintenance Coatings	250	
Low Solids Coatings ¹	120	
Magnesite Cement Coatings	450	
Mastic Texture Coatings	400	
Metallic Pigmented Coatings	500	
Multi-Color Coatings	250	
Pre-Treatment Wash Primers	420	
Primers, Sealers, and Undercoaters	400	
Reactive Penetrating Sealers	350	
Recycled Coatings	250	
Roof Coatings	50	
Rust Preventative Coatings	400	250
Shellacs:		
• Clear	730	
• Opaque	550	
Specialty Primers, Sealers, and Undercoaters	350	400
Stains	250	
Stone Consolidants	450	
Swimming Pool Coatings	340	
Traffic Marking Coatings	400	
Tub and Tile Refinish Coatings	420	
Waterproofing Membranes	250	
Wood Coatings	275	
Wood Preservatives	350	
Zinc-Rich Primers	340	

¹Grams of VOC per liter of coating, including water and including exempt compounds.

²The specified limits remain in effect unless revised limits are listed in subsequent columns in the table. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available at http://www.arb.ca.gov/coatings/arch/Approved_2007_SCM.pdf.

13C.4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturers product specification.
2. Field verification of on-site product containers.

13C.4.504.3 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350)
3. NSF/ANSI 140 at the Gold level
4. Scientific Certifications Systems Indoor Advantage™ Gold

Notes:

1. For Green Label Plus, see <http://www.carpet-rug.com/>.
2. For NSF/ANSI 140, see <http://www.carpet-rug.org/carpet-and-rug-industry/sustainability/sustainable-carpet-list.cfm>.
3. For Indoor Advantage™ Gold, see <http://www.scscertified.com/iaq/indooradvantage.htm>.
4. Scientific Certifications Systems Indoor Advantage™

<http://www.scscertified.com/iaq/indooradvantage.htm>.

13C.4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

13C.4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 13C.4.504.1.

13C.4.504.4 Resilient flooring systems. Where resilient flooring is installed, at least 50% of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RCFI) FloorScore program.

13C.4.504.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections as shown in Table 4.504.5-13C.4.504.5.

13C.4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the ~~enforcing agency-Department of Building Inspection~~. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Other methods acceptable to the ~~enforcing agency-Director of the Department of Building Inspection~~.

**TABLE 13C.4.504.5
FORMALDEHYDE LIMITS¹**

Maximum formaldehyde emissions in parts per million.

Product	Current Limit	Jan 1, 2012	Jul 1, 2012
Hardwood Plywood Veneer Core	0.05		
Hardwood Plywood Composite Core	0.08		0.05
Particle Board	0.09		
Medium Density Fiberboard	0.11		
Thin Medium Density Fiberboard ²	0.21	0.13	

¹ Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.

² Thin medium density fiberboard has a maximum thickness of eight millimeters.

**SECTION 13C.4.505
INTERIOR MOISTURE CONTROL**

~~**4.505.1 General.** Buildings shall meet or exceed the provisions of the California Building Standards Code.~~

13C.4.505.2 Concrete slab foundations. Concrete slab foundations required to have a vapor retarder by California Building Code, CCR, Title 24, Part 2, Chapter 19, shall also comply with this section.

13C.4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of ½ inch (12.7 mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design which will address bleeding, shrinkage, and curling shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the ~~enforcing agency~~ Director of the Department of Building Inspection.
3. A slab design specified by a licensed design professional.

13C.4.505.3 Moisture content of building materials. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19% moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or a contact-type moisture meter.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece to be verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

SECTION 13C.4.506 INDOOR AIR QUALITY AND EXHAUST

13C.4.506.1 Bathroom exhaust fans. Mechanical exhaust fans which exhaust directly from bathrooms shall comply with the following requirements. For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidistat which shall be readily accessible.
 - a. Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent.

~~Note: For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.~~

SECTION 13C.4.507

ENVIRONMENTAL COMFORT

13C.4.507.1 Openings. Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.

13C.4.507.2 Heating and air conditioning system design. Heating and air conditioning systems shall be sized, designed, and equipment is selected using the following methods:

1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ACCA 36-S Manual S or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the systems function are acceptable.

SECTION 13C.4.508 OUTDOOR AIR QUALITY (Reserved)

CHAPTER 13C.5
NONRESIDENTIAL MANDATORY MEASURES REQUIREMENTS

DIVISION 13C.5.1 PLANNING AND DESIGN

SECTION 13C.5.101
GENERAL

5.101 Purpose. ~~The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.~~

13C.5.101 Purpose. This division outlines green building requirements for all newly constructed buildings that do not contain Group R occupancies, as well as major alterations to Group B and M occupancy buildings to promote the health, safety and welfare of San Francisco residents.

SECTION 13C.5.102
DEFINITIONS

13C.5.102 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated, and maintained to meet the owner's project requirements.

CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not numerically exceed 25 (2.5%) at an angle of 90° above nadir, and 100 (10%) at a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

LOW-EMITTING AND FUEL EFFICIENT VEHICLES. Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), including neighborhood electric vehicles (NEV), partial zero emission vehicle (PZEV), advanced technology PZEV (AT ZEV), or CNG fueled (Original equipment manufacturer only) regulated under Health and Safety Code section 43800 and CCR, Title 13, sections 1961 and 1962.
2. High efficiency vehicles, regulated by US EPA, bearing High-Occupancy Vehicle (HOV) car pool lane stickers issued by the Department of Motor Vehicles.

NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" either in section 385.5 of the Vehicle Code or in 49 CFR571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

PZEV.. Any vehicle certified by the California Air Resources Board as a Partial Credit Zero Emission Vehicle.

TENANT-OCCUPANTS. Building occupants who inhabit a building during its normal hours of operation as

permanent occupants, such as employees, as distinguished from customers and other transient visitors.

VANPOOL VEHICLE. -Eligible vehicles are limited any motor vehicle, other than a motortruck or truck tractor, designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used primarily for the nonprofit work-related transportation of adults for the purposes of ridesharing.

Note: Source: Vehicle Code, Division 1, Section 668

ZEV. Any vehicle certified to zero-emission standards.

SECTION 13C.5.103
SITE SELECTION (Reserved)-GREEN BUILDING REQUIREMENTS

13C.5.103.1 New large commercial buildings The requirements of this section fulfill and replace all CALGreen mandatory measures, except where noted.

13C.5.103.1.1 Rating Requirement. Permit applicants must submit documentation to achieve LEED® “Silver” certification. Effective January 1, 2012, applicants must submit documentation to achieve a LEED® “Gold” certification.

13C.5.103.1.2 Indoor water use reduction . Permit applicants must submit documentation verifying that a minimum 30 percent reduction in the use of indoor potable water is achieved, as calculated to meet LEED® credit WE3.2.

13C.5.103.1.3 Construction debris management.. Permit applicants must submit documentation verifying the diversion of a minimum 75 percent of the projects construction and demolition debris, as calculated to meet LEED® credit MR2.2. Permit applicants must also meet the requirements of San Francisco Environment Code Chapter 14 and San Francisco Building Code Chapter 13B (Construction and Demolition Debris Recovery Program.) The waste management plan necessary to meet this requirement shall be updated as necessary and shall be accessible during construction for examination by the Department of Building Inspection.

13C.5.103.1.4 Commissioning . Permit applicants must submit documentation verifying that the facility has been or will meet the criteria necessary to meet LEED® credit EA 3.0 (Enhanced Commissioning), in addition to LEED® prerequisite EAp1 (Fundamental Commissioning of Building Energy Systems.) [

13C.5.103.1.5 Renewable energy . Effective January 1, 2012, permit applicants must submit documentation verifying that either:

(1) Acquisition of renewable on-site energy or purchase of green energy credits in accord with LEED EA2 or EA6, **OR**

(2) In addition to meeting 13C.5.103.2.8 Energy Performance requirement, achieve an additional 10% compliance margin over Title 24 Part 6 2008 California Energy Standards, for a total compliance margin of at least 25%.

13C.5.103.1.6 Stormwater Management. Stormwater management shall meet the stormwater management controls adopted by the San Francisco Public Utilities Commission, and shall meet or exceed the applicable LEED® SS 6.1 and SS 6.2 credits. All new building projects – regardless of size - must develop and implement a construction activity pollution prevention plan meeting LEED® prerequisite SSp1, and implement site run-off controls adopted by the San Francisco Public Utilities Commission as applicable.

13C.5.103.1.7 ENERGY PERFORMANCE Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, permit applicants must calculate each project’s energy use, and compare it to the standard or “budget” building to achieve a 15% compliance margin over Title 24 Part 6 2008 California Energy Standards.

Alternatively, projects may **both**:

(1) Document compliance with 2008 Title 24 Part 6 2008 California Energy Standards, including submittal of all standard documentation, and

(2) Additionally demonstrate that a project achieves a 15% or greater compliance margin over ASHRAE 90.1 2007 energy cost baseline using the published LEED® 2009 rules. Such analysis must include all on-site building energy use, including exterior and security lighting, elevators, all process loads, and receptacle loads.

13C.5.103.1.8 IAQ Management During construction Permit applicants must submit documentation verifying that an Indoor Air Quality Management Plan is prepared and implemented which meets LEED® credit EQ 3.1. This includes meeting or exceeding the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd Edition 2007, ANSI-SMACNA 008-2008 (Chapter 3), and which meets LEED® credit EQ 3.1.

13C.5.103.1.9 Low Emitting Materials Permit applicants must submit documentation verifying that low-emitting materials are used, subject to on-site verification, meeting LEED® credits EQ 4.1, EQ 4.2, EQ 4.3, and EQ 4.4 wherever applicable:

(1) Adhesives, sealants and sealant primers must meet LEED® credit EQ 4.1, including compliance with South Coast Air Quality Management District (SCAQMD) Rule #1168, amended January 7, 2005.

(2) Interior paints and coatings applied on-site must meet LEED® credit EQ 4.2, including:

(a) Architectural paints and coatings must meet the VOC content limits of Green Seal Standard GS-11 (1st Edition, 1993).

(b) Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates must not exceed the VOC content limit of Green Seal Standard GC-03 (2nd Edition, 1997) of 250 g/L.

(c) Clear wood finishes, floor coatings, stains, primers, and shellacs applied to interior elements must not exceed SCAQMD Rule 1113 (2004) VOC content limits.

(3) Flooring systems shall meet LEED® credit EQ 4.3 Option 1, including:

(a) Interior carpet must meet the testing and product requirements of the Carpet and Rug Institute Green Label Plus program.

(b) Interior carpet cushion must meet the requirements of the Carpet and Rug Institute Green Label program.

(c) Hard surface flooring, including vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, and wall base must be certified as compliant with the FloorScore standard.

Exceptions: 100% reused or 100% post consumer recycled hard surface flooring may be exempted from this requirement. Projects exercising this exemption must otherwise be eligible for LEED® credit EQ 4.3.

(4) Interior composite wood and agrifiber products shall meet LEED® credit EQ 4.4 by containing no added urea formaldehyde resins. Interior and exterior hardwood plywood, particleboard, and medium density fiberboard composite wood products shall additionally meet California Air Resources Board Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections.

13C.5.103.1.10 CALGreen Mandatory Measures The following sections found later in this chapter, are mandatory in California, and therefore required for New Large Commercial Buildings. Optionally, relevant LEED® credits be used as alternative compliance paths, as noted below:

SFBC Chapter 13C Section(s)	Topic/Requirement	Alternate Compliance Option:
<u>13C.5.106.4</u>	<u>Bicycle Parking</u>	<u>N/A</u>
<u>13C.5.106.5</u>	<u>Fuel efficient vehicle and carpool parking</u>	<u>Meet LEED® SSc4.3 and/or SSc4.4, and Demonstrate that 8% of parking is designated for fuel efficient vehicle and carpool parking.</u>
<u>13C.5.106.8</u>	<u>Light pollution reduction</u>	<u>Meet LEED® credit SS 8</u>
<u>13C.5.106.10</u>	<u>Drainage management plan</u>	<u>N/A</u>
<u>13C.5.303.1</u>	<u>Water Submeters</u>	<u>N/A</u>
<u>13C.5.303.2.1</u>	<u>Multiple showerheads in one shower stall must not exceed maximum flow rate for single showerhead</u>	<u>N/A</u>
<u>13C.5.503.1</u>	<u>Fireplaces in non-residential occupancy must meet residential efficiency and emissions requirements,</u>	<u>N/A</u>
<u>13C.5.407.2.2</u> <u>13C.5.504.5.3</u>	<u>Indoor Chemical and Pollutant Source Control</u>	<u>Meet LEED® credit EQ 5</u>
<u>13C.5.507.4</u> <u>13C.5.507.4.1</u> <u>13C.5.507.4.2</u>	<u>Acoustical control and noise transmission</u>	<u>N/A</u>
<u>13C.5.508.1.2</u>	<u>Halons not allowed in HVAC, refrigeration and fire suppression equipment.</u>	<u>Meet LEED® credit EA 4, and additionally document that all HVAC&R systems do not contain CFCs or Halons.</u>

13C.5.103.2 New Mid-Size Commercial Buildings The requirements of this section are additional to CALGreen mandatory measures, except where noted.

13C.5.103.2.2 Construction debris management. Permit applicants must submit documentation verifying the diversion of a minimum 75 percent of the projects construction and demolition debris, as calculated either to meet LEED® credit MR2.2 or equivalent. Permit applicants must also meet the requirements of San Francisco Environment Code Chapter 14 and San Francisco Building Code Chapter 13B (Construction and Demolition Debris Recovery Program.) The waste management plan necessary to meet this requirement shall be updated as necessary and shall be accessible during construction for examination by the Department of Building Inspection.

13C.5.103.2.3 Renewable energy . Effective January 1, 2012, permit applicants must submit documentation verifying that either:

(1) Acquisition of renewable on-site energy or purchase of green energy credits in accord with LEED EA2 or EA6, **OR**

(2) In addition to meeting 13C.5.103.2.8 Energy Performance requirement, achieve an additional 10% compliance margin over Title 24 Part 6 2008 California Energy Standards, for a total compliance margin of at least 25%.

13C.5.103.2.4 Stormwater Management and pollution. Stormwater management shall meet the stormwater management controls adopted by the San Francisco Public Utilities Commission, and shall meet or exceed the applicable LEED® SS 6.1 and SS 6.2 credits. All new building projects – regardless of size - must develop and implement construction activity pollution prevention and site run-off controls adopted by the San Francisco Public Utilities Commission, as applicable.

13C.5.103.2.5 ENERGY PERFORMANCE Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, permit applicants must calculate each project’s energy use, and compare it to the standard or “budget” building to achieve a 15% compliance margin over Title 24 Part 6 2008 California Energy Standards.

Alternatively, projects may **both**:

(1) Document compliance with Title 24 Part 6 2008 California Energy Standards, including submittal of all standard documentation, and

(2) Additionally demonstrate that a project achieves a 15% or greater compliance margin over ASHRAE 90.1 2007 energy cost baseline using the published LEED® 2009 rules. Such analysis must include all on-site building energy use, including exterior and security lighting, elevators, all process loads, and receptacle loads.

13C.5.103.2.6 All other new buildings

13C.5.103.2.6.1 All other new non-residential occupancies and new non-residential buildings of group B, M, A, and I occupancy with less than 5,000 square feet in gross interior area shall meet the non-residential mandatory requirements summarized in this chapter.

13C.5.103.3 Major alterations to existing non residential buildings.

13C.5.103.3.1 Rating Requirement. Permit applicants must submit documentation to achieve LEED®

“Silver” certification. Effective January 1, 2012, applicants must submit documentation to achieve a LEED® “Gold” certification.

13C.5.103.3.2 Low Emitting Materials. Permit applicants must submit documentation to verify the use of low-emitting materials meeting LEED® EQ4.1, 4.2, and 4.3.

13C.5.103.4 New large commercial interiors

13C.5.103.4.1 Rating Requirement. Permit applicants must submit documentation to achieve LEED® “Silver” certification. Effective January 1, 2012, applicants must submit documentation to achieve a LEED® “Gold” certification.

13C.5.103.4.2 Low Emitting Materials. Permit applicants must submit documentation to verify the use of low-emitting materials meeting LEED® EQ4.1, 4.2, and 4.3.

**SECTION 13C.5.104
SITE (~~Reserved~~) HISTORIC PRESERVATION**

13C.5.104.1 On-site retention of historical features. For alterations of buildings determined to be historical resources, after demonstrating compliance with all applicable codes, including the 2008 California Building energy Efficiency Standards (Title 24, Part 6) and the 2010 California Historical Building Code (Title 24, Part 8), the minimum points or credits required under this chapter shall be reduced for retention and in-situ reuse or restoration of certain character defining features, as follows:

TABLE 13C.5.104.A

<u>SIGNIFICANT HISTORICAL ARCHITECTURAL FEATURES</u>	<u>PERCENT RETAINED*</u>	<u>ADJUSTMENT TO MINIMUM LEED POINT REQUIREMENT</u>	<u>ADJUSTMENT TO MINIMUM GREENPOINTS REQUIREMENT</u>
<u>Windows @ principal façade(s)</u>	<u>At least 50%</u>	<u>2</u>	<u>7</u>
<u>Windows @ principal façade(s)</u>	<u>At least 75%</u>	<u>3</u>	<u>11</u>
<u>Windows @ principal façade(s)</u>	<u>100%</u>	<u>4</u>	<u>15</u>
<u>Other windows</u>	<u>At least 50%</u>	<u>1</u>	<u>3</u>
<u>Other windows</u>	<u>100%</u>	<u>2</u>	<u>6</u>
<u>Exterior doors @ principal façade(s)</u>	<u>100%</u>	<u>1</u>	<u>3</u>
<u>Siding or wall finish @ principal façade(s)</u>	<u>80%</u>	<u>1</u>	<u>4</u>
<u>Trim & casing @ wall openings on principal façade(s)</u>	<u>100%</u>	<u>1</u>	<u>3</u>
<u>Roof cornices or decorative eaves visible from right-of-way</u>	<u>100%</u>	<u>1</u>	<u>3</u>

<u>Sub-cornices, belt courses, water tables, and running trim visible from right-of-way</u>	<u>80%</u>	<u>1</u>	<u>3</u>
<u>Character-defining elements of significant interior spaces</u>	<u>At least 50%</u>	<u>2</u>	<u>7</u>
<u>Character-defining elements of significant interior spaces</u>	<u>100%</u>	<u>4</u>	<u>15</u>
<u>Other exterior ornamentation (e.g. cartouches, corbels, quoins, etc.) visible from right-of-way</u>	<u>80%</u>	<u>1</u>	<u>3</u>

* Retention includes the rehabilitation and repair of character-defining features that conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

SECTION 13C.5.105

~~DECONSTRUCTION AND REUSE~~ DEMOLITION OF EXISTING STRUCTURES (Reserved)

13C.5.105.1 Adjustments to Rating Requirements. Applications subject to SFBC Chapter 13C, whereby construction of a new building is proposed within five years of the demolition of a building on the site, where such demolition occurred after the effective date of the Green Building Ordinance - November 3, 2008 - the sustainability requirements for new buildings pursuant to San Francisco Building Code Chapter 13C shall be increased as follows:

13C.5.105.1.1 LEED® Projects. For projects attaining a LEED® certification:

- (1) **Where the building demolished was an historical resource, the required points shall be increased by 10 points, which is 10% of the total available in the LEED® rating system, absent demolition.**
- (2) **Where the building demolished was not an historical resource, the required points shall be increased by 6 additional points, which is 10% of the maximum total required points under this chapter, absent demolition.**
- (3) **Where the building demolished was not an historical resource and the number of dwellings in the residential portion of the replacement structure are tripled, the required points shall be increased by 5 additional points, which is 8% of the maximum total required points under this chapter, absent demolition.**

13C.5.105.1.2 GreenPoint Rated Projects. For projects attaining GreenPoint Rated:

- (1) **Where the building demolished was an historical resource, the required points shall be increased by 25 additional points.**
- (2) **Where the building demolished was not an historical resource, the required points shall be increased by 20 additional points.**
- (3) **Where the building demolished was not an historical resource and the number of dwellings in the residential portion of the replacement structure are tripled, the required points shall be increased by 17 additional points.**

**SECTION 13C.5.106
SITE DEVELOPMENT**

13C.5.106.1 Storm water pollution prevention plan. For newly constructed projects of less than one acre, develop a Storm Water Pollution Prevention Plan (SWPPP) that has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit as required for projects one acre or more, and stormwater management controls adopted by the San Francisco Public Utilities Commission or local ordinance, whichever is stricter, as is required for projects one acre or more. The plan should cover prevention of soil loss by storm water run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.

Note: Assistance with the permit may be obtained from the San Francisco Public Utilities Commission at <http://www.sfwater.org>, the San Francisco Bay Regional Water Quality Control Board, or the California State Water Resources Control Board (SWRCB) at: <http://www.swrcb.ca.gov/stormwtr/>, from a Regional Water Quality Control Board, and at local public works departments.

13C.5.106.4 Bicycle parking and changing rooms. - Comply with Sections ~~5~~13C.5.106.4.1 and ~~5~~13C.5.106.4.2; or meet the applicable requirements of San Francisco Planning Code Sec 155 local ordinance or the University of California Policy on Sustainable Practices, whichever is stricter.

13C.5.106.4.1 Short-term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for 5% of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.

13C.5.106.4.2 Long-term bicycle parking. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5% of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; and
3. Lockable, permanently anchored bicycle lockers.

Note: Additional information on recommended bicycle accommodations may be ~~obtained from Sacramento Area Bicycle Advocates~~ **found at http://www.sacbike.org/advocacy/state_bicycle_facilities/**

13C.5.106.5.2 Designated parking. Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

Table 13C.5.106.5.2

Total Number of Parking Spaces	Number of Required Spaces
0-9	0
10-25	1
26-50	3
51-75	6

76-100	8
101-150	11
151-200	16
201 and over	At least 8% of total

13C.5.106.5.2.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle:

"CLEAN AIRVEHICLE"

13C.5.106.8 Light pollution reduction. Comply with lighting power requirements in the California Energy Code, CCR, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the California Administrative Code, CCR, Part 1, using the following strategies:

1. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code.
2. Contain interior lighting within each source.
3. Allow no more than .01 horizontal lumen footcandles to escape 15 feet beyond the site boundary.
4. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.

Exceptions:

1. Part 2, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.
2. Emergency lighting and lighting required for nighttime security.

13C.5.106.10 Grading and Paving. The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.

DIVISION 13C.5.2 ENERGY EFFICIENCY

SECTION 13C.5.201

GENERAL

13C.5.201.1 Scope. ~~For the purposes~~ Most common definitions of a green building include at least a 15% reduction in energy usage when compared to statewide mandatory energy efficiency standards in this code, the California. Commission will continue to adopt mandatory building standards

A13C.5.201.1.1 Energy performance. Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate each building's energy use, and compare it to the standard or "budget" building to achieve a 15% compliance margin over Title 24 Part 6 2008 California Energy Standards.

Alternatively, projects utilizing LEED® to meet local green building requirements may **both**:

(1) Document compliance with Title 24 Part 6 2008 California Energy Standards, including submittal of all standard documentation, and

(2) Submit documentation demonstrating that the project achieves a 15% or greater compliance margin over ASHRAE 90.1 2007 energy cost baseline using the published LEED® 2009 rules. Such analysis must include all on-site building energy use, including exterior and security lighting, elevators, all process loads, and receptacle loads.

Note: It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency standards.

DIVISION 13C.5.3 WATER EFFICIENCY AND CONSERVATION

SECTION 13C.5.301

GENERAL

13C.5.301.1 Scope. The provisions of this chapter shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance.

SECTION 13C.5.302

DEFINITIONS

13C.5.302.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

GRAYWATER. Untreated household waste which has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines and laundry tubs. It shall not include waste water from kitchen sinks, dishwashers, or laundry water from soiled diapers.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE. The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area, and climatological parameters.

POTABLE WATER. Water that is drinkable and meets the U. S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the California Plumbing Code, Part 5.

RECYCLED WATER. Water which, as a result of treatment of waste, is suitable for a direct, beneficial use or a controlled use that would not otherwise occur (Water Code Section 13050 (n)). Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

SUBMETER. A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation. For the purposes of this section, a Dedicated Meter may be considered a submeter.

WATER BUDGET. Estimated total landscape irrigation water use shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MLO).

SECTION 13C.5.303

INDOOR WATER USE

13C.5.303.1 Meters. Separate meters or metering device shall be installed for the uses described in Sections 503.1.1 and 503.1.2.

13C.5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:

1. For each individual leased, rented, or other tenant space within the building projected to consume more

than 100 gal/day.

2. For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop projected to consume more than 100 gal/day.

13C.5.303.1.2 Excess consumption. Any building within a project or space within a building that is projected to consume more than 1,000 gal/day.

13C.5.303.2 20% Savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code. The 20% reduction in potable water use shall be demonstrated by one of the following methods.

1. Each plumbing fixture and fitting shall meet the 20% reduced flow rate specified in Table 13C.5.303.2.3, or

2. A calculation demonstrating a 20% reduction in the building "water use baseline" as established in Table 13C.5.303.2.2 shall be provided.

13C.5.303.2.1 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20% reduction column contained in Table 13C.5.303.2.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

Exception: The maximum flow rate for shower heads when using the calculation method specified in Section 13C.5.303.2.1, Item 2 is 2.5 gpm @ 80 psi.

TABLE 13C.5.303.2.2
INDOOR WATER USE BASELINE ⁴

Fixture Type	Flow-rate ²	Duration	Daily uses	Occupants ^{3,4}
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Lavatory Faucets Nonresidential	0.5 gpm @ 60 psi	.25 min.	3	X
Kitchen Faucets	2.2 gpm @ 60 psi	4 min.	1	X
Replacement Aerators	2.2 gpm @ 60 psi			X
Wash Fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]			X
Metering Faucets	0.25 gallons/cycle	.25 min.	3	X
Metering Faucets for Wash Fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.25 min.		X
Gravity tank type Water Closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X

Flushometer Tank Water Closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X
Flushometer Valve Water Closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X
Urinals	1.0 gallons/flush	1 flush	2 male	X

Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses

¹The daily use number shall be increased to three if urinals are not installed in the room.

²The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

³Refer to Table A, Chapter 4, California Plumbing Code, for occupant load factors.

⁴Use Worksheet WS-1 to calculate base line water use.

TABLE 13C.5.303.2.3
FIXTURE FLOW RATES

Fixture Type	Flow-rate	Maximum flow rate at 20% Reduction
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory Faucets Nonresidential	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi
Kitchen Faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Wash Fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]	1.8 [rim space (in.) / 20 gpm @ 60 psi]
Metering Faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering Faucets for Wash Fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.20 [rim space (in.) / 20 gpm @ 60 psi]
Gravity tank type Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Flushometer Tank Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Flushometer Valve Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹
Urinals	1.0 gallons/flush	.5 gallons/flush

¹ Includes single and dual flush water closets with an effective flush of 1.28 gallons or.

Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush.

Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

13C.5.303.4 Wastewater reduction. Each building shall reduce by 20% wastewater by one of the following methods:

1 The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 13C.5.303.2 or 13C.5.303.3 or

2. Utilizing non-potable water systems (captured rainwater, graywater, and municipally treated wastewater {recycled water} complying with the current edition of the California Plumbing Code or other methods described in Section A13C.5.304).

13C.5.303.6 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 13C.5.503.6.

TABLE 13C.5.303.6
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

REQUIRED STANDARDS	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, non-water urinals	ASME A112.19.19 (vitreous china) ANSI Z124.9-2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min) ¹	ASME A112.18.1/CSA B125.1

SECTION 13C.5.304
OUTDOOR WATER USE

13C.5.304.1 Water budget. A water budget shall be developed for landscape irrigation use that conforms to the local **Water Efficient Irrigation Ordinance (San Francisco Administrative Code Chapter 63)** water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.

Note: ~~Prescriptive measures~~ **Rules** to assist in compliance with the water budget are listed in Sections 492.5 through 492.8, 492.10 and 492.11 of the ordinance are included in the San Francisco Public Utilities Commission Rules for Water Efficient Irrigation, which may be found at: <http://sfwater.org>

13C.5.304.2 Outdoor potable water use. For new water service for landscaped areas between 1000 square feet and 5000 square feet (the level at which CA Water Code §535 applies), separate meters or submeters shall be installed for indoor and outdoor potable water use.

13C.5.304.3 Irrigation design. In new nonresidential construction with between 1000 and 2500 square feet of landscaped area (the level at which the MLO San Francisco Water Efficient Irrigation Ordinance applies), where irrigation is to be provided, install irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.

13C.5.304.3.1 Irrigation controllers. Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

Note: More information regarding irrigation controller function and specifications is available from the Irrigation Association at <http://www.irrigation.org/SWAT/Industry/ia-tested.asp>.

SECTION 13C.5.305
WATER REUSE SYSTEMS
(Reserved)

DIVISION 13C.5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 13C.5.401

GENERAL

13C.5.401.1 Scope. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing, adjusting and balancing.

SECTION 13C.5.402

DEFINITIONS

13C.5.402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

BALANCE. To proportion flows within the distribution system, including submains, branches, and terminals, according to design quantities.

~~**BUILDING COMMISSIONING.** A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated, and maintained to meet the owner's project requirements.~~

TEST. A procedure to determine quantitative performance of a system or equipment.

SECTION 13C.5.403

FOUNDATION SYSTEMS

(Reserved)

SECTION 13C.5.404

EFFICIENT FRAMING TECHNIQUES

(Reserved)

SECTION 13C.5.405

MATERIAL SOURCES

(Reserved)

SECTION 13C.5.406

ENHANCED DURABILITY AND REDUCED MAINTENANCE

(Reserved)

SECTION 13C.5.407
WATER RESISTANCE AND MOISTURE MANAGEMENT

13C.5.407.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2 (Weather Protection) and California Energy Code Section 150, (Mandatory Features and Devices), manufacturer's installation instructions, or local ordinance, whichever is more stringent.

13C.5.407.2 Moisture control. Employ moisture control measures by the following methods.

13C.5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

13C.5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

Notes:

1. Use features such as overhangs and recesses, and flashings integrated with a drainage plane.
2. Use non-absorbent floor and wall finishes within at least two feet around and perpendicular to such openings.

SECTION 13C.5.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

13C.5.408.1 Construction waste diversion. ~~Establish a~~ **The San Francisco Construction and Demolition Debris Ordinance No. 27-06 is stricter than CalGreen** construction waste **requirements, and shall continue to be enforced.** ~~management plan for the diverted materials, or meet local construction and demolition waste management ordinance, whichever is more stringent.~~

~~**5.408.2 Construction waste management plan.** Where a local jurisdiction does not have a construction requirements, and demolition waste management ordinance, submit a construction waste management plan for approval by the enforcement agency that:~~

- ~~1. Identifies the materials shall continue to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale.~~
- ~~2. Determines if materials will be sorted on site or mixed.~~
- ~~3. Identifies diversion facilities where material collected will be taken.~~
- ~~4. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.~~

~~**5.408.2.1 Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 5.408.2 items 1 thru 4. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.~~

~~**Exception [DSA-SS]:** Jobsites in areas where there is no mixed construction and demolition debris (C&D) processor or recycling facilities within a feasible haul distance shall meet the requirements as follows:~~

- ~~1. The enforcement agency having jurisdiction shall at its discretion, enforce the waste management plan and make exceptions as deemed necessary.~~

~~5.408.2.2 Isolated jobsites.~~ The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.

Notes:

- ~~1. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.~~
- ~~2. Mixed construction and demolition debris (C&D) processors can be located at <http://www.ciwmb.ca.gov/ConDemo/>.~~

~~5.408.3 Construction waste reduction of at least 50%.~~ Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculate the amount of materials diverted by weight or volume, but not by both.

Exceptions:

- ~~1. Excavated soil and land-clearing debris~~
- ~~2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.~~

~~5.408.4 Excavated soil and land-clearing debris.~~ 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land-clearing shall be reused or recycled. For a phased project, such material may be stockpiled on-site until the storage site is developed.

SECTION 13C.5.409
LIFE CYCLE ASSESSMENT
(Reserved)

SECTION 13C.5.410
BUILDING MAINTENANCE AND OPERATION

~~13C.5.410.1 Recycling by occupants.~~ Provide readily accessible areas that serve the entire building and are identified **Solid Waste**. Areas must be provided for the depositing, storage, and collection and loading of non-hazardous materials for recycling, composting and trash. All such areas, including (at any chute systems, must be designed for equal convenience for all users to separate those three material streams, and must provide space to accommodate a sufficient quantity and type of containers to be compatible with current methods of collection. ~~minimum) paper, corrugated cardboard, glass, plastics and metals.~~

~~5.410.1.1 Sample ordinance.~~ Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the Public Resources Code. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

~~Note:~~ A sample ordinance for use by local agencies may be found in Appendix A of the document at the California Integrated Waste Management's web site at:
~~<http://www.ciwmb.ca.gov/Publications/LocalAsst/31000012.doc>~~

13C.5.410.2 Commissioning. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size

and complexity. Commissioning requirements shall include:

1. Owner's Project Requirements.
2. Basis of Design.
3. Commissioning measures shown in the construction documents.
4. Commissioning Plan.
5. Functional Performance Testing.
6. Documentation & Training.
7. Commissioning Report.

All building systems and components covered by Title 24, Part 6, as well as process equipment and controls, and renewable energy systems shall be included in the scope of the Commissioning Requirements.

13C.5.410.2.1 Owner's or Owner representative's Project Requirements (OPR). The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:

1. Environmental and Sustainability Goals.
2. Energy Efficiency Goals.
3. Indoor Environmental Quality Requirements.
4. Project program, including facility functions and hours of operation, and need for after hours operation.
5. Equipment and Systems Expectations.
6. Building Occupant and O&M Personnel Expectations.

13C.5.410.2.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project, and updated as necessary during the design and construction phases. The Basis of Design document shall cover the following systems:

1. Heating, Ventilation, Air Conditioning (HVAC) Systems and Controls.
2. Indoor Lighting System and Controls.
3. Water Heating System.
4. Renewable Energy Systems.
5. Landscape Irrigation Systems.
6. Water Reuse Systems.

13C.5.410.2.3 Commissioning plan. Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned and shall be started during the design phase of the building project. The Commissioning Plan shall include the following

:

1. General Project Information.
2. Commissioning Goals.
3. Systems to be commissioned. Plans to test systems and components shall include:
 - a. An explanation of the original design intent,
 - b. Equipment and systems to be tested, including the extent of tests,
 - c. Functions to be tested,
 - d. Conditions under which the test shall be performed,
 - e. Measurable criteria for acceptable performance.
4. Commissioning Team Information.
5. Commissioning Process Activities, Schedules & Responsibilities - plans for the completion of

Commissioning Requirements listed in 13C.5.410.4.4 through A13C.5.410.4.6 shall be included.

13C.5.410.2.4 Functional performance testing. Functional performance tests shall demonstrate the correct installation and operation of each component, system, and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

13C.5.410.2.5 Documentation and training. A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in California Code of Regulations (CCR), Title 8, Section 5142, and other related regulations.

13C.5.410.2.5.1 Systems manual. Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner or representative and facilities operator. The Systems Manual shall include the following:

1. Site Information, including facility description, history and current requirements.
2. Site Contact Information.
3. Basic Operations & Maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log
4. Major Systems.
5. Site Equipment Inventory and Maintenance Notes.
6. A copy of all special inspection verifications required by the ~~enforcing agency~~ Director of the Department of Building Inspection or this code.
7. Other Resources & Documentation.

13C.5.410.2.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall be documented in the commissioning report and shall include the following:

1. System/Equipment overview (what it is, what it does and what other systems and/or equipment it interfaces with).
2. Review and demonstration of servicing/preventive maintenance.
3. Review of the information in the Systems Manual.
4. Review of the record drawings on the system/equipment.

13C.5.410.2.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and reporting recommendations for post-construction phases of the building project shall be completed and provided to the owner or representative.

13C.5.410.4 Testing and adjusting. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.

13C.5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. HVAC systems and controls
2. Indoor and outdoor lighting and controls
3. Water heating systems
4. Renewable energy systems
5. Landscape Irrigation Systems
6. Water Reuse Systems.

13C.5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with industry best practices and applicable standards on each system as determined by the building official.

13C.5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; or Associated Air Balance Council National Standards or as approved by the building official.

13C.5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

13C.5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

13C.5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the ~~enforcing agency~~ Director of the Department of Building Inspection.

DIVISION 13C.5.5 ENVIRONMENTAL QUALITY

SECTION 13C.5.501 GENERAL

13C.5.501.1 Scope. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants, and neighbors.

SECTION 13C.5.502 DEFINITIONS

13C.5.502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber.

Note: See CCR, Title 17, Section 93120.1.

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.

MAXIMUM INCREMENTAL REACTIVITY (MIR).₂ The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O₃ /g ROC).

Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

PRODUCT-WEIGHTED MIR (PWMIR).₂ The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).

REACTIVE ORGANIC COMPOUND (ROC).₂ Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC.₂ A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc, the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 13C.5.503 FIREPLACES

13C.5.503.1 General. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24,

Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

§13C.5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with US EPA Phase II emission limits.

SECTION 13C.5.504
POLLUTANT CONTROL

13C.5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection to reduce the amount of dust or debris which may collect in the system.

13C.5.504.4 Finish material pollutant control.–Finish materials shall comply with Sections 13C.5.504.4.1 through 13C.5.504.4.4.

13C.5.504.4.1 Adhesives, sealants, and caulks.. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards.

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 13C.5.504.4.1 and 13C.5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

Note: Title 17 may be found at <http://ccr.oal.ca.gov/>.

TABLE §13C.5.504.4.1
ADHESIVE AND SEALANT VOC LIMIT¹

Less Water and Less Exempt Compounds in Grams per Liter

Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65

VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250
Other Adhesive not specifically listed	50
Specialty Applications	Current VOC Limit
PVC Welding	285
CPVC Welding	270
ABS Welding	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	250
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Top and Trim Adhesive	250
Substrate Specific Applications	Current VOC Limit
Metal to Metal	30
Plastic Foams	50
Porous Material (except wood)	50
Wood	30
Fiberglass	80

¹ If an adhesive is used to bond dissimilar substrates together the adhesive with the highest VOC content shall be allowed.

² For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168, <http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF> ..

**TABLE 13C.5.504.4.2
SEALANT VOC LIMIT**

Less Water and Less Exempt Compounds in Grams per Liter

Sealants	Current VOC Limit
Architectural	250
Marine Deck	760
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420
Sealant Primers	Current VOC Limit
Architectural	
Non Porous	250

Porous	775
Modified Bituminous	500
Marine Deck	760
Other	750

Note: For additional information regarding methods to measure the VOC content specified in these tables, see South Coast Air Quality Management District Rule 1168:
<http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF> .

13C.5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table §13C.5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table §13C.5.504.4.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table §13C.5.504.4.3 shall apply.

13C.5.504.4.3.1 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product- Weighted P_WMIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

Notes:

1. Title 17 may be found at <http://ccr.oal.ca.gov/>
2. See Bay Area Air Quality Management District Regulation 8 Rule 49 at <http://www.arb.ca.gov/DRDB/BA/CURHTML/R8-49.HTM>

TABLE §13C.5.504.4.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{2,3}

Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds		
Coating Category	Effective 1/1/2010	Effective 1/1/2012
Flat Coatings	50	
Nonflat Coatings	100	
Nonflat - High Gloss Coatings	150	
Specialty Coatings		
Aluminum Roof Coatings	400	
Basement Specialty Coatings	400	
Bituminous Roof Coatings	50	
Bituminous Roof Primers	350	
Bond Breakers	350	
Concrete Curing Compounds	350	
Concrete/Masonry Sealers	100	
Driveway Sealers	50	
Dry Fog Coatings	150	
Faux Finishing Coatings	350	
Fire Resistive Coatings	350	
Floor Coatings	100	

Form-Release Compounds	250	
Graphic Arts Coatings (Sign Paints)	500	
High Temperature Coatings	420	
Industrial Maintenance Coatings	250	
Low Solids Coatings ¹	120	
Magnesite Cement Coatings	450	
Mastic Texture Coatings	100	
Metallic Pigmented Coatings	500	
Multi-Color Coatings	250	
Pre-Treatment Wash Primers	420	
Primers, Sealers, and Undercoaters	100	
Reactive Penetrating Sealers	350	
Recycled Coatings	250	
Roof Coatings	50	
Rust Preventative Coatings	400	250
Shellacs		
Clear	730	
Opaque	550	
Specialty Primers, Sealers, and Undercoaters	350	100
Stains	250	
Stone Consolidants	450	
Swimming Pool Coatings	340	
Traffic Marking Coatings	100	
Tub and Tile Refinish Coatings	420	
Waterproofing Membranes	250	
Wood Coatings	275	
Wood Preservatives	350	
Zinc-Rich Primers	340	

¹ Grams of VOC Per Liter of Coating, Including Water and Including Exempt Compounds

² The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table.

³ Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available at http://www.arb.ca.gov/coatings/arch/Approved_2007_SCM.pdf.

13C.5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the ~~enforcing agency~~ Director of the Department of Building Inspection. Documentation may include, but is not limited to, the following:

1. Manufacturers product specification.
2. Field verification of on-site product containers.

13C.5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:

1. Carpet and Rug Institute's Green Label Plus Program
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350)
3. NSF/ANSI 140 at the Gold level

4. Scientific Certifications Systems Sustainable Choice

Notes:

1. For Green Label Plus, see <http://www.carpet-rug.com/>.
2. For NSF/ANSI 140, see <http://www.carpet-rug.org/carpet-and-rug-industry/sustainability/sustainable-carpet-list.cfm>.
3. For Sustainable Choice, see <http://www.scs-certified.com/gbc/sustainablecarpet.php>.

13C.5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

13C.5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 13C.5.504.4.5.

13C.5.504.4.5 Composite wood products. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 13C.5.504.4.5

13C.5.504.4.5.1 Early compliance. (Reserved.)

13C.5.504.4.5.2 Documentation. Verification of compliance with this section shall be provided as requested by the ~~enforcing agency~~ Director of the Department of Building Inspection. Documentation shall include at least one of the following.

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Other methods acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection.

TABLE 13C.5.504.4.5
FORMALDEHYDE LIMITS¹

Maximum formaldehyde emissions in parts per million.

Product	Current Limit	Jan 1, 2012	Jul 1, 2012
Hardwood Plywood Veneer Core	0.05		
Hardwood Plywood Composite Core	0.08		0.05
Particle Board	0.09		
Medium Density Fiberboard	0.11		
Thin Medium Density Fiberboard ¹	0.21	0.13	

¹ Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.

² Thin medium density fiberboard has a maximum thickness of eight millimeters.

13C.5.504.4.6 Resilient flooring systems. For 50% of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

Documentation shall be provided that verifies that finish materials are certified to meet the pollutant emission limits.

13C.5.504.4.6.1 Verification of compliance., Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

Notes:

1. CHPS Low-emitting Materials List may be found at www.chpsregistry.com/live or <http://www.chps.net/dev/Drupal/node/381> .

2. Products certified under the FloorScore program may be found at: http://www.rfci.com/int_FS-ProdCert.htm.

3. Products certified under the Greenguard Children & Schools program and compliant with CHPS criteria may be found at: <http://www.greenguard.org/Default.aspx?tabid=135>.

13C.5.504.5.3 Filters.-In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 8.

13C.5.504.7 Environmental tobacco smoke (ETS) control. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings; or as enforced by ordinances, regulations, or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations, or policies are not in place, post signage to inform building occupants of the prohibitions.

SECTION 13C.5.505, INDOOR MOISTURE CONTROL

13C.5.505.1 Indoor moisture control. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable to low-rise residential occupancies, see Section 13C.5.407.2 of this code.

SECTION 13C.5.506 INDOOR AIR QUALITY

13C.5.506.1 Outside air delivery., For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements For Ventilation) of the California Energy Code, CCR, Title 24, Part 6, or the applicable local code, whichever is more stringent, and Chapter 4 of CCR, Title 8.

13C.5.506.2 Carbon dioxide (CO₂) monitoring. For buildings equipped with demand control ventilation, CO₂ sensors and ventilation controls shall be specified and installed in accordance with the requirements of the current edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c).

SECTION 13C.5.507 ENVIRONMENTAL COMFORT

13C.5.507.4 Acoustical control. Employ building assemblies and components with Sound Transmission Coefficient (STC) values determined in accordance with ASTM E90 and ASTM E413.

13C.5.507.4.1 Exterior noise transmission. Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following building locations:

1. Within 1000 ft. (300 m.) of right of ways of freeways.
2. Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.
3. Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems.

Exception: Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.

13C.5.507.4.2 Interior sound. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at:
http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf .

SECTION 13C.5.508 OUTDOOR AIR QUALITY

13C.5.508.1 Ozone depletion and greenhouse gas reductions.-Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 13C.5.508.1.1 and 13C.5.508.1.2.

13C.5.508.1.1 Chlorofluorocarbons (CFCs).₂ Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

13C.5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

CHAPTER 13C.6
 REFERENCED ORGANIZATIONS AND STANDARDS

SECTION 13C.6.601
 GENERAL

13C.6.601.1 This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard.

Organization	Standard	Referenced Section
AABC Associated Air Balance Council 1518 K St NW Washington, DC 20005 www.aabc.com	National Standards, 1989	<u>13C.5.410.4.3.1</u> <u>13C.A5.410.5.3.1</u>
ACCA Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206 www.acca.org	ACCA 29-D Manual D ACCA 36-S Manual S ACCA Manual J	<u>4.507.2</u> <u>4.507.2</u> <u>4.507.2</u>
ANSI American National Standards Institute Operations Office 25 West 43rd Street Fourth Floor New York, NY 10036 www.ansi.org	ANSI A190.1- 2002 NSF/ANSI 140- 2007	<u>13C.5.504.4.4</u>
ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329 www.ashrae.org	52.1-92 52.2-99 62.2 90.1	<u>13C.A5.504.1</u> <u>13C.A5.504.1</u> <u>13C.5.108.8</u>
ASME American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990 www.asme.org	A112.18.1 A112.19 A112.19.2 A112.19.14	<u>13C.5.303.6</u> <u>13C.5.303.6</u> <u>13C.5.303.2</u> <u>13C.5.303.6</u>
ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859 www.astm.org	C33 C-1371-98 E90 E408-71(2002) E413 E1333-96 (2002) E1903-97	<u>13C.5.A5.405.3</u> <u>13C.5.3.2</u> <u>13C.5.507.5</u> <u>13C.5.507.5</u> <u>13C.5.A103.4</u>
<u>Build It Green</u> <u>1434 University Ave</u> <u>Berkeley, CA 94702</u>	<u>GreenPoint Rated</u> <u>New Home</u>	<u>XXXXXXXXXXXXXXXXXXXXX</u>
CSA Canadian Standards Association 5060 Spectrum Way, Suite 100 Mississauga, Ontario, Canada L4W 5N6 www.csa.ca	CSA B125.1	<u>13C.5.303.6</u>
IAPMO International Association of Plumbing and Mechanical Officials		

5001 E. Philadelphia St. Ontario, CA 91761 iapmo@iapmo.org	IAPMO Z124.9	<u>13C.5.303.6</u>
NEBB National Environmental Balancing Bureau 8575 Grovemont Cir Gaithersburg, MD 20877 http://nebb.org/index.php	Procedural Standards, 1983	<u>13C.5.410.3.3.1</u>
NSF International 789 Dixboro Rd. Ann Arbor, MI 48113-0140 http://www.nsf.org/	NSF/ANSI 140- 2007	<u>13C.5.504.4.4</u>
TABB Testing, Adjusting and Balancing Bureau 601 N Fairfax St, Ste 250 Alexandria, VA 22314 http://www.tabbcertified.org/contact.html	National Standards, 2003	<u>13C.5.410.3.3.1</u>
<u>USGBC U.S. Green Building Council</u> <u>2101 L Street, NW, Suite 500,</u> <u>Washington, DC 20037</u> http://www.usgbc.org	<u>LEED® (Building Design and Construction, Interior Design and Construction, Homes)</u>	<u>XXXXXXXXXXXXXXXXXX</u>

CHAPTER 13C.7
INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS

SECTION 13C.7.701
GENERAL

13C.7.701.1 These requirements apply to installers and Special inspectors with regards to the requirements of this chapter.

SECTION 13C.7.702
QUALIFICATIONS

13C.7.702.1 Installer training . HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

- 1.State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection.

13C.7.702.2 Special inspection. When required by the ~~enforcing agency~~ Director of the Department of Building Inspection, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this ~~code~~ chapter. Special inspectors shall demonstrate competence to the satisfaction of the ~~enforcing agency~~ Director of the Department of Building Inspection for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection, the following certifications or education may be considered by the ~~enforcing agency~~ Director of the Department of Building Inspection when evaluating the qualifications of a special inspector.

1. Certification by ~~a~~ the applicable national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

13C.7.702.3 **Special inspection.** When required by the ~~enforcing agency~~ Director of the Department of Building Inspection, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code.

Special inspectors shall demonstrate competence to the satisfaction of the ~~enforcing agency~~ Director of the Department of Building Inspection for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national, or international association, as determined by the ~~local agency~~ Director of the Department of Building Inspection. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

13C.7.702.4 Special inspection. The ~~enforcing agency~~ Director of the Department of Building Inspection may require special inspection to verify compliance with this code or other laws that are enforced by the agency. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the ~~enforcing agency~~ Director of the Department of Building Inspection, for inspection of the particular type of construction or operation requiring special inspection.

SECTION 13C.7.703 VERIFICATIONS

13C.7.703.1 Documentation. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified in the application checklist.

13C.7.703.2 Documentation. Verification of compliance with this code shall include construction documents, plans, specifications builder or installer certification, inspection reports, or other methods acceptable to the ~~enforcing agency~~ Director of the Department of Building Inspection which show substantial conformance. Where specific documentation is necessary to verify compliance, that method of compliance will be specified in the appropriate section.

Chapter 13D
COMMERCIAL LIGHTING EFFICIENCY ORDINANCE

The City and County of San Francisco adopts the following Chapter 13D for the purpose of reducing public demand for electricity and the associated detriment to the environment of energy production and delivery by requiring commercial buildings to install or adopt more energy efficient lighting measures.

SECTION 1301D — TITLE

This Chapter shall be known as the “Commercial Lighting Efficiency Ordinance.”

SECTION 1302D — PURPOSE

The purpose of this Chapter is to reduce public demand for electricity and the associated detriment to the environment of energy production and delivery by requiring commercial buildings to install or adopt more energy efficient lighting measures.

SECTION 1303D — SCOPE

The provisions of this Chapter shall apply to all privately owned non-residential buildings, including school facilities, the non-residential portions of mixed-use commercial and residential buildings, tourist hotels, and the common areas of residential hotels and multiple-unit residential buildings, all as herein defined.

EXCEPTIONS:

The provisions of this Chapter do not apply to:

1. Residential buildings and residential hotels, except that it shall apply to their common areas.
2. The residential portions of mixed-use commercial and residential buildings, except that it shall apply to their common areas.

SECTION 1304D — DEFINITIONS

For the purpose of this Chapter, certain terms are defined as follows:

COMMERCIAL BUILDING is any privately owned building that is occupancy group A, B, E, F, H, I, L, M or S as defined in this Code and any tourist hotels, as herein defined. When a building is designated for more than one type of occupancy, “Commercial Building” shall mean those spaces within the mixed use building designated as A, B, E, F, H, I, L, M or S or tourist hotel, as herein defined. Except for tourist hotels as herein defined, “Commercial Building” shall include only the common areas of any R (“residential”) occupancy buildings for the common areas of any R (“residential”) occupancy portions of mixed use buildings.

COMMON AREA is any area, space or room of a building that is made available to the general public as either a client or guest.

DIRECTOR is the Director of the Department of Building Inspection, or his or her designee

EXIT SIGNS are signs located and illuminated as required by the Building Code

LINEAR FLUORESCENT LAMP is a “tube” or “bulb” formed in a straight shape, as distinguished from a circular or u-shape, but not including linear specialty lamps such as black lights.

LUMENAIRE is an interior or exterior complete lighting unit, including internally or externally illuminated signs, consisting of the lamp and the parts designed to distribute the light, to protect the lamp, and to connect the lamp to the power supply, but not including illuminated utilization equipment or exit signs as defined herein.

OCCUPANCY SENSOR CONTROL DEVICE is a device that automatically turns off a luminaires or series of luminaires not more than 30 minutes after it senses that the area is vacated.

TOURIST HOTEL is any residential building, or portion thereof, which is occupied as a hotel, motel or inn and which has a certificated of use for tourist occupancy, or any portion of a residential building which is converted to tourist hotel use pursuant to the Residential Hotel Conversion Ordinance (S.F. Administrative Code, Article 41) or other City law.

UTILIZATION EQUIPMENT is commercial, retail or industrial equipment, including but not limited to refrigeration equipment, fully enclosed retail display cases, vending machines, printing equipment or conveyors, which uses 4-foot or 8-foot linear fluorescent lamps as an integrated part of such equipment. “Utilization Equipment” shall not include furniture or workstations.

SECTION 1305D — COMPLIANCE REQUIREMENTS

1305D.1 Compliance Deadline. No later than December 31, 2011 (“Compliance Deadline”), the owner of each building subject to this Chapter shall self-certify that the entire building meets the standards specified in this Chapter 13D, and if the building is not certified, the building owner shall make such repairs as may be required to conform to this Chapter.

1305D.2 Stay of Compliance Deadline. The Compliance Deadline stated in Section 1305D.1 shall be stayed for up to two years form the date of an application for a demolition permit for any building subject to this Chapter. If the building is demolished and a Certificate of Completion issued by the Department before the end of the two-year postponement, the requirements of this Chapter shall not apply. If the building is not demolished after the expiration of two year, the provisions of this Chapter shall apply even though the demolition permit is till in effect or a new demolition permit has been issued.

SECTION 1306D – LIGHTING EFFICIENCY MEASURES

1306D.1. Mercury Content. The mercury content of each 4-foot linear fluorescent lamp installed after the Compliance Deadline in a luminaires in a building subject to this Chapter shall not exceed 5 mg. The mercury content of each 8-foot linear fluorescent lamp installed after the Compliance Deadline in a luminaires in a building subject to this Chapter shall not exceed 10 mg.

1306D.2. Energy Efficiency. The lamp and ballast system in each luminaires that utilizes one or more 4-foot of 8-foot linear fluorescent lamps to provide illumination in a building subject to this Chapter must meet at least one of the following requirements:

1. The lamp and ballast system emits 81 or more lumens per watt of electricity consumed.
2. The luminaires is controlled by an occupancy sensor control device that does not control an area in the

building of more than 250 square feet.

3. The luminaires is fitted with a lighting efficiency measure approved by the Director as equivalent to the measures in subsection (1) or (2).

4. The Director finds, based on the facts of the particular building and luminaires, that the energy savings from installing lighting efficiency measures meeting the requirements of this Section will be so insignificant over the life of the luminaires that the measure is not cost efficient.

5. If the owner of a Commercial Building elects to meet the requirements of this Section 1306D.2 with measures that require permits, such permits shall comply with all other applicable requirements of this Code and all other applicable state and local laws.

SECTION 1307D. ENFORCEMENT

Any building maintained in violation of this Chapter shall constitute a public nuisance under the terms of Section 102A of this Code and such nuisance may be abated pursuant to the procedures set forth in Section 102A of this code fro unsafe buildings.

SECTION 1308D. RULES

The director, after consulting with the Department of the Environment, and in accordance with Section 104A.2.1 of this Code, shall adopt, and may amend, reasonable rules, guidelines and forms for implementing the provisions and intent of this Chapter.

SECTION 1309D. UNDERTAKING FOR THE GENERAL WELFARE

In undertaking the enforcement of this Chapter, the City and County of San Francisco is assuming an undertaking only to promote the general welfare. It is not assuming, nor is it imposing on its officers and employees, an obligation for breach of which it is liable in money damages to any person who claims that such breach proximately caused injury.

SECTION 1310D. PREEMPTION

Nothing in this Chapter shall be interpreted or applied so as to create any power or duty in conflict with any federal or state law or regulation.

SECTION 1311D. SEVERABILITY

If any provision or clause of this Chapter or the application thereof to any person or circumstance is held to be unconstitutional or to be otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other provisions, and clauses of this Chapter are declared to be severable.