

Ordinance No. 5070
Ordinance of the City Council of the City of Palo Alto Repealing
Chapter 16.18 of the Palo Alto Municipal Code and Amending
Title 16 to Adopt a New Chapter 16.18 Establishing Local Energy
Efficiency Standards for Certain Buildings and Improvements
Covered by the 2008 California Energy Code

The City Council of the City of Palo Alto does ORDAIN as follows:

SECTION 1. Findings. The City Council finds that:

1. The City of Palo Alto's (City) Comprehensive Plan sets forth goals for preserving and improving the City's natural and built environment, protecting the health of its residents and visitors, conserving water and energy, and fostering its economy; and
2. The City Council has identified Environmental Protection as one of its top three goals, and energy efficiency is a key component of environmental protection; and
3. The City's Climate Protection Plan, adopted by the City Council on December 3, 2007, states that natural gas and electricity use within the City accounts for approximately 310,000 metric tons of carbon dioxide emissions annually, or 42.5% of total annual City-wide emissions; and
4. The provisions of California Assembly Bill 32 (Global Warming Solutions Act) require actions on the part of State and local governments to significantly reduce greenhouse gas (GHG) emissions such that statewide GHG emissions are lowered to 1990 levels by 2020 and 80% below 1990 levels by 2050; and
5. Local government, by itself, cannot fully address all of the challenges posed by climate change and comply with the mandates of AB 32; and
6. Energy efficiency is a key component in reducing GHG emissions, and construction of more energy efficient buildings can help Palo Alto reduce its share of the GHG emissions that contribute to climate change; and
7. On June 2, 2008, the City Council adopted regulations for the incorporation of green building techniques and materials in private residential and nonresidential development projects (Green Building Regulations), Ordinance No. 5006; and a resolution revising those standards was introduced to Council on October 19, 2009; and
8. Building Standards Code establishes building standards for all occupancies throughout the State; and
9. Health and Safety Code Section 17958.5 provides that a city may establish more restrictive building standards if they are reasonably necessary due to local climatic, geological or topographical conditions; and
10. Based on the findings contained in this Ordinance, the City Council has found that certain modifications and additions to the California Building Standards Code are reasonably necessary based upon local climatic, topographical and geological conditions; and

11. In accordance with the 2008 California Building Energy Efficiency Standards, including California Code of Regulations, Title 24, Parts 1 and 6 (Standards) all residential and nonresidential development must meet or exceed the energy efficiency requirements contained therein; and

12. California Public Resource Code Section 25402.1(h)(2) authorizes a city to adopt and enforce increased energy efficiency standards, provided that a determination is made that the local standards are cost effective and they are approved by the California Energy Commission; and

13. On October 19, 2009, an Ordinance Repealing Chapter 16.17 of the Palo Alto Municipal Code and Amending Title 16 to Adopt a New Chapter 16.17, California Energy Code, 2008 Edition was introduced to the City Council; and

14. It is the purpose and intent of this Ordinance to amend the 2008 California Building Energy Efficiency Standards as described herein; and

15. City staff has prepared a new Chapter 16.18 to Title 16 of the Palo Alto Municipal Code, Local Energy Efficiency Standards; and

16. On March 23, 2009, the City hired Gabel Associates, LLC, an expert in the field of building energy analysis and Energy Code compliance, to assist the City in preparing a study and proposal for local amendments to the 2008 California Energy Code, and said study demonstrated the cost effectiveness of these local amendments; and

17. The City will include the Gabel Associates study in an application for consideration by the California Energy Commission in compliance with Public Resources Code 25402.1(h)(2); and

18. The modifications to the 2008 California Building Energy Efficiency Standards required by this Ordinance are reasonably necessary due to local climatic, geologic and topographic conditions, specifically:

- a. The City of Palo Alto Utilities (CPAU) is the only municipal utility in California that operates City-owned-utility services including electric, fiber optic, natural gas, water and wastewater services, and as such, the City Council is uniquely concerned that CPAU be able to provide reliable power to Palo Alto residents and businesses, especially in periods of peak energy demand.
- b. Summer ambient temperatures in the City during the months of June, July and August can reach over 100 degrees, creating peak energy load demands that can cause power outages, affecting public safety and causing adverse local economic impacts.

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- c. The total square footage of conditioned habitable space within residential and nonresidential buildings in the City is increasing and using more energy and resources than in the past.
- d. The burning of fossil fuels used in the generation of electric power and heating of buildings contributes to climate change, which could result in rises in sea level, including in San Francisco Bay, that could put at risk Palo Alto homes and businesses, public facilities, and Highway 101.
- e. Reduction of total and peak energy use as a result of incremental energy efficiency measures required by this Ordinance will have local and regional benefits in the cost-effective reduction of energy costs for building owners, additional available system energy capacity, and a reduction in greenhouse gas emissions; and

19. In order to maintain and advance the energy efficiency standards adopted herein, it is in the best interest of the City to revisit this Ordinance prior to its expiration, ensuring that local energy standards meet the goals of reducing energy consumption, thereby saving on energy bills and decreasing greenhouse gas emissions; and

20. The study conducted by Gabel Associates, LLC has concluded that the energy efficiency measures contained in this Ordinance are cost-effective. The City Council hereby adopts the conclusions of the study and authorizes its inclusion in an application for consideration by the California Energy Commission in compliance with California Public Resources Code Section 25402.1(h)(2). Upon approval by the California Energy Commission, this Ordinance shall be presented to the City Council for final adoption.

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SECTION 2. Chapter 16.18 of Title 16, "Building Code," is hereby amended by repealing in its entirety Chapter 16.18 and enacting a new Chapter 16.18 to read and provide as follows:

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Chapter 16.18

LOCAL ENERGY EFFICIENCY STANDARDS FOR CERTAIN BUILDINGS AND IMPROVEMENTS COVERED BY THE CALIFORNIA ENERGY CODE, 2008 EDITION

Sections:

- 16.18.010 Purpose.
- 16.18.020 Definitions.
- 16.18.030 Buildings Covered.
- 16.18.040 Compliance.
- 16.18.050 General Compliance Requirements.
- 16.18.060 Solar Photovoltaic Energy Systems for Multi-Family Residential Construction and Nonresidential Construction.
- 16.18.070 Expiration.

16.18.010 Purpose.

The purpose of this Ordinance is to promote the health, safety and welfare of Palo Alto residents, workers, visitors and the environment by minimizing the use and waste of energy in the construction and operation of the City's building stock. The Ordinance sets forth minimum energy efficiency standards within the City of Palo Alto for certain types of residential and nonresidential new construction and renovation, and should be used in conjunction with both the City's Green Building Regulations, located in Chapter 18.44 of Title 18 (Zoning) of the Palo Alto Municipal Code, and the City's Green Building Standards for Compliance, adopted by City Council Resolution. This Chapter is intended to amend the 2008 California Building Energy Efficiency Standards, as specified in the California Code of Regulations, Title 24, Parts 1 and 6 (Standards), adopted by the City at Title 16, Chapters 16.04 and 16.17 of the Palo Alto Municipal Code. Compliance with the 2008 California Building Energy Efficiency Standards is required even if the increased minimum efficiency standards in this Chapter do not apply.

16.18.020 Definitions.

(a) For purposes of this Chapter 16.18, words or phrases used in this Chapter that are specifically defined in Parts 1, 2 or 6 of Title 24 of the California Code of Regulations shall have the same meaning as given in the Code of Regulations. In addition, for the purposes of this Chapter 16.18, the following words and phrases shall have the meanings indicated herein:

(b) "2008 California Building Energy Efficiency Standards", or "California Energy Code", shall mean the Standards and regulations adopted by the California Energy Commission contained in Parts 1 and 6 of Title 24 of the California Code of Regulations as such standards and regulations may be amended from time to time.

(c) "Energy STAR Portfolio Manager" (Portfolio Manager) shall mean the program managed by the U.S. Environmental Protection Agency that offers an energy management tool that allows an applicant to track and assess energy and water consumption of a building project. Tracked projects receive an energy performance rating on a scale of 1–100 relative to similar buildings nationwide.

(d) “GreenPoint Rated” shall mean a residential green building rating system developed by the Build It Green organization.

(e) “HERS Rating” shall mean the California Home Energy Rating System, a statewide program for residential dwellings administered by the California Energy Commission and defined in the 2008 California Building Energy Efficiency Standards. HERS Phase I provides field verification and diagnostic testing to show compliance with Title 24, Part 6, of the 2008 California Building Energy Efficiency Standards. HERS Phase II includes whole-house home energy efficiency ratings for existing and newly constructed homes.

(f) “LEED®” shall mean the “Leadership in Energy and Environmental Design” green building rating system developed by the U.S. Green Building Council.

(g) “Multi-Family Residential” shall mean a building containing three or more attached dwelling units.

(h) “Nonresidential” shall mean a new or replacement retail, office, industrial, warehouse, service, or similar building(s).

(i) “Nonresidential Compliance Manual” shall mean the manual developed by the California Energy Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the requirements of the state’s 2008 Building Energy Efficiency Standards for nonresidential, high-rise residential, and hotel/motel buildings.

(j) “Proposed Design” is defined in the Residential and Nonresidential Compliance Manuals developed by the California Energy Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the requirements of the state’s 2008 California Building Energy Efficiency Standards for nonresidential, high-rise residential, and hotel/motel buildings.

(k) “Rebuild” shall mean home improvements or minor additions to an existing structure that do not maintain 75% of the existing roof or exterior walls.

(l) “Residential Compliance Manual” shall mean the manual developed by the California Energy Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the requirements of the state’s 2008 California Building Energy Efficiency Standards for low-rise residential buildings.

(m) “Single-Family or Two-Family Residential” shall mean a single detached dwelling unit or two units in a single building.

(n) “Solar Photovoltaic Energy System” shall mean a photovoltaic solar collector or other photovoltaic solar energy device that has a primary purpose of providing for the collection and distribution of solar energy for the generation of alternative current rated peak electricity.

(o) “Standard Design” is defined in the Residential and Nonresidential Compliance Manuals developed by the California Energy Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the requirements of the state’s 2008 California Building Energy Efficiency Standards for nonresidential, high-rise residential, and hotel/motel buildings.

(p) “Time Dependent Valuation of Energy (TDV Energy)” shall mean the time varying energy caused to be used by a building to provide space conditioning and water heating and, for specified buildings, lighting. TDV Energy accounts for the energy used at the building site and consumed in producing and in delivering energy to a site, including but not limited to, power generation, transmission and distribution losses. TDV Energy is expressed in terms of thousands of British thermal units per square foot per year (kBtu/sq.ft.- yr.).

16.18.030 Buildings Covered.

(a) Nonresidential Construction.

The provisions of this Ordinance shall apply to all nonresidential construction (including Mixed Use and other development) for which a building permit has been applied and accepted as complete by the Building Division on or after the effective date of this Ordinance for:

- (1) New construction greater than or equal to 5,000 square feet, including additions to existing buildings.
- (2) New construction between 500 square feet and 5,000 square feet, including additions to existing buildings.
- (3) Tenant improvements, renovations or alterations greater than or equal to 5,000 square feet that include replacement or alteration of at least two of the following: HVAC system, building envelope, hot water system, or lighting system.
- (4) Tenant improvements, renovations or alternations greater than or equal 500 square feet with greater than \$100,000 in building permit valuation in a single unit, that are not otherwise covered under Section 3 of Table A of the “City of Palo Alto Green Building Standards for Compliance for Private Nonresidential Construction”.

(b) Residential Construction.

The provisions of this Ordinance shall apply to all residential construction for which a building permit has been applied and accepted as complete by the Building Division on or after the effective date of this Ordinance for:

- (1) Multi-family new construction of three or more attached units.
- (2) Multi-family renovations or alterations greater than or equal to 50% of the existing unit square footage that include replacement or alternation of at least two of the following: HVAC system, building envelope, hot water system, or lighting system.
- (3) Multi-family renovations, alterations, additions, and/or rebuilds to individual units greater than or equal to 250 square feet with greater than or equal to \$100,000 in building permit valuation in a single unit.
- (4) Single-family or two-family new construction greater than or equal to 1,250 square feet.
- (5) Single-family or two-family existing home additions or rebuilds greater than or equal to 1,250 square feet.
- (6) Single-family or two-family existing home renovations, rebuilds and/or additions between 250 square feet and 1,250 square feet, with greater than \$100,000 in building permit valuation in a single unit.

Subject to the foregoing limitation, applicability of the residential or nonresidential sections of this Chapter shall be determined in accordance with either the Residential Compliance Manual or the Nonresidential Compliance Manual, as appropriate for the proposed occupancy.

16.18.040 Compliance Required to Receive Building Permit and Final Inspection.

The Chief Building Official shall be charged with enforcing the provisions of this Ordinance. A building permit application subject to the provisions of this Chapter shall not be issued a building permit by the Chief Building Official unless the energy compliance documentation submitted with the permit application meets the requirements of this Chapter. A final inspection for a building permit subject to the requirements of this Chapter will not be approved unless the work authorized by the building permit has been constructed in accordance with the approved plans, conditions of approvals, and requirements of this Chapter.

16.18.050 General Compliance Requirements.

In addition to the requirements of the 2008 California Building Energy Efficiency Standards the following general compliance requirements shall apply to all building permit applications subject to this chapter:

(a) Nonresidential Construction.

- (1) New construction greater than or equal to 5,000 square feet, including additions to existing buildings. The performance approach specified in Section 151 of the 2008 California Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the Proposed Design is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of LEED's minimum energy prerequisite as described in Table A of the "City of Palo Alto Green Building Standards for Compliance for Private Nonresidential Construction and Renovation."
- (2) New construction between 500 square feet and 5,000 square feet, including additions to existing buildings. The performance approach specified in Section 151 of the 2008 California Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the proposed building is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of LEED's minimum energy LEED prerequisite as described in Table A of the "City of Palo Alto Green Building Standards for Compliance for Private Nonresidential Construction and Renovation."
- (3) Tenant improvements, renovation or alterations greater than or equal to 5,000 square feet that include replacement or alteration of at least two of the following: HVAC system, building envelope, hot water system, or lighting system. Energy efficiency beyond 2008 California Building Energy Efficiency Standard minimums is not required for projects covered by this section.
- (4) Tenant improvements, renovations or alternations greater than or equal to 500 square feet with greater than \$100,000 in building permit valuation in a single unit, that are not otherwise covered under Section 3 of Table A of the "City of Palo Alto Green Building Standards for Compliance for Private Nonresidential Construction." The applicant shall attain an Energy STAR Portfolio Manager Building Energy Performance Rating prior to the issuance of a building permit, although achievement of a particular rating is not required. Compliance with this Section shall constitute achievement of the Building Energy Performance Rating described in Table A of the "City of Palo Alto Green Building Standards for Compliance for Private Nonresidential Construction and Renovation."

(b) Residential Construction.

- (1) Multi-family residential new construction of 3 or more attached units. The building permit applicant must determine whether the building is low-rise

or high-rise as defined by the 2008 California Building Energy Efficiency Standards, and then use the appropriate approach as described below:

- (i) Low Rise (3 stories or less). The performance approach specified in Section 151 of the 2008 California Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the proposed building is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of GreenPoint Rated's minimum energy prerequisite for new "Multi-Family Residential" construction, as described in Table B of the "City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation".
 - (ii) High Rise (4 stories or more). The applicant shall model the building envelope and mechanical system of the Proposed Design consistent with the 2008 Title 24 performance method rules. The applicant shall demonstrate that the TDV Energy of the Proposed Design is less than the TDV Energy of the Standard Design by the percentage (%) required for minimum energy performance specified in the 2009 GreenPoint Rated new "Multi-Family Residential" construction guidelines. Compliance with this Section shall constitute achievement of GreenPoint Rated's minimum energy prerequisite required for new "Multi-Family Residential" construction as described in Table B of the "City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation."
- (2) Multi-family renovations or alterations greater than or equal to 50% of the existing unit square footage that include replacement or alteration of at least two of the following: HVAC system, building envelope, hot water system, or lighting system. The building permit applicant shall determine whether the building is low-rise or high-rise as defined by the 2008 California Building Energy Efficiency Standards, and then use the appropriate approach as described below:
- (i) Low Rise (3 stories or less). The performance approach specified in Section 151 of the 2008 California Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the Proposed Design is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of GreenPoint Rated's minimum energy prerequisite for new "Multi-Family Residential" construction, as described in Table B of the "City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation".

- (ii) High Rise (4 stories or more). The applicant shall model the building envelope and mechanical system of the Proposed Design consistent with the 2008 Title 24 performance method rules. The applicant shall demonstrate that the TDV Energy of the Proposed Design is less than the TDV Energy of the Standard Design by the percentage (%) required for minimum energy performance specified in the current GreenPoint Rated new “Multi-Family Residential” construction guidelines. Compliance with this Section shall constitute achievement of GreenPoint Rated’s minimum energy prerequisite required for new “Multi-Family Residential” construction as described in Table B of the “City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation.”
- (3) Multi-family renovations, alterations, additions, and/or rebuilds to individual units greater than or equal to 250 square feet with a building permit valuation greater than or equal to \$100,000 in a single unit. The applicant shall attain a HERS II rating prior to issuance of the building permit, although achievement of a particular rating is not required. Compliance with this Section shall constitute achievement of the HERS Rating requirement as described in Table B of the “City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation”. Compliance with this Section is not required until January 1, 2011.
- (4) Single-family or two-family residential new construction greater than or equal to 1,250 square feet. The performance approach specified in Section 151 of the 2008 Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the Proposed Design is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of GreenPoint Rated’s minimum energy prerequisite for new “Single-Family and Two-Family Residential” construction, as described in Table B of the “City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation”.
- (5) Single-family or two-family residential additions or rebuilds greater than or equal to 1,250 square feet. The performance approach specified in Section 151 of the 2008 Building Energy Efficiency Standards shall be used to demonstrate that the TDV Energy of the Proposed Design is at least 15.0% less than the TDV Energy of the Standard Design. Compliance with this Section shall constitute achievement of GreenPoint Rated’s minimum energy prerequisite for new “Single-Family and Two-Family Residential” construction, as described in Table B of the “City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation”.

- (6) Single-family or two-family renovations, rebuilds and/or additions that are between 250 square feet and 1,250 square feet, and that have greater than \$100,000 in building permit valuation in a single unit. The applicant shall attain a HERS II rating prior to issuance of the building permit, although achievement of a specific HERS II rating is not required. Compliance with this Section shall constitute achievement of the minimum energy requirement as described in Table B of the “City of Palo Alto Green Building Standards for Compliance for Private Residential Construction and Renovation”. This Section has an effective date of January 1, 2011

16.18.060 Solar Photovoltaic Energy Systems for Multi-Family Residential Construction and Nonresidential Construction.

(a) Installation Criteria and Energy Credit. The installation of any solar photovoltaic (PV) energy system must meet all installation criteria of the California Energy Commission’s Guidelines for California’s Solar Electric Incentive Program Pursuant to Senate Bill 1. An energy credit from solar PV energy systems may be used to demonstrate compliance with the general compliance requirements of this Ordinance when evaluating LEED® energy performance. This credit is available if the solar PV energy system is capable of generating electricity from sunlight, supplying the electricity directly to the building, and the system is connected, through a reversible meter, to the utility grid. The methodology used to calculate the energy equivalent to the photovoltaic credit shall be the CECPV Calculator, using the most recent version available prior to the permit application date, which may be found on the web site of the California Energy Commission, at www.gosolarcalifornia.org; or shall be another Senate Bill 1 compliant method as approved by the California Energy Commission.

(b) Documentation. In order to demonstrate compliance with the requirements of this Section, a permit applicant may be required to submit supplementary forms and documentation in addition to the building drawings, specifications, and standard energy compliance (Title 24, HERS and Energy STAR Portfolio Manager) report forms, as deemed appropriate by the Chief Building Official.

16.18.070 Expiration.

This Chapter 16.18 shall expire upon the date that the State’s 2011 Building Energy Efficiency Standards take effect.

SECTION 3. Severability. Should any section, subsection, paragraph, sentence, clause, or phrase of this Ordinance be declared unconstitutional or invalid for any reason, such declaration shall not affect the validity of the remaining portions of this Ordinance.

SECTION 4. Efforts to Enhance Local Compliance. Given that the purpose of this Ordinance is to adopt stricter local energy efficiency standards for the construction of new buildings within the City, the Council further recognizes that the adoption of new standards without additional education and training for City staff responsible for enforcement of the standards could diminish compliance and potentially undermine the efficacy of the Ordinance.

City Clerk

APPROVED AS TO FORM:

Deputy City Attorney

Mayor

City Manager

Director of Planning & Community
Environment

Director of Utilities

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