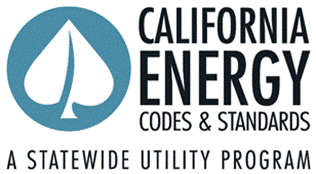
[](https://mballc.sharepoint.com/sites/2025LocalEnergyCodes/Shared%20Documents/General/Model%20Language/FlexPath/localenergycodes.com)

Please Note:

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This document is the product of a collaborative effort between Peninsula Clean Energy, Silicon Valley Clean Energy, and the Local Energy Codes team.

Please contact the Codes and Standards Local Energy Codes Team at [info@LocalEnergyCodes.com](mailto:info@LocalEnergyCodes.com) for additional information.

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2025 Existing Single Family Flexible Path   
Compliance (FlexPath), Electric Readiness,  
and Cool Roof Model Reach Code

**Version 1.2**

**June 18, 2025**

## Changes from Prior Versions

Please check [LocalEnergyCodes.com](https://localenergycodes.com/content/resources) to obtain the latest version of this document and supporting materials. This document will be updated frequently to comport with new features in the [Cost Effectiveness Explorer](http://explorer.localenergycodes.com/).

Changes since 2025 Code Version 1.0 (May 2025)

* Added outdoor appliances to electric readiness
* Modified electric readiness for PV credit under FlexPath
* Corrected references to 2022 Energy Code
* Removed “All Electric Home” from measures

Changes from the 2022 Code version (version 1.3, May 2024)

* Updated specifications to 2025 code
* Included option to extend trigger to AC replacements
* Added/modified various exceptions
* Added exceptions for certain ADUs that are subject to [Government Code 66310 et. seq.](https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=GOV&division=1.&title=7.&part=&chapter=13.&article=)
* Restructured and added additional electric readiness options
* Added a higher cool roof standard as mandatory when reroofing in certain climate zones

## Scope

* All single family buildings that undergo certain improvements must include a set of energy efficiency, renewable energy and/or electrification measures that meet a specified energy-savings target.
* The energy savings target is expressed as a score and individual measures are assigned points weighted by site-energy savings. The target and points are specific to each climate zone and building vintage.
* Electric-readiness and cool roofs are required for certain project scopes.
* There are various exceptions.
* Although this model ordinance cannot be used for an ordinance that requires specific measures, the study results provide a starting point to identify (cost-effective) measures. (Model ordinance language will be available soon.)
* See [separate document](https://localenergycodes.com/download/2008/file_path/fieldList/ModelOrd%20-%20SingleFamily-AC2HP.docx) for AC to heat pump replacement policy.

**Companion Materials**

The existing resources to support the FlexPath model ordinance are currently being updated for 2025. Existing versions are available at [localenergycodes.com](https://localenergycodes.com/content/resources/?q=FlexPath:%20Single%20Family%20Alterations). These include the following:

* Cost Effectiveness Report
* Cost Effectiveness Explorer
* Decision Guide
* Slide Deck
* FAQs
* Application Checklist
* Air Sealing Checklist
* Exceptions Form and Guidance
* State Submittal Guidance

## Introduction

This model ordinance language supports a reach code requiring stricter energy performance for major projects in existing single family homes. Of the many available policy options to encourage or require decarbonization in existing single family homes, local governments may wish to consider adopting a reach code that could be triggered by different events including additions, significant renovations or time of listing. Alternatively, an ordinance could set a schedule to require that certain upgrades are completed by a “date-certain”.

Because there are so many variables within existing homes, it is difficult to prescribe a comprehensive set of cost-effective measures applicable to a wide variety of projects. Accordingly, a performance pathway is proposed, which would establish a target score and a menu of individual measures with points weighted by site energy savings. Applicants would select a set of measures that meet or exceed the target. Local jurisdictions could adjust how comprehensive the requirements are by adjusting the score. The advantages of this approach are that it offers flexible compliance options, places a high value on electrification measures, and is grounded in bill-payer cost-effectiveness. It is also based directly on energy savings (each point is equivalent to 1 MMBtu of energy savings. Note, this is one of several possible policy approaches, including, for example, a replace-on-burnout policy; it is not intended to capture all opportunities.

Based on the [2022 Cost-effectiveness Study: Existing Single Family Building Upgrades](https://localenergycodes.com/download/1222/file_path/fieldList/Single%20Family%20Retrofits%20CostEff%20Report.pdf)[[1]](#footnote-2) the [Cost-Effectiveness Explorer](https://explorer-production-qa-flexiblepath.vercel.app/) produces a target metric that represents a user-defined fraction of the total site energy savings for all cost-effective retrofit measures – the *Target Score*. The Explorer also produces a table of all available measures, including those that are not cost-effective, that are weighted using the same site energy metric. Using these values, specific to each climate zone and home vintage, an applicant may install any combination of efficiency, solar and electrification measures that meet or exceed the target value.

As proposed below, such an ordinance could be structured to amend Title 24, Part 6, Section 150.0 to require compliance as part of a defined project scope. The intent is to target medium-sized projects that are not otherwise subject to more comprehensive requirements under the State Energy Code. The amendment includes a table with the targets and points available for each measure and home vintage. It also includes specifications for each measure and exceptions. Compliance could be supported by an addendum to the Certificate of Compliance and building inspector verification. The ordinance could also include mandatory electric-readiness measures.

The study supports separate target scores for three different vintages, all of which are pre-2011. While it is possible to specify different requirements for each of the vintages, a jurisdiction may wish to simplify the requirements to address the predominant vintage(s) in the community. For example, if most of the housing was constructed before 1978, it may be most appropriate to only apply the requirements to older buildings and set the target score based on that vintage. Similarly, if most of the stock is newer, the ordinance could apply to all pre-2011 homes and set the target score based on the latest vintage.

Amendments to the State Code appear in strikeouts (deletions) and underlines (additions). Such amendments require that the governing body of the local jurisdiction make express findings and cite the authorities used to adopt the ordinance. These vary depending upon the part of the code that is being modified. Refer to the [Guide for Local Amendments to Building Standards](https://www.dgs.ca.gov/-/media/Divisions/BSC/05-Resources/Guidebooks/Guide-Local-Amend-of-Bldg-Stnds-Rev-July-2024.pdf) for more information. **In addition to the requirements specified in the Guide, the California Energy Commission requires that the findings include a statement to the effect that the local governmental agency’s governing body, has at a public meeting, adopted its determination that the standards are cost-effective.**

Amendments to the Energy Code (Title 24, Part 6) must be approved by the [California Energy Commission](https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency-3) (CEC). All amendments must be filed with the [California Building Standards Commission](https://www.dgs.ca.gov/BSC/Codes/Local-Amendments-to-Building-Standards---Ordinances).

Jurisdictions may wish to modify elements of the ordinance, such as those marked with the text “[Optional]”. When modifying the language, ensure all references are maintained and that the ordinance still meets the CEC requirements. Also, edit the Purpose section to reflect the changes.

The headings, footnotes and instructions (in blue) are for staff reference and should be removed from the final ordinance.

The draft ordinance text and CEQA determination language are provided as examples only. Ensure all ordinance materials are reviewed and verified by relevant jurisdiction staff and the city/county attorney.

## Model Reach Code for Existing Single Family Projects

ORDINANCE AMENDING THE [CITY/COUNTY OF JURISDICTION] BUILDING CODE TO REQUIRE HIGHER ENERGY PERFORMANCE AND ELECTRIC-READINESS FOR CERTAIN SINGLE FAMILY PROJECTS

DELETE ALL BLUE TEXT AND FOOTNOTES

## Findings

## Amendments to the State Building Code require jurisdictions to make certain express findings; additional findings are required to support amendments to the State Energy Code. Refer to [*Guide for Local Amendments of Building Standards*](https://www.dgs.ca.gov/-/media/Divisions/BSC/05-Resources/Guidebooks/Guide-Local-Amend-of-Bldg-Stnds-Rev-July-2024.pdf) for more information. Required findings include:

## A declaration of the authorities granted by the State to the jurisdiction to amend the code, which include:

* + Health and Safety Code sections [17958.7](https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-17958-7/) and [18941.5](https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-18941-5/)
  + Public Resources Code Section [25402.1(h)(2)](https://codes.findlaw.com/ca/public-resources-code/prc-sect-25402-1/)
  + [Section 10-106](https://energycodeace.com/content/10-106-locally-adopted-energy-standards) of the Building Energy Efficiency Standards
* A determination that the amendments are reasonably necessary to address local climatic, geological, or topographical conditions

## A determination that the proposed standards are cost-effective and a reference to the supporting analysis

* A declaration that the jurisdiction has at a public meeting, adopted its determination that the standards are cost-effective
* A determination that the proposed standards are more stringent than the State Energy Code and that they will require buildings to be designed to consume less energy than permitted by the State Energy Code

## Any findings, determinations, declarations, or reports, including any negative declaration or environmental impact report, required pursuant to the California Environmental Quality Act

## Sample Amendments

Section 1: Amendments

The California Building Code, Title 24, Part 6, adopted by the [City/County of jurisdiction] codified under Chapter [municipal/county code reference (if not adopted in entirety, include local code references for each section)], is amended as specified below. Strikeouts and underlines indicate modifications to the State code.

### Purpose

Section 100.0 is modified to add a new section (i) as follows:

1. Single Family Building Remodel Energy Reach Code - Purpose and Intent.

In addition to all requirements of the California Energy Code applicable to Single Family building additions and alterations, the energy efficiency, renewable energy, electric readiness, and cool roof measures specified in Sections 150.0(w), 150.0(x), and 150.2(b)Ii shall be required for certain single family additions and alterations. [Modify to match scope]

### Definitions

Section 100.1(b) is modified by adding the following definitions:

**COVERED SINGLE FAMILY PROJECT** shall mean…

The definition of a “Covered Single Family Project” is at the discretion of the local jurisdiction. Criteria may be based on project scope (including AC replacement) and/or valuation. A few options are offered below in Attachment 1 below.

**LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE** is a 208/240-volt 40-ampere minimum branch circuit and a receptacle.

**LOW POWER LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE** is a 208/240-volt 20-ampere minimum branch circuit and a receptacle.

### FlexPath Requirements

The first two paragraphs of Section 150.0 SINGLE-FAMILY RESIDENTIAL BUILDINGS – MANDATORY FEATURES AND DEVICES are modified to read as follows:

Single-family residential buildings shall comply with the applicable requirements of Sections 150.0(a) through 150.0(~~v~~x).

NOTE: The requirements of Sections 150.0(a) through 150.0(v) apply to newly constructed buildings. Sections 150.2(a) and 150.2(b) specify which requirements of Sections 150.0(a) through 150.0(v) also apply to additions or alterations. In addition, Covered Single Family Projects shall also be required to comply with Section 150.0(w) and certain additions and alterations shall also be required to comply with Section 150.0(x).

A new Section, (w), is added to Section 150.0 as follows:

1. A Covered Single Family Project shall install a set of measures based on the building vintage from the Measure Menu Table, Table 150.0-J, [add reference to table(s) for additional climate zones, if applicable) to achieve a total Measure Point Score that is equal to or greater than the Target Score in Table 150.0-I [add reference to table(s) for additional climate zones, if applicable). In addition, all mandatory measures listed in Table 150.0-J shall be installed. Measure verification shall be explicitly included as an addendum to the Certificate of Compliance to be filed pursuant to 2025 Title 24, Part 6, Section 10-103.

Installed measures shall meet the specifications in Table 150.0-K. Building vintage is the year in which the original construction permit for the building was submitted, as documented by building department records, or the permit issue date of an addition or alteration that satisfied the Performance Standards (California Energy Code, Title 24, Part 6, Section 150.1(b)) that were in effect at that time. Unless otherwise specified, the requirements shall apply to the entire dwelling unit, not just the additional or altered portion. Measures from the Measure Menu table that are to be installed to satisfy requirements under the California Energy Code, Title 24, Part 6, may not count towards compliance with these requirements. Where these requirements conflict with other California Energy Code requirements, the stricter requirements shall prevail.

Standard Exceptions Related to “Covered Projects”

**Exception** [x] **to Section 150.0(w)**: Creation of a new accessory dwelling unit or junior accessory dwelling unit that is within the existing space of a single family dwelling or accessory structure and include an expansion of not more than 150 square feet beyond the same physical dimensions as the existing accessory structure. An expansion beyond the physical dimensions of the existing accessory structure shall be limited to accommodating ingress and egress.[[2]](#footnote-3) Or, if the project would not otherwise be a Covered Single Family Project were it not for the inclusion of an accessory dwelling unit or junior accessory dwelling unit that meets the criteria above.

**Exception** [x] **to Section 150.0(w)**: Mobile Homes, Manufactured Housing, or Factory-built Housing as defined in Division 13 of the California Health and Safety 12 Code (commencing with Section 17000 of the Health and Safety Code).

**Exception** [x] **to Section 150.0(w)**: Emergency Housing pursuant to Appendix P of the California Building Code.

**Exception**[x] **to Section 150.0(w)**: An alteration that consists solely of roof and/or fenestration projects.

Exceptions Related to Infeasibility [chose/modify one of the options below]

**Exception** [x] **to Section 150.0(w)**: Due to conditions specific to the project, it is technically or economically infeasible to achieve compliance, the Building Administrator may reduce the Target Score and/or waive some or all of the mandatory requirements. [See exceptions form for guidance]

**Exception** [x] **to Section 150.0(w)**: If the project includes circumstances which constitute hardship or infeasibility, the applicant may request an exemption. In applying for an exemption, the burden is on the applicant to show hardship or infeasibility. Circumstances that constitute hardship or infeasibility shall include one or more of the following:

* 1. That the cost of achieving compliance exceeds 20% [or other amount] of the valuation of cost of the project;
  2. That it is technically infeasible to achieve compliance through all packages due to conditions specific to the project;
  3. That strict compliance with these standards would create or maintain a hazardous condition(s) and present a life safety risk to the occupants.

1. Application. Based on the following, the applicant shall identify in writing the specific requirements of the standards for compliance that the project is unable to achieve and the circumstances that make it a hardship or infeasible for the project to comply with this chapter. The applicant may not petition for relief from any requirement of the 2025 California Energy Code (Title 24, Part 6) and referenced standards, or the 2025 California Green Building Standards (Title 24, Part 11) of the California Building Standards Code. Granting of exemption. If the chief building official determines that it is a hardship or infeasible for the applicant to fully meet the requirements of this chapter and that granting the requested exemption will not cause the building to fail to comply with the 2025 California Energy Code (Title 24, Part 6) and referenced standards, or the 2025 California Green Building Standards (Title 24, Part 11) of the California Building Standards Code, the authority having jurisdiction shall determine the minimum feasible threshold of compliance reasonably achievable for the project. If an exemption is granted, the applicant shall be required to comply with this chapter in all other respects and shall be required to achieve the threshold of compliance determined to be achievable by the chief building official.
2. Denial of exemption. If the chief building official determines that it is reasonably possible for the applicant to fully meet the requirements of this chapter, the request shall be denied, and the applicant shall be notified of the decision in writing. The project and compliance documentation shall be modified to comply with the standards for compliance.
3. Appeal. Any aggrieved applicant or person may appeal the determination of the chief building official regarding the granting or denial of an exemption or compliance with any other provision of this chapter. An appeal of a determination of the chief building official shall be filed in writing with the [specify appropriate body].

Standard Exceptions Related to Measures and Compliance

**Exception**[x] **to Section 150.0(w)**: If the applicant demonstrates, using Commission-certified compliance software as specified by Section 10-109(c) and Section 10-116, that the Energy Budget of the Proposed Building Design would be less than or equal to the Energy Budget of the building under the project if it included any set of measures that would achieve compliance under this Section 150.0(w).[[3]](#footnote-4)

**Exception**[x] **to Section 150.0(w):** If the dwelling unit has previously installed measures from the Measure Menu, Table 150.0-I, and compliance can be demonstrated to the building official, then these measures shall not be required to be newly installed, and appropriate credit shall be included in the applicable compliance calculations.

**Exception** [x] **to Section 150.0(w)**: A measure that is necessary for compliance is prohibited because of a covenant or other deed restriction on the property, such as a homeowners association covenant.

See Attachment 2 for optional exceptions.

[Use the [**Cost-Effectiveness Explorer**](https://explorer.localenergycodes.com/) to generate customized tables to replace the sample tables below. If there is more than one climate zone in the jurisdiction add a second table 150.0-J(CZ-xx). Options: Define a separate Target Score for smaller projects. Limit the scope to specific vintages or combine vintages and use values for the newest vintage.]

Table 150.0-I: Target Scores

|  |  |  |  |
| --- | --- | --- | --- |
| **Building Vintage** | **Pre-1978** | **1978-1991** | **1992-2010** |
| **Climate Zone** [XX] |  |  |  |
| **Climate Zone** [YY] |  |  |  |

Table 150.0-J[-CZxx]: Measure Menu, Climate Zone [XX]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Measures** | **Building Vintage** | | |
| **Pre-1978** | **1978-1991** | **1992-2010** |
| E1 | Lighting Measures | Mandatory | | |
| E2 | Water Heating Package |  |  | Insert values from Cost Effectiveness Explorer |
| E3 | Air Sealing |  |  |  |
| E4.A | R-38 Attic Insulation |  |  |  |
| E4.B | R-49 Attic Insulation |  |  |  |
| E5 | Duct Sealing |  |  |  |
| E6.A | New Ducts, R-6 Insulation + Duct Sealing |  |  |  |
| E6.B | New Ducts, R-8 Insulation + Duct Sealing |  |  |  |
| E7 | Windows |  |  |  |
| E8 | Wall Insulation |  |  |  |
| E10.A | R-19 Raised floor insulation |  |  |  |
| E10.B | R-30 Raised floor insulation |  |  |  |
| E10 | Cool Roof |  |  |  |
| E11 | Radiant Barrier Under Roof |  |  |  |
| FS1 | Heat Pump Water Heater Replacing Gas |  |  |  |
| FS2 | High Eff. Heat Pump Water Heater Replacing Gas |  |  |  |
| FS3 | Heat Pump Water Heater Replacing Electric |  |  |  |
| FS4 | High Eff. Heat Pump Water Heater Replacing Electric |  |  |  |
| FS5 | Heat Pump Space Conditioning System |  |  |  |
| FS6 | High Eff. Heat Pump Space Conditioning System |  |  |  |
| FS7 | Dual Fuel Heat Pump Space Conditioning System |  |  |  |
| FS8 | Heat Pump Clothes Dryer |  |  |  |
| FS9 | Induction Cooktop |  |  |  |
| PV | Solar PV [and Electric Readiness] |  |  |  |

**Table 150.0-K: Measure Specifications**

|  |  |
| --- | --- |
| **ID** | **Measure Specification** |
|  | **Energy Efficiency Measures** |
| E1 | Lighting Measures – Install lighting with an efficiency of 45 lumens per watt or greater in all interior and exterior screw-in fixtures. Install photocell, occupancy sensor or energy management system controls that meet the requirements of 150.0(k)3 in all outdoor lighting permanently mounted to a residential building or to other buildings on the same lot. |
| E2 | Water Heating Package: Insulate all accessible hot water pipes with pipe insulation a minimum of ¾ inch thick. This includes insulating the supply pipe leaving the water heater, piping to faucets underneath sinks, and accessible pipes in attic spaces or crawlspaces. Upgrade fittings in sinks and showers to meet current California Green Building Standards Code (Title 24, Part 11) Section 4.303 water efficiency requirements.  Exception: Upgraded fixtures are not required if existing fixtures have rated or measured flow rates of no more than ten percent greater than 2025 California Green Building Standards Code (Title 24, Part 11) Section 4.303 water efficiency requirements. |
| E3 | Air Sealing: Seal all accessible cracks, holes, and gaps in the building envelope at walls, floors, and ceilings. Pay special attention to penetrations including plumbing, electrical, and mechanical vents, recessed can light luminaires, and windows. Weather-strip doors if not already present. Verification shall be conducted following a prescriptive checklist that outlines which building aspects need to be addressed by the permit applicant and verified by an inspector. Compliance can also be demonstrated with blower door testing conducted by a certified ECC Rater no more than three years prior to the permit application date that either: a) shows at least a 30 percent reduction from pre-retrofit conditions; or b) shows that the number of air changes per hour at 50 Pascals pressure difference (ACH50) does not exceed ten for Pre-1978 vintage buildings, seven for 1978 to 1991 vintage buildings and five for 1992-2010 vintage buildings. If combustion appliances are located within the pressure boundary of the building, conduct a combustion safety test by a certified ECC Rater or a professional certified by the Building Performance Institute, in accordance with the BPI Technical Standards for the Building Analyst Professional. |
| E4.A | R-38 Attic Insulation: Attic insulation shall be installed to achieve a weighted assembly U-factor of 0.025 or insulation installed at the ceiling level shall have a thermal resistance of R-38 or greater for the insulation alone. Recessed downlight luminaires in the ceiling shall be covered with insulation to the same depth as the rest of the ceiling. Luminaires not rated for insulation contact must be replaced or fitted with a fire-proof cover that allows for insulation to be installed directly over the cover.  Exception: In buildings where existing R-30 is present and existing recessed downlight luminaires are not rated for insulation contact, insulation is not required to be installed over the luminaires. |
| E4.B | R-49 Attic Insulation: Attic insulation shall be installed to achieve a weighted assembly U-factor of 0.020 or insulation installed at the ceiling level shall have a thermal resistance of R-49 or greater for the insulation alone. Recessed downlight luminaires in the ceiling shall be covered with insulation to the same depth as the rest of the ceiling. Luminaires not rated for insulation contact must be replaced or fitted with a fire-proof cover that allows for insulation to be installed directly over the cover. Exception: In buildings where existing R-30 is present and existing recessed downlight luminaires are not rated for insulation contact, insulation is not required to be installed over the luminaires. |
| E5 | Duct Sealing: Air seal all space conditioning ductwork to meet the requirements of the 2025 Title 24, Part 6, Section 150.2(b)1E. The duct system must be tested by a ECC Rater no more than three years prior to the Covered Single Family Project permit application date to verify the duct sealing and confirm that the requirements have been met. This measure may not be combined with the New Ducts and Duct Sealing measure in this Table.  Exception: Buildings without ductwork or where the ducts are in conditioned space. |
| E6.A | [Climate Zones 3, 5,6,7] New Ducts, R-6 insulation + Duct Sealing: Replace existing space conditioning ductwork with new R-6 ducts that meet the requirements of 2025 Title 24 Section 150.0(m)11. This measure may not be combined with the Duct Sealing measure in this Table. To qualify, a preexisting measure must have been installed no more than three years before the Covered Single Family Project permit application date. |
| E6.B | [Climate Zones 1,2,4, 8-16] New Ducts, R-8 insulation + Duct Sealing: Replace existing space conditioning ductwork with new R-8 ducts that meet the requirements of 2025 Title 24 Section 150.0(m)11. This measure may not be combined with the Duct Sealing measure in this Table. To qualify, a preexisting measure must have been installed no more than three years before the Covered Single Family Project permit application date. |
| E7 | Windows: Replace at least 50% of existing windows with high performance windows with an area-weighted average U-factor no greater than [0.27 in Climate Zones 1-5, 11-14, 16 or 0.30 in Climate Zones 6-10, 15]. |
| E8 | R-15 Wall Insulation: Install wall insulation in all exterior walls to achieve a weighted U-factor of 0.095 or install wall insulation in all exterior wall cavities that shall result in an installed thermal resistance of R-15 or greater for the insulation alone. |
| E9 | Reserved for future use |
| E10.A | R-19 Floor Insulation: Raised-floors shall be insulated such that the floor assembly has an assembly U-factor equal to or less than U-0.037 or shall be insulated between wood framing with insulation having an R-value equal to or greater than R-19. |
| E10.B  Alternate | R-30 Floor Insulation: Raised-floors shall be insulated such that the floor assembly has an assembly U-factor equal to or less than U-0.028 or shall be insulated between wood framing with insulation having an R-value equal to or greater than R-30. |
| E11 | [Climate Zones 6-15 only. This item can be required as a mandatory measure for a reroofing project. See Decision Guide for details.] Cool Roof: Install a cool roof on at least 50% of the roof area. For steep-sloped roofs (ratio of rise to run greater than 2:12) install a roofing product rated by the Cool Roof Rating Council to have an aged solar reflectance equal to or greater than 0.25 and a thermal emittance equal to or greater than 0.75. |
| E12 | Radiant Barrier: A radiant barrier that meets the requirements of Section 150.1(c)2 shall be installed under at least 50% of the roof surface. |
|  | **Fuel Substitution and Solar PV Measures** |
| FS1 | Heat Pump Water Heater (HPWH) Replacing Gas: Replace existing natural gas water heater with a heat pump water heater that meets the requirements of Sections 110.3 and 150.2(b)1.H.iii.b. |
| FS2 | High Efficiency Heat Pump Water Heater (HPWH) Replacing Gas: Replace existing natural gas water heater with heat pump water heater with a Northwest Energy Efficiency Alliance (NEEA) Tier 3 or higher rating that also meets the requirements of Sections 110.3 and 150.2(b)1.H.iii.c. |
| FS3 | Heat Pump Water Heater (HPWH) Replacing Electric: Replace existing electric resistance water heater with a heat pump water heater that meets the requirements of Sections 110.3 and 150.2(b)1.H.iii.b. |
| FS4 | High Efficiency Heat Pump Water Heater (HPWH) Replacing Electric: Replace existing electric resistance water heater with heat pump water heater with a Northwest Energy Efficiency Alliance (NEEA) Tier 3 or higher rating that also meets the requirements of Sections 110.3, and 150.2(b)1.H.iii.c. |
| FS5 | Heat Pump Space Conditioning System: Replace all existing gas and electric resistance primary space heating systems with an electric-only heat pump system that meets the requirements of Sections 110.3, 150.2(b)1.C, 150.2(b)1.E, 150.2(b)1.F, and 150.2(b)1.G. |
| FS6 | High Efficiency Heat Pump Space Conditioning System: Replace all existing gas and electric resistance primary space heating systems with a system that meets the requirements of Sections 110.3 and 150.2(b)1.C, 150.2(b)1.E, 150.2(b)1.F, and 150.2(b)1.G and one of the following:   1. A ducted electric-only heat pump system with a SEER2 rating of 16.5 or greater, an EER2 rating of 12.48 or greater and an HSPF2 rating of 9.5 or greater; or 2. A ductless mini-split heat pump system with a SEER2 rating of 14.3 or greater, an EER2 rating of 11.7 or greater and an HSPF2 rating of 7.5 or greater |
| FS7 | Dual Fuel Heat Pump Space Conditioning System: Install a heat pump space conditioning system that meets the requirements of Sections 110.3 and 150.2(b)1.C, 150.2(b)1.E, 150.2(b)1.F, and 150.2(b)1.G and either:   1. Replaces all existing gas and electric resistance primary heating systems with a hybrid gas and electric heat pump system, or 2. Is an electric-heat pump system in tandem with a gas furnace and controls to use the gas furnace for backup heat only. |
| FS8 | Heat Pump Clothes Dryer: Replace existing electric resistance clothes dryer with heat pump dryer with no resistance element and cap gas line. |
| FS9 | Induction Cooktop: Replace all existing gas and electric resistance stove tops with inductive stove top and cap the gas line. |
| PV.A | Solar PV: Install a solar PV system that meets the requirements of Section 150.1(c)14. |
| PV.B  Alternate | Solar PV + Electric Readiness: Install a solar PV system that meets the requirements of Section 150.1(c)14. In addition, for existing PV systems that had been installed prior to the application date of the current project, [option – delete previous phrase to require readiness for new PV systems as well] meet at least two [or more] of the electric readiness requirements in Sections 150.0(x) 1 through 5 [edit reference if needed] and provide an all-electric plan that meets the requirements of 150.0(x)7. |

### Electric Readiness Requirements

**A new Section, (x), is added to Section 150.0 as follows:**

1. Electric Readiness for Alterations
   1. Electric range. Where branch circuits or receptacles are added or altered in a kitchen and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:
      1. A 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor branch circuit rated at 50 amps minimum, within 3 feet from the appliance and accessible to the appliance with no obstructions. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future Use”.
      2. A pathway for a future 240 volt 50 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future electric range installation. The reserved space shall be permanently marked as “For Future 240V use”. The raceway or conductors shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.
   2. Electric dryer. *[Optional. See footnote[[4]](#footnote-5).]* Where a branch circuit is added or altered within three feet of a gas or propane clothes dryer and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:
      1. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor branch circuit rated at 30 amps minimum, within 3 feet from the appliance and accessible to the appliance with no obstructions. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future Use”**;** or,
      2. A pathway for a future 240 volt 30 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future heat pump dryer installation. The reserved space shall be permanently marked as “For Future 240V use”. The raceway or conductors shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.
   3. Heat pump water heater.
      1. If wall framing is removed or replaced within three feet of a gas or propane water heating appliance, space suitable for the future installation of a heat pump water heater (HPWH) shall be provided. The space shall be at least 2.5 feet by 2.5 feet wide and 7 feet tall and shall include a condensate drain that is no more than 2 inches higher than the base of an installed water heater and allows natural draining without pump assistance or installed piping or tubing within three feet of the water heater location to a condensate drain or exterior location. If pump assistance is needed, a receptacle on a 120 volt, minimum 15 amp branch circuit for a condensate pump must be available within 3 feet of the water heater location.
      2. Where branch circuits are altered or added within three feet of an existing gas or propane water heater or within 10 feet of the designated future location of a heat pump water heater as required under Section 150.0(x)3A, and the work requires an electrical permit, install electrical components in accordance with the California Electrical Code. The electrical components shall include either of the following:
         1. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit rated at 30 amps minimum, within 3 feet from the water heater and accessible to the water heater with no obstructions. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated. Space shall be reserved for a single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words “Future 240V Use”; or
         2. A pathway for a future 240 volt 30 amp minimum branch circuit that shall consist of either conductors or raceway from the main electrical service panel. The main electric panel shall have space reserved to allow for the installation of a double pole circuit breaker for a future HPWH installation. The reserved space shall be permanently marked as “For Future 240V use”. The pathway shall terminate at a junction box within three feet of the appliance. The blank cover shall be identified as “240V ready”.

[Item 4 is optional. It would require additional design work depending upon the gas appliance.]

* 1. Outdoor gas appliances. Where a gas line is added or extended to any pool water heater, spa water heater, sauna, fireplace, outdoor cooking appliance, or outdoor heating system, install infrastructure and reserve physical space to accommodate future installation of an electric equivalent of that system that serves the same function, as certified by a registered design professional or licensed electrical contractor.

1. Install conduit designed to serve a future electric appliance(s) with the same function, including the appropriate voltage, phase, minimum amperage, and an electrical receptacle or junction box within five feet of the appliance that is accessible with no obstructions, in accordance with manufacturer requirements and the California Electrical Code. In lieu of or in addition to conduit, electrically isolated branch circuit wiring may be installed; and
2. Label both ends of the unused conduit or conductors “For Future Electrical Appliance”; and
3. Reserve circuit breakers in the electrical panel(s) for each branch circuit, appropriately labeled; and
4. Designate physical space for future electric appliances, including equipment footprint, on the construction drawings. The footprint necessary for future electric appliances may overlap with the location of currently designed combustion equipment.

**Exception to Section 150.0(x)4**: Generator systems used for emergency power generation.

Items 5 and 6 below are optional and may be included if using the alternate PV specification in Table 150.0-K. Otherwise, delete items 5 and 6 and replace all references to 150.0(x)7 with 150.0(x)5.

* 1. Battery Storage. As a measure qualifying the Solar PV credit under 150.0(w), meet requirements A through D below.
     1. At least one of the following shall be provided:
        1. ESS ready interconnection equipment with a minimum backed up capacity of 60 amps and a minimum of four ESS supplied branch circuits, or
        2. A dedicated raceway from the main service to a panelboard (subpanel) that supplies the branch circuits in 150.0(s)2. All branch circuits are permitted to be supplied by the main service panel prior to the installation of an ESS. The trade size of the raceway shall be not less than one inch. The panelboard that supplies the branch circuits (subpanel) must be labeled “Subpanel shall include all backed-up load circuits.”
     2. A minimum of four branch circuits shall be identified and have their source of supply collocated at a single panelboard suitable to be supplied by the ESS. At least one circuit shall supply the refrigerator, one lighting circuit shall be located near the primary egress, and at least one circuit shall supply a sleeping room receptacle outlet.
     3. The main panelboard shall have a minimum busbar rating of 225 amps or sufficient capacity a battery storage system and circuits in paragraphs A and B above. Panel upgrades shall comply with the requirements of Section 150.0(x)7.
     4. Sufficient space shall be reserved to allow future installation of a system isolation equipment/transfer switch within 3 feet of the main panelboard. Raceways shall be installed between the panelboard and the system isolation equipment/transfer switch location to allow the connection of backup power source.
  2. All-Electric Plan. Provide a plan, including single line diagrams and calculations consistent with Section 150.0(x)7, for electrification of the following equipment:
     1. All appliances with gas stub outs including space conditioning, water heating, range, and clothes dryer;
     2. Low Power Level 2 EV charger; and
     3. Battery storage system rated at 240 volts, 60 amp minimum.
  3. Electrical Power Upgrades. Increases in the electrical power infrastructure capacity serving a building shall only be permitted when all the following are documented and submitted to the building official:
     1. Calculations in accordance with California Electrical Code Article 220.83 determining future loads will exceed the capacity of the current electrical power infrastructure.
     2. Where data is available, calculations in accordance with California Electrical Code Article 220.87 determining that future loads exceed the capacity of the current electrical service infrastructure.
     3. Calculations for item (A) and item (B) above shall include at least one of the following:
        1. At least one power management or circuit controlling device, serving electric-only appliances such as:
           1. Water heater(s)
           2. Clothes dryer(s)
           3. Range(s)
           4. Level 2 EV Charging Receptacle or
           5. Low Power Level 2 EV Charging Receptacle
        2. At least one of the following electric-only appliances operating on 120V:
           1. Water heater(s)
           2. Clothes dryers(s)
           3. Range(s)
        3. Circuit control between whole home load and Level 2 EV Charging Receptacle or Low Power Level 2 EV Charging Receptacle

**Exception 1 to Section 150.0(x)7**: The upgrade is solely the result of a project proposing electrical improvements supporting loads related to devices and uses not regulated by 150.0(x)7.

**Exception 1 to Section 150.0(x)**: The project is the result of a repair as defined by Title 24 Part 2 Section 202.

**Exception 2 to Section 150.0(x):** If an electrical permit is not otherwise required for the project other than compliance with this section.

**Exception 3 to Section 150.0(x)**: Where upgrades to the existing electrical panel or utility service are not proposed, electrical panel capacity shall not be required to exceed the existing utility electrical service to the building to meet compliance with this section. Capacity and overcurrent protection spaces shall be reserved to the extent allowable under the existing electrical panel capacity using the methodology in Section 150(x)5. Tandem overcurrent protection devices shall be used to the extent permissible under the California Electrical Code.

**Exception 4 to Section 150.0(x)**: The project is the result of a safety improvement to remove a known hazard.

**Exception 5 to Section 150.0(x)**: Mobile Homes, Manufactured Housing, or Factory-built Housing as defined in Division 13 of the California Health and Safety 12 Code (commencing with Section 17000 of the Health and Safety Code).

**Exception 6 to Section 150.0(x)**: Emergency Housing pursuant to Appendix P of the California Building Code.

**Exception 7 to Section 150.0(x):** Creation of a new accessory dwelling unit or junior accessory dwelling unit that is within the existing space of a single family dwelling or accessory structure and includes an expansion of not more than 150 square feet beyond the same physical dimensions as the existing accessory structure. An expansion beyond the physical dimensions of the existing accessory structure shall be limited to accommodating ingress and egress.[[5]](#footnote-6) Or, if the project would not otherwise be a Covered Single Family Project were it not for the inclusion of an accessory dwelling unit or junior accessory dwelling unit that meets the criteria above.

### Cool Roof Requirements

**Section 150.2(b)I.i is modified to read as follows** [Climate Zones 8-15 only; check Cost Effectiveness Explorer for applicability as a mandatory measure]**:**

i. Steep-sloped roofs. Steep-sloped roofs shall meet the following:

New roofing products ~~in Climate Zones 4 and 8 through 15~~ shall have a minimum aged solar reflectance of ~~0.20~~ 0.25 and a minimum thermal emittance of 0.75, or a minimum SRI of 16.

All exceptions remain unmodified.

## Other Sample Ordinance Sections

Section 2: CEQA

This ordinance is exempt from CEQA under 15061(b)(3) on the grounds that these standards are more stringent than the State energy standards, there are no reasonably foreseeable adverse impacts and there is no possibility that the activity in question may have a significant effect on the environment.

Section 3: Severability

If any word, phrase sentence part, section, subsection or other portion of this amendment or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the prescribed application thereof, shall be severable, and the remaining provisions of this amendment, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect.  The [name of governing body] hereby declares that it would have passed this amendment and each section, subsection sentence, clause and phrase of this amendment, irrespective of the fact that any one or more sections, subsection, sentences, clauses or phrases is declared invalid or unconstitutional.

Section 4: Violations

Violation of the requirements of this Chapter shall be considered an infraction of the [jurisdiction Municipal/County Code], punishable by all the sanctions prescribed in [cite local reference to infractions].

Section 5: Effective Date

This ordinance shall become effective as of ***[DATE]***, upon approval of the California Energy Commission or upon the date the California Building Standards Commission (CBSC) accepts the ordinance for filing, whichever is later.

## Attachment 1

The definition of a “Covered Single Family Project” is at the discretion of the local jurisdiction. Building/permitting staff should be consulted in this process.

The term refers to projects that are subject to the FlexPath Target requirement, **which is separate from the electric-readiness requirements** for other specific project scopes.

The term “Covered Single Family Project” has been suggested here to avoid potential conflict with other terms that might be in use in the local lexicon.

Considerations

* Are there any existing definitions in use at the jurisdiction that could be used or modified for this purpose?
* Should it be based on project valuation, or a combination of valuation and scope?
* If using project scope, should it be based on floor area, extent of work involved, or a combination of both?
* Based on historic permit data, how many projects would be affected?
* Does it need to account for serial permits, i.e., a single project that has a series of permits over the course of its execution. If so, consider language such as: The scope or valuation shall include the sum of all addition or alteration permits issued within the past three years, except that additions or alterations made prior to the initial adoption of this ordinance shall not be counted.
* Should it have different tiers, i.e., higher target scores for more extensive scopes?
* Should it specifically include air conditioner replacements and additions?
* What scopes, other than those in the model ordinance, should be exempted? Should these exceptions be embedded in the definition or listed separately?
* If the jurisdiction has modified the definition of “Newly Constructed Building”, the definition of a Covered Project should exclude such projects or they should be included in the exceptions.
* Under the State Code, the term Single Family, includes duplexes and townhomes. Does this suit the jurisdiction’s needs?

A few possible definitions are offered below.

**COVERED SINGLE FAMILY PROJECT** shall mean any project in a Single Family residential building originally permitted for construction before 2011…

[Option 1]

… that meets any of the following criteria:

1. Any change to an existing building that increases conditioned floor area by [XX] or more square feet in a one-year period
2. Any project that includes an addition and alteration whose altered components cover [ZZ] square feet or greater in a one-year period.
3. Installation or replacement of an air conditioner.

[Option 2]

… that requires an electrical permit, a mechanical permit and a plumbing permit, with the exception of projects with a total valuation of less than $XX,XXX [specify value], or includes installation or replacement of an air conditioner.

[Option 3]

… that includes an addition, of any size or value, or alteration of such a structure with a building permit valuation of $25,000 [or other value] or higher or includes installation or replacement of an air conditioner.

[Option 4]

… with a building permit valuation of $25,000 [or other value] or higher and that includes any of the following: 1. Any additions, or any change, rearrangement or addition, other than a repair, of the structural elements of an existing building including foundations, footing, sub-floors, lintels, beams, columns, girders, slabs, roof trusses, staircases, load bearing walls, door frames, window frames, or any other part of the building that resists force or moment. 2. Change or rearrangement of the plan configuration of walls and full-height partitions of an existing building. 3. Modification of the electrical system, heating or cooling equipment or gas plumbing.

[Option 5. If using this definition, it is recommended to include the optional exception capping the expenditure at 20% (or some other value)]

…that includes an addition, alteration, or remodel or the alteration to such a structure that affects a floor area which exceeds twenty percent (20%) [or other value] of the existing floor area of the structure or has a combined valuation of $25,000 [or other value] or more or includes installation or replacement of an air conditioner. When any changes are made in the building, such as walls, columns, beams or girders, floor or ceiling joists and coverings (subfloor and drywall), roof rafters, roof diaphragms, foundations, piles or retaining walls or similar components, the floor area of all rooms affected by such changes shall be included in computing floor areas for purposes of applying this definition. This definition does not apply to project scopes that are solely limited to any of the following: the replacement and upgrading of residential roof coverings, exterior wall finishes and/or floor finishes; alterations that add no more than 75 square feet of fenestration; alterations that add no more than 16 square feet of skylight area with a maximum U-factor of 0.55 and a maximum SHGC of 0.30; alterations that are limited to providing access for persons with disabilities; and additions of 300 [or other amount] square feet or less.

## Attachment 2

The exceptions below are optional and may be included at the discretion of the jurisdiction.

**Exceptions Related to “Covered Projects”**

**Exception** x **to Section 150.0(w)**: A Covered Single Family Project shall not include a project that is considered to be a newly constructed building under the California Energy Code, Title 24, Part 6, as amended. [Only needed if the jurisdiction has amended the definition of Newly Constructed Building. If Part 2 was amended, edit accordingly.]

**Exception** x **to Section 150.0(w)**: A Covered Single Family Project, other than an addition, that would not otherwise be subject to this section 150.0(w) but for installation of solar PV, solar water heating, EV charging, electrical upgrades for solar PV or EV charging, or energy storage.

**Exception** [x] **to Section 150.0(w)**: The project is solely related to a repair, as defined by Title 24 Part 2 Section 202.

**Exception** x **to Section 150.0(w) and 150.0(x)**: A Covered Single Family Project that consists solely of medically necessary improvements or solely of seismic safety improvements.

**Exceptions Related to Hardship and Expenditure Caps**

**Exception** x **to Section 150.0(w):** [Option 1] Expenditures of more than 10% [or other amount] of the project valuation for a resident owner(s) or owner(s) of a residence occupied by a dependent that can demonstrate that they qualify as a low-income utility customer by being eligible for the California Alternative Rates for Energy (CARE) [or other criterion]. If the least-cost set of measures that would be required for compliance exceeds 10% [or other amount] of the total project valuation, the Target Score may be reduced by subtracting the points associated with the lowest cost measures first, until the cost of the remaining measures does not exceed 10% [or other amount] of the project valuation. The project valuation shall exclude any measures that are required under this Section but shall include all measures that are otherwise required under the State Energy Code, Title 24, Part 6. [This exception is recommended if the definition of Covered Single Family Project does not include a valuation.]

[Option 2] An applicant who resides in the dwelling unit and qualifies as a low-income utility customer, or is the owner of the dwelling unit which is occupied by a dependent who qualifies as a low-income utility customer, may comply by either a) installing the duct sealing measure, the lighting measure and water heating package, or b) installing at least 1 kW of solar PV that meets the requirements of 2025 Title 24 Reference Appendix JA11. A low-income utility customer is anyone who is eligible for the California Alternative Rates for Energy (CARE) or Family Electric Rate Assistance Program (FERA) program [or other criterion].

**Exceptions Related to Measure Compliance**

**Exception** x **to Section 150.0(w)**: The applicant may request an exemption to any requirements of this chapter which would impair the historic integrity of any building listed on a local, state, or federal register of historic structures, as determined by the Planning Director or designee and as regulated by the California Historic Building Code (Title 24, Part 8). In making a determination of exemption, the Planning Director or designee may require the submittal of an evaluation by an architectural historian or similar expert.

1. The results of the 2022 study are applicable to the 2025 code. [↑](#footnote-ref-2)
2. *SB 1211 (2024) could be interpreted to prohibit local building code amendments with respect to certain ADUs, the primary features of which are expressed in this exception.* [↑](#footnote-ref-3)
3. *This exception allows applicants to substitute other measures that can be demonstrated to achieve equivalent savings.* [↑](#footnote-ref-4)
4. Note: this is an optional measure that would provide readiness for a 240 volt heat pump dryer. There are 120 volt products on the market that can operate on circuits as small as 120v/15 amp circuits. [↑](#footnote-ref-5)
5. *SB 1211 (2024) could be interpreted to prohibit local building code amendments with respect to certain ADUs, the primary features of which are expressed in this exception.* [↑](#footnote-ref-6)