**Template for Single Family Flexpath Model Ordinance Language V1 (6/24/2025)**

**ORDINANCE NO. \_\_\_\_\_\_\_\_\_**

**AN ORDINANCE OF THE [GOVERNING BODY]**

**OF THE [CITY/TOWN/COUNTY] OF [JURISDICTION]**

**AMENDING [IDENTIFY SUBPARTS, INCLUDING CHAPTERS, DIVISIONS, ETC.\_\_\_\_\_\_\_ AND \_\_\_\_\_\_\_\_ OF THE [JURISDICTION] CODE] TO ADOPT A LOCAL “REACH” CODE AND ADOPTING FINDINGS JUSTIFYING THE LOCAL AMENDMENTS TO THE [2025 CALIFORNIA ENERGY CODE]**

**WHEREAS,** California Health and Safety Code section 17958 requires that cities adopt building regulations that are substantially the same as those adopted by the California Building Standards Commission and contained in the 2025 California Building Standards Code; and

**WHEREAS,** the 2025 California Energy Code is Part 6 of the 2025 California Building Standards Code which implements minimum energy efficiency standards in buildings through mandatory requirements, prescriptive standards, and performance standards; and

**WHEREAS,** California Health and Safety Code Sections 17958.5, 17958.7 and 18941.5 provide that the [Jurisdiction] may make changes or modifications to the building standards contained in the 2025 California Building Standards Code based upon express findings that such changes or modifications are reasonably necessary because of local climatic, geological or topographical conditions; and

**WHEREAS,** human activities that release greenhouse gasses into the atmosphere contribute to the increase of the worldwide average temperature, drought conditions, and duration of fire seasons; and

**WHEREAS,** according to the California Department of Forestry and Fire Protection, nine of the ten largest wildfires in California history have occurred since 2017, destroying nearly 10,000 structures and burning of more than 4.5 million acres; and

**WHEREAS,** the [Jurisdiction] is situated along a wildland-urban interface and as a result is extremely vulnerable to wildfires and firestorms; and

**WHEREAS,** this Chapter is reasonably necessary because of health and safety concerns as [Jurisdiction] residents suffer from asthma and other health conditions associated with poor indoor and outdoor air quality exacerbated by the combustion of methane gas; and

**WHEREAS**, removing gas appliances from indoor environments reduces the risk of asthma associated with gas appliances, and removing combustible gas from structures aids in fire hardening and removes a known hazard during firefighting efforts; and

**WHEREAS,** on or about September 20, 2016, the State of California enacted Senate Bill (SB) 32, which added Health and Safety Code Section 38566 to require greenhouse gas emissions to be reduced to 40 percent below 1990 levels by no later than December 31, 2030; and

**WHEREAS,** on [date], the [Governing Body] adopted the [Jurisdiction’s] Climate Action Plan which included [relevant CAP details around green reduction in buildings]; and

**WHEREAS,** consistent with the Climate Action Plan, the local amendments to the 2025 California Energy Code establish requirements for [single-family, multifamily, and nonresidential] structures which will reduce demands for local energy resources, reduce regional pollution, and promote a lower contribution to greenhouse gas emissions; and

**WHEREAS,** Public Resources Code Section 25402.1(h)2 and Section 10-106 of the 2025 California Administrative Code establish a process which allows local adoption of energy standards that are more stringent than the statewide Standards, provided that a determination that the standards are cost effective is adopted at a public meeting and subsequently filed with the California Energy Commission, and the California Energy Commission finds that the standards will require buildings to be designed to consume less energy than permitted by the 2025 California Energy Code; and

**WHEREAS,** [Governing Body] of [Jurisdiction] has determined the cost effectiveness studies prepared by the California Statewide Codes and Standards Reach Code Program and associated study data are sufficient to illustrate that the standards contained in this ordinance are cost effective and will require buildings to be designed to consume less energy than permitted by the 2025 California Energy Code; and

**WHEREAS,** the content and details of this ordinance were the subject of a public stakeholder workshop conducted on [Date], which included attendees such as architects, energy modelers, designers, builders, developers, and residents; and

**WHEREAS,** based upon these analyses, the [Governing Body] of [Jurisdiction] finds that the local amendments to the California Energy Code contained in this ordinance have at least one cost effective pathway; and

**WHEREAS,** because of the [Jurisdiction’s] unique local climatic, geologic and topographic conditions, the [Jurisdiction] finds that amendment and additions to the code are reasonably necessary; and

**WHEREAS,** scientific evidence has established that methane gas combustion, procurement and transportation produce significant greenhouse gas emissions that contribute to global warming and climate change; and

**WHEREAS,** using electric appliances in buildings fueled by less greenhouse gas intensive electricity is linked to significantly lower greenhouse gas emissions and is cost competitive because of the cost savings associated with avoiding new gas infrastructure; and

**WHEREAS,** the most cost-effective time to improve the energy efficiency of existing buildings is during significant alterations and additions, allowing for electrical infrastructure that is installed alongside other significant improvements; and

**WHEREAS,** that, pursuant to the Public Resources Code section 25402.1(h)(2) and Section 10-106 of the 2025 California Administrative Code, the [Governing Body] of [Jurisdiction] finds and determinesthe following: (1) The locally adopted energy efficiency standards contained in this ordinance are cost-effective, and (2) the efficiency standards in this ordinance will require buildings to be designed to consume less energy compared to the 2025 California Energy Code; and

**THEREFORE, BE IT ORDAINED,** by the [Governing Body] of [Jurisdiction] as follows:

1. Incorporation of Recitals. The foregoing recitals are found to be true and correct, and are incorporated by this reference into this action;
2. Purpose. It is the purpose and intent of this Ordinance to establish standards for [single-family residential retrofits including major additions and alterations] that exceed minimum 2025 Title 24 Part 6 requirements. [alternate description: In addition to all requirements of the California Energy Code applicable to Single Family building additions and alterations, the energy efficiency and renewable energy measures specified in Section 150.0(w) shall be required for certain single family additions and alterations.]
3. Adoption. The local amendments to the [chapter, section, or part of local Building Code] as specified below are hereby adopted by the [Governing Body] of [Jurisdiction] to be codified under [relevant municipal statutes]. The [Governing Body] of [Jurisdiction] adopts the Recitals herein as separate and additional findings of fact in support of adoption of the ordinance.
4. 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.
5. Findings. The [Governing Body] of [Jurisdiction] finds that each of the changes or modifications to measures referred to therein are reasonably necessary because of local climatic, geological, or topographical conditions in the area encompassed by the boundaries of the [Jurisdiction], and the [Governing Body] adopts the following findings in support of local necessity for the changes or modifications:
6. [Jurisdiction] is along a wildland-urban interface which experiences more fire fueled by greenhouse gas emissions from humans.
7. [Jurisdiction] has a history of flooding disasters that occurred in YYYY, YYYY, and YYYY and decreasing greenhouse gas emissions will prevent increases in severity or duration of flooding disasters.
8. During flooding events, stormwater inundated the wastewater treatment system in YYYY and YYYY. To the extent that climate change has the potential to make these conditions worse, more restrictive Energy Code requirements to achieve reduced greenhouse gas emissions are necessary.
9. [Jurisdiction] has a history of wildfire disasters that occurred in YYYY, YYYY, and YYYY and decreasing greenhouse gas emissions will prevent increases in severity or duration of wildfire disasters. Therefore, the above-described findings support the imposition of measures to increase the efficiency of existing buildings in the [Jurisdiction] to reduce greenhouse gas emissions.
10. Failure to address and substantially reduce greenhouse gas emissions creates an increased risk to the health, safety, and welfare of [Jurisdiction] residents.
11. Pursuant to the Public Resources Code section 25402.1(h)(2) and Section 10-106 of the 2025 California Administrative Code, the [Governing Body] of [Jurisdiction] finds and determines the following: (1) The locally adopted energy efficiency standards contained in this ordinance are cost-effective, and (2) the efficiency standards in this ordinance will require buildings to be designed to consume less energy compared to the 2025 California Energy Code.
12. The standards imposed by this Ordinance are necessary because of local climatic, geological, or topographical conditions evidenced above and are cost-effective, as supported by the 2025 Statewide Cost Effectiveness Study prepared by the California Energy Codes and Standards Statewide Utility Program. Specifically, the [Jurisdiction] finds that there are at least [three] cost effective measure packages:
    * 1. Package 1, installing the efficiency measure of R-30 Floor Insulation would save energy relative to the base code and would achieve a benefit to cost ratio of 2.3 on an on-bill basis.
      2. Package 2, installing the efficiency measure of RI-19 Floor Insulation would save energy relative to the base code and would achieve a benefit to cost ratio of 2.3 on an on-bill basis.
      3. Package 3 Package 3 to installing a Heat Pump Water Heater (HPWH), would save energy relative to the base code and would achieve a benefit to cost ratio of 1.6 on a “Long-term System Cost” (LSC basis).
13. CEQA. This ordinance is categorically exempt from CEQA because it is an action taken by a regulatory agency for the purpose of protecting the environment (CEQA Guidelines Section 15308). In addition, this ordinance is exempt from CEQA under the general rule, 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. The following findings are made in support of these determinations:
14. The purpose of the implementation of a Reach Code is to reduce the amount of greenhouse gas emissions in the [Jurisdiction] that are produced from buildings.
15. The Reach Code approval process requires that the [Jurisdiction] determines that the local standards will require buildings to be designed to consume less energy than current statewide requirements. Furthermore, the California Energy Commission approval process requires that the [Jurisdiction] make the findings as part of its approval process. Therefore, the Reach Code standards can only go into effect if they protect the environment by making buildings more efficient.
16. .Violations. Violation of the requirements of this Ordinance shall be considered, at the [Jurisdiction’s] election, an infraction of the [Jurisdiction’s Municipal Code] punishable by all sanctions prescribed in [Chapter Y], or an administrative violation punishable as provided under [Chapter X].
17. Effective Date. This ordinance shall become effective as of January 1, 2026, 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.
18. Ordinance Summary. A summary of this ordinance, together with the names of [Governing Body] members voting for and against, shall be published at least XX days prior to its final passage, in [local publication], a newspaper published and circulated in [Jurisdiction]. This ordinance shall go into effect at the expiration of [thirty (30) days] after its final passage.

**THEREFORE,**  the [Governing Body] of [Jurisdiction] adopts the California Energy Code, 2025 Edition, Title 24, Part 6 of the California Code of Regulations in its full form with the following local amendments:

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

(i) 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 and renewable energy measures specified in Section 150.0(w) shall be required for certain single family additions and alterations.

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

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

[Option 1: 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: requires an electrical permit, a mechanical permit and a plumbing permit, with the exception of projects with a total valuation of less than [Valuation trigger], 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 [Valuation trigger] or higher or includes installation or replacement of an air conditioner.]

[Option 4: with a building permit valuation of [Valuation trigger] 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. 3. Modification of the electrical system, heating or cooling equipment or gas plumbing.]

[Option 5: includes an addition, alteration, or remodel or the alteration to such a structure that affects a floor area which exceeds [square footage trigger] of the existing floor area of the structure or has a combined valuation of [valuation trigger] 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 [square footage minimum] square feet or less.]

*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(w).

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).

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

(w) 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.

1. **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. 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.
2. **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).
3. **150.0(w):** Emergency Housing pursuant to Appendix P of the California Building Code.
4. **150.0(w)**: An alteration that consists solely of roof and/or fenestration projects.

[Optional Exceptions related to “Covered Projects”]

1. **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 if the definition of Newly Constructed Building has been amended. If Part 2 was amended, edit accordingly.]
2. **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.
3. **150.0(w):** The project is solely related to a repair, as defined by Title 24 Part 2 Section 202.
4. **150.0(w):** A Covered Single Family Project that consists solely of medically necessary improvements or solely of seismic safety improvements.
5. **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).
6. **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.
7. **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

[Optional Exceptions Related to Measures and Compliance]

1. **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

[Exceptions Related to Infeasibility]

1. **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.
2. **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:
3. That the cost of achieving compliance exceeds [valuation limit] of the valuation of cost of the project;
4. That it is technically infeasible to achieve compliance through all packages due to conditions specific to the project;
5. 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 [appropriate body].

[Exceptions related to hardship and expenditure caps]

[Option 1]

1. **150.0(w):** Expenditures of more than [specify percentage] 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 [specify percentage] 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]

1. **150.0(w):** 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].

*Table 150.0-I: TARGET SCORES*

|  |  |  |  |
| --- | --- | --- | --- |
| **Building Vintage** | **Pre-1978** | **1978-1991** | **1992-2010** |
| **Climate Zone [A]** |  |  |  |
| **Climate Zone [B]** |  |  |  |

*Table 150.0-J: MEASURE MENU [, Climate Zone A]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 |  |  |  |
| 1 | Cool Roof (CZ 4 only) |  |  |  |
| E12 | 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 |  |  |  |

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 | [Climate Zone 3] 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 | [Climate Zone 4] 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. |
| 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 Zone 4 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. |
| E112 | 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 + 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 4 *[edit reference if needed.]* |

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

(x) **Electric Readiness for Alterations**

1. **Electric range.** 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.** 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. The electrical components shall include either of the following:

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

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”.

1. **Outdoor gas appliances.** 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(w)4**: Generator systems used for emergency power generation.