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

This program is funded by California utility customers and administered by Pacific Gas and Electric Company, San Diego Gas & Electric Company (SDG&E®), and Southern California Edison Company under the auspices of the California Public Utilities Commission and in support of the California Energy Commission.

Low-Rise Multifamily Renovation 2022 Model Reach Code

**Version 1.1**

**August 10, 2022**

## Changes from Prior Versions

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

Changes to Version 1.1:

* Modified definition of All-Electric to extend to gas lines within the property lines and enumerated additional end uses.
* Added another possible definition for Covered Project.
* Modified definition of Covered Project to specifically exclude buildings built after 2011.

## Scope

* Units in low-rise (3 stories or less) residential buildings must install a prescriptive set of measures (all that are applicable) as part of a remodel
* Cool roof required when reroofing (50% or more)
* Exempts all-electric (non-resistance) dwelling units from requirements, other than cool roofs
* Applies to dwelling units only (not common areas), except for roofs
* Covered Project is a combination of valuation per unit and scope of project. Multi-unit project valuations are apportioned by unit.
* PV required at Tier 2 (optional)
* Electric Readiness required for certain scopes
* Standard exceptions

## Introduction

This document is supported by the [Cost Effectiveness Explorer](https://explorer.localenergycodes.com/), an interactive tool that allows users to customize requirements and estimate the projected impacts in their community.

The model ordinance amends the 2022 California Energy Code, effective January 1, 2023 through December 31, 2025. It is based on the [*2019 Cost Effectiveness Study: Existing Multifamily Residential Building Upgrades.*](https://localenergycodes.com/download/986/file_path/fieldList/Low-rise%20Multifamily%20Retrofits-Cost-eff%20Report.pdf)

Any amendments to the Energy Code (Title 24, Part 6) appear in strikeouts (deletions) and underlines (additions). These amendments 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) and must also 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.

ORDINANCE AMENDING THE [CITY/COUNTY OF JURISDICTION] BUILDING CODE TO REQUIRE HIGHER ENERGY PERFORMANCE FOR LOW-RISE MULTIFAMILY REMODELS

## 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.

### Purpose

Section 100.0 is modified to add new sections (i) and (j) as follows:

1. Reserved [for single family remodel reach code]
2. Multifamily Building Remodel Energy Reach Code - Purpose and Intent.

In addition to all requirements of the California Energy Code applicable to low-rise multifamily residential remodel projects, the measures specified in Section 180.2(c) and (d) shall be required for certain projects.

### Definitions

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

**ALL-ELECTRIC UNIT** is a dwelling unit in a building that contains no combustion equipmentor plumbing for combustion equipment (except for abandoned gas lines) serving space heating (including fireplaces), water heating (including pools and spas), cooking appliances (including barbeques), and clothes drying, within the unit and instead uses electric heating appliances for service. An All-Electric Unit may include solar thermal collectors. [Modify end uses as needed. The reference to solar thermal panels clarifies that solar thermal is an allowed energy source for heating.]

**LOW-RISE MULTIFAMILY COVERED PROJECT**

*Note: The definition of a “Covered Project” is at the discretion of the local jurisdiction. Examples are offered below. Building/Permitting staff should be consulted in this process.* It is important to consider how certain triggers (e.g., modification of HVAC) might impact permit applications.

[Option 1] shall mean a project in any particular dwelling unit in a low-rise (three habitable stories or less) multifamily building, originally permitted for construction before 2011 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].

[Option 2] shall mean a project in any particular dwelling unit in a low-rise (three habitable stories or less) multifamily building, originally permitted forconstruction before 2011, 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: “The valuation shall include the sum of all addition or alteration permits issued within the past three years.”]* A Covered Project shall not include a project that is considered to be a newly constructed building under the California Energy Code, Title 24, Part 6. Where the project scope affects multiple dwelling units, each dwelling unit shall be considered as a separate project and the valuation shall be apportioned to each dwelling unit according to the specific scope for each unit.

[Option 3] shall mean a project in any particular dwelling unit in a low-rise (three habitable stories or less) multifamily building, originally permitted forconstruction before 2011, 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]. A Covered Project shall not include a project that is considered to be a newly constructed building under the California Energy Code, Title 24, Part 6. Where the project scope affects multiple dwelling units, each dwelling unit shall be considered as a separate project and the valuation shall be apportioned to each dwelling unit according to the specific scope for each unit.

**QUALIFIED ALL-ELECTRIC BUILDING** or **QUALIFIED ALL-ELECTRIC UNIT** is an All-Electric Building, or All-Electric Unit, that does not use electric-resistance space or water heating. [Optional: …other than as allowed for water heating in dwelling units under 500 square feet under Exception 2 to Section 150.1(c)8; this exception shall also apply to units in multifamily buildings.]

## Requirements

The first two paragraphs of Section 180.0, MULTIFAMILY BUILDINGS - ADDITIONS, ALTERATIONS, AND REPAIRS TO EXISTING MULTIFAMILY BUILDINGS, are modified as follows:

Additions, alterations, and repairs to existing attached dwelling units and common use areas in multifamily buildings, existing outdoor lighting for these occupancies, and internally and externally illuminated signs, shall meet the requirements specified in Sections 100.0 through 110.10, and 160.1, and 160.3 through 170.2 that are applicable to the building project, and either the performance compliance approach (energy budgets) in Section 180.1(b) (for additions) or 180.2(c) (for alterations), or the prescriptive compliance approach in Section 180.1(a) (for additions) or 180.2(b) (for alterations), for the Climate Zone in which the building is located. Climate zones are shown in FIGURE 100.1-A. In addition, a Low-Rise Multifamily Covered Project, other than a project in a Qualified All-Electric Unit, shall meet the requirements specified in Section 180.2(d), and any reroofing project in a low-rise (three habitable stories or less) Multifamily Building shall meet the requirements specified in Section 180.2(e). [Exclude the last phrase if cool roofs are not cost-effective in the local climate zone.]

Covered process requirements for additions, alterations and repairs to existing multifamily buildings are specified in Section 141.1 and Section 180.2(d) and (e). [Exclude “and (e)” if cool roofs are not cost-effective in the local climate zone.]

A new Section, (d), is added to Section 180.2 as follows:

A Low-Rise Multifamily Covered Project, other than a project in a Qualified All-Electric Unit(s) shall be required to install all applicable measures as required by vintage [and climate zone] in Table 180.2–F, in accordance with the specifications in Table 180.2-G. Measure verification shall be explicitly included as an addendum to the Certificate of Compliance *[form under development]* to be filed pursuant to 2022 Title 24 Section 10-103.  Building vintage is the year in which the original construction permit for the building was submitted, as documented by building department records. Unless otherwise specified, the requirements shall apply to the entire dwelling unit, not just the additional or altered portion.   Where these requirements conflict with other Energy Code requirements, the stricter requirements shall prevail.

Where a package is specified as “Required” in Table 180.2-F, all the individual measures in the package shall be installed unless any individual measure in the package is either not applicable or excepted, in which event only the individual measures specified below as “Required” in Table 180.2-F need to be installed.

[Insert Table from Explorer. Delete redundant (lower order) packages. Delete measures without requirements.]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 180.2-F: Required Measures** | | | | |
|  |  | **Building Vintage** | | |
| **Measure** | **Table 180.2-G ID** | **Pre-1978** | **1978-1991** | **1992-2010** |
| R49 Attic Insulation and Air Sealing measures | P1 |  |  |  |
| R49 Attic Insulation and Duct Sealing measures | P2 |  |  |  |
| R49 Attic Insulation, Air Sealing and Duct Sealing measures | P3 |  |  |  |
| R49 Attic Insulation, Air Sealing and New Duct measures | P4 |  |  |  |
| R-49 Attic Insulation, Air Sealing, Duct Sealing, Windows and R-13 Wall Insulation measures | P5 |  |  |  |
| Lighting | E1 |  |  |  |
| Water Heating Package | E2 |  |  |  |
| Air Sealing | E3 |  |  |  |
| R49 Attic Insulation | E4 |  |  |  |
| Duct Sealing | E5 |  |  |  |
| New Ducts | E6 |  |  |  |
| Windows | E7 |  |  |  |
| R-13 Wall Insulation | E8 |  |  |  |
| Floor Insulation | E9 |  |  |  |
| Prescriptive PV System | ER1 |  |  |  |

Table 180.2-G: Measure/Package Specifications

|  |  |
| --- | --- |
| **ID** | **Measure/Package Description** |
| **Packages:** If a package is designated as required in Table 180.2-F, install all measures in that package.  Exception: If any individual measure in the package is not applicable, infeasible or specifically excepted as an individual measure, install all individual measures designated as required in Table 180.2-F. | |
| P1 | Package: R-49 Attic Insulation and Air Sealing measures |
| P2 | Package: R-49 Attic Insulation and Duct Sealing measures |
| P3 | Package: R-49 Attic Insulation, Air Sealing, and Duct Sealing measures |
| P4 | Package: R-49 Attic Insulation, Air Sealing, and New Ducts + Duct Sealing measures |
| P5 | Package: R-49 Attic Insulation, Air Sealing, New Ducts + Duct Sealing, R-13 Wall Insulation, and Windows measures |
| Energy Measures | |
| E1 | Lighting Measures: Replace all interior and exterior screw-in incandescent, halogen, and compact fluorescent lamps with LED lamps. Install photocell controls on all exterior lighting luminaires. |
| E2 | Water Heating Package: Add exterior insulation meeting a minimum of R-6 to existing storage water heaters.  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 1: Water heater blanket is not required on water heaters less than 20 gallons.  Exception 2: Water heater blanket not required if application of a water heater blanket voids the warranty on the water heater.  Exception 3: Upgraded fixtures are not required if existing fixtures have rated or measured flow rates of no more than ten percent greater than current California Green Building Standards Code (Title 24, Part 11) Section 4.303 water efficiency requirements.  Exception 4: Water heaters with factory installed insulation of R-24 or greater. |
| 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 *[forthcoming]* 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 HERS 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 professional certified by the Building Performance Institute in accordance with the ANSI/BPI-1200-S-2017 Standard Practice for Basic Analysis of Buildings, the Whole House Combustion Appliance Safety Test Procedure for the Comfortable Home Rebates Program 20204 or the California Community Services and Development Combustion Appliance Safety Testing Protocol. |
| E4 | 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 1: Buildings with at least R-38 existing insulation installed at the ceiling level.  Exception 2: Buildings where the alteration would directly cause the disturbance of asbestos unless the alteration is made in conjunction with asbestos abatement.  Exception 3: Buildings with knob and tube wiring located in the vented attic.  Exception 4: Where the accessible space in the attic is not large enough to accommodate the required R- value, the entire accessible space shall be filled with insulation provided such installation does not violate roof ventilation clearance requirements in Section 806.3 of Title 24, Part 2.5.  Exception 5: Where the attic space above the altered dwelling unit is shared with other dwelling units and the attic insulation requirement is not triggered for the other dwelling units. |
| E5 | Duct Sealing: Air seal all space conditioning ductwork to meet the requirements of 2022 Title 24 Section 180.2(b)2Aiii. The duct system must be tested by a HERS Rater no more than three years prior to the Low-Rise Multifamily Covered Project permit application date to verify the duct sealing and confirm that the requirements have been met.    Exception 1: All exceptions as stated in the 2022 Title 24, Part 6 Section 180.2(b)2Aiii are allowed.  Exception 2: Buildings without ductwork or where the ducts are in conditioned space. |
| E6 | New Ducts + Duct Sealing: Replace existing space conditioning ductwork with new R-8 ducts that meet the requirements of 2022 Title 24, Part 6 Section 160.3(b)5.K, with the exception that the maximum duct leakage be reduced from the current code requirement of 12 percent to five percent. To qualify, a preexisting measure must have been installed no more than three years before the Low-Rise Multifamily Covered Project permit application date. |
| E7 | Windows: Replace all existing windows with high performance windows with an area-weighted average U-factor no greater than 0.32.    Exception 1: All exceptions as stated in the 2022 Title 24, Part 6 Section 170.2(c)3A are allowed.  Exception 2: Buildings where it is not feasible to meet the performance requirements as a result of historic preservation design guidelines or other reasons as determined by the jurisdiction. |
| E8 | R-13 Wall Insulation: Install wall insulation in all exterior walls to achieve a weighted U-factor of 0.102 or install wall insulation in all exterior wall cavities that shall result in an installed thermal resistance of R-13 or greater for the insulation alone. |
| E9 | Floor Insulation: Install floor insulation in the floor cavity of all exterior raised floors to achieve a weighted U-factor of 0.037 or an installed thermal resistance of R-19 or greater for the insulation alone. |
| **Solar PV and Electric-Readiness Measures** | |
| ER1 | Solar PV: Install a solar PV system that meets the prescriptive requirements in Section 170.2(f).  Exception 1: Covered Multifamily Projects with permit valuations of $100,000 [or other amount] or less.  Exception 2: All of the exceptions in Section 170.2(f) apply, except Exception 2 to Section 170.2(f).  Exception 3: Where installation would require access to other dwelling units that are not subject to the PV requirement. |
|  | [alternate] Solar PV + Battery: Install a solar PV system that meets the prescriptive requirements in Section 170.2(f) and a battery storage system that meets the prescriptive requirements otherwise applicable to high-rise multifamily buildings in Section 170.2(h). The PV capacity used to calculate the battery capacity is to be based on Equation 170.2-C.  Exception 1: Covered Multifamily Projects with valuations of $100,000 [or other amount] or less.  Exception 2: All of the exceptions in Section 170.2(f) and (h) apply, except Exception 2 to Section 170.2(f).  Exception 3: Where installation would require access to other dwelling units that are not subject to the PV + Battery requirement. |
| ER2 | Electric Readiness: If the project includes a kitchen remodel or installation of new electric circuits, install any two of the measures below to allow for installation of electric appliances at a future date*.*   1. Heat Pump Water Heater Ready, as otherwise specified for Single Family buildings in Section 150.0(n)1. 2. Heat Pump Space Heater Ready, as specified in Section 160.9(a). 3. Electric Clothes Dryer Ready, as specified in Section 160.9(b). 4. Electric Cooktop Ready, as specified in Section 160.9(b). 5. Energy Storage Systems (ESS) Ready, as otherwise specified for Single Family buildings in Section 150.0(s).   Exception 1: Where installation would require access to other dwelling units that are not subject to the Electric Readiness requirements.  Exception 2: Where there is only one gas appliance in the dwelling unit, electric readiness is required for that appliance only.  Exception 3: Where the only gas appliance in the unit is a range and the kitchen is not being remodeled.  Exception 4: If an electrical permit is not otherwise required for the project other than compliance with this Item ER2. |

**Exception 1 to Section 180.2(d)**: If the applicant demonstrates that the Energy Budget of the building under the proposed project 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 180.2(d).

**Exception 2 to Section 180.2(d)**: Due to conditions specific to the project, it is technically or economically infeasible to install a measure of measures.

**Exception 3 to Section 180.2(d)**: A measure is beyond the authority of the homeowner because of an HOA covenant.

See Single Family Renovation ordinance for other possible exceptions.

A new Section, (e), is added to Section 180.2 as follows:

[Exclude this section if cool roofs are not cost-effective in the local climate zone.] Any reroof of a multifamily building that includes 50% or more of the contiguous roof area shall install a cool roof.  Only areas of the roof that are to be re-roofed are subject to this requirement. 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. For low-sloped roofs, install a roofing product meeting the requirements in Section 180.2(b)1Ai, with the exception that these requirements apply to any climate zone, and insulate the roof in accordance with Section 180.2(b)1Aiii.

**Exception to 180.2(e):** All exceptions as stated in the 2022 Title 24, Part 6 Section 180.2(b)1i for low-sloped roofs and 180.2(b)1ii for steep-sloped roofs are allowed.

## 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]***, except that the amendments to California Building Code, Title 24, Part 6 shall become effective as of ***[DATE]*** or upon the date the California Building Standards Commission (CBSC) accepts the ordinance for filing, whichever is later.