

Proposal Summary

Single-Family Windows and Walls

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Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during a utility-sponsored stakeholder meeting on February 14, 2023. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. To provide your comments, email info@title24stakeholders.com by February 28, 2023.

Measure Description

1. High-performance windows

- Evaluate energy savings potential and cost-effectiveness for high-performance windows as prescriptive in some climate zones. High-performance includes but is not limited to triple-pane windows.

2. Mandatory R-value requirements for framed walls

- Evaluate energy savings potential and cost-effectiveness from increasing mandatory wall insulation to R-15 and R-21. Present requirement for 2x4 framed wall assemblies is R-13 and R-20 for 2x6.

Data Needs/Stakeholder Information Requests

Data needs may include:

- **Energy Savings**
 - Are there recent field studies where installation of high-performance windows in homes have been evaluated in California?
- **Technical Feasibility**
 - With available technologies, what's an achievable U-factor and Solar Heat Gain Coefficient for double and triple pane windows?
- **Market Readiness**

- Are there market barriers for introducing more stringent code requirements for windows?
- How will an increase in demand of high-performance windows affect manufacturers production process?
- **Non-energy Benefits**
 - What are the embodied carbon emissions associated with high-performance windows?
- **Costs –**
 - What are the additional material costs of high-performance windows, and will triple pane windows require more labor install?
- **Economic Impacts –** job creation, environment and social justice, equity

Data may be provided anonymously. To participate or provide information, please email Simon Pallin, spallin@frontierenergy.com directly and cc info@title24stakeholders.com.

Draft Code Language

The proposed changes to the Standards and Reference Appendices are provided below. Changes to the 2022 documents are marked with **red underlining** (new language) and **strikethroughs** (deletions). Expected sections or tables of the proposed code (but not specific changes at this time) are highlighted in **yellow**.

Standards

SUBCHAPTER 7 SINGLE-FAMILY RESIDENTIAL BUILDINGS – MANDATORY FEATURES AND DEVICES

SECTION 150.0 – MANDATORY FEATURES AND DEVICES

1. **Wall insulation.** Opaque portions of above grade walls separating conditioned spaces from unconditioned spaces or ambient air shall meet the following requirements:
 - a. 2 x 4 inch framing shall have an overall assembly U-factor not exceeding **U-0.102**.

Exception to Section 150.0(c)1: Existing walls already insulated to a U-factor not exceeding U-0.110 or already insulated between framing members with insulation having an installed thermal resistance of R-11 or greater.

- b. 2 x 6 inch or greater framing shall have an overall assembly U-factor not exceeding **U-0.071**.
- c. Opaque non-framed assemblies shall have an overall assembly U-factor not exceeding U-0.102.
- d. Bay or bow window roofs and floors shall be insulated to meet the wall insulation requirements of Table 150.1-A.
- e. Masonry walls shall be insulated to meet the wall insulation requirements of Table 150.1-A.

- f. In wood framed assemblies, compliance with U-factors may be demonstrated by installing wall insulation with an R-value of ~~4315~~ in 2x4 assemblies, and ~~2021~~ in 2x6 assemblies.

SUBCHAPTER 8 SINGLE-FAMILY RESIDENTIAL BUILDINGS - PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

SECTION 150.1 – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR SINGLE-FAMILY RESIDENTIAL BUILDINGS

3. Fenestration.

- A. Installed fenestration products, including glazed doors, shall have an area -weighted average U-factor and **maximum or minimum** Solar Heat Gain Coefficient (SHGC) meeting the applicable fenestration value in Table 150.1-A and shall be determined in accordance with Sections 110.6(a)2 and 110.6(a)3.

Revisions to Table 150.1-A are to be developed.