



July 14, 2023

Howard Wiig
State Building Code Council Chair
Hawai'i State Building Code Council
1151 Punchbowl Street
Honolulu, Hawai'i 96813

RE: IECC 2021 AMENDMENTS

To Chair Wiig, and members of the State Building Code Council,

On behalf of Hawaii's Concrete & Masonry Industry, **we oppose the proposed amendments to the 2021 IECC** regarding building envelope requirements in sections C402 and R402. We request that the SBCC retain the amendments from the previous adoption cycle (2018 IECC), which allows Mass Walls to meet code requirements with minimum wall widths (≥ 6 inches) in lieu of insulation.

The current proposed amendments would allow continuous insulation for Mass Walls to be substituted with one of the following: (1) an area-weighted average solar reflectance ≥ 0.39 , (2) an area-weighted average light reflectance value ≥ 0.64 , or (3) an overhang with projection factor ≥ 0.3 . Our concerns are as follows:

1. **Further clarification needed:** IECC 2021 does not include formal definitions for the following terms: "solar reflectance", "projection factor", and "light reflectance value". The proposed amendments do not clarify whether solar reflectance means "Solar Reflectance *Index*" or "Solar Reflectance *Value*," which are two different things.
2. **Enforcement:** no provisions were included for verification or enforcement of these requirements. The measurement of Solar Reflectance Index or Light Reflectance Value typically requires specialized equipment such as a spectrophotometer or reflectometer used in accordance with ASTM standards.
3. **Disadvantage for our industry:** concrete walls with integral color pigments do not have established SRI and LRV values yet—this will require costly and time-consuming lab analysis for each color and/or mix design. Concrete walls are often comprised of multiple colors and finishes, making area-weighted averages more difficult to obtain.

We request that the SBCC retain the amendments from the previous adoption cycle (2018 IECC), which allows Mass Walls to meet code requirements with minimum wall widths (≥ 6 inches) in lieu of insulation.

Justifications:

1. **Improved Energy Efficiency (without exorbitant costs):** a balance between energy efficiency performance and affordability can be achieved by implementing a minimum requirement for wall thickness. Mass walls, unlike other building systems, have a high thermal mass that regulates indoor temperatures via thermal lag and temperature damping, which offsets the need for insulation. A minimum 6 inch width requirement ensures that mass walls will have

sufficient thermal mass to be energy efficient, while eliminating the need for costly alternatives (SRI paint, overhangs, insulation etc.).

2. **Affordability:** provides cost-effective compliance options for mass walls.
3. **Sensible Code Simplification & Enforcement:** provides a clear & concise compliance option for design professionals; eliminates the need for time-consuming whole-building simulations; offers building code officials an easily-verified-and-enforced metric that does not require specialized equipment.
4. **Inclusive & Balanced:** recognizes all mass wall systems; accounts for the unique thermal mass properties of Mass Walls in Hawaii's unique climate; eliminates unfair advantages in energy codes that hinder our local concrete & masonry industry's ability to stay relevant and cost-competitive.
5. The benefits of Mass Walls—particularly the superior safety benefits—are nullified if cost-prohibitive code requirements become a deterrent in the utilization of concrete products.

Benefits of Mass Walls:

- **Safety:** Concrete products will not catch fire; provides superior fire-resistance rating over other wall systems; offers passive fire protection & compartmentation; blast-and-impact-resistant; withstands hurricanes, floods, strong winds, tsunamis; approved material for FEMA safe rooms.
- **Health & Well-Being:** Resistance to mold & termites promotes enhanced air quality; natural sound-proofing provides two-way privacy; resiliency = physical protection from natural disasters & terrorist attacks = improved psychological well-being.
- **Green:** Unlike wood & steel products, concrete products are made in Hawaii, using locally sourced materials, including aggregates from quarries in Nanakuli, Kapaa, and the Big Island; made with recycled materials; durable; building envelopes can be repurposed; sequesters carbon emissions.
- **Affordable:** The resiliency and durability of concrete products result in lower insurance premiums and minimal maintenance costs that add up over the building life cycle.

We strongly disagree with the information put forth by the Hawai'i State Energy Office in "*Mass wall simulation results 2023-05-26*", which suggests that the annual AC energy cost for an uninsulated Mass Wall is significantly higher than a Wood Framed wall with R-13 insulation. We believe these results—which contradict current industry findings—were obtained without proper consideration of thermal mass. We encourage the SBCC to refrain from making any decisions until the accuracy of this information is verified.

We believe code amendments should be adopted based on rational supporting analyses—the development of which should include open discussion with Hawaii's Concrete & Masonry industry, which has not occurred.

Mahalo for your consideration.

Respectfully,

Tileco, Inc.

