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Five global regulations shaping ventilation and daylight-centric building design

VELUX's Anders Dam Vestergaard outlines five global regulations already shaping how buildings are designed, ventilated and lit, and why Australian architects, builders and installers should pay attention now, well before these principles become embedded in local codes.

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Natural light and clean air are essential to healthy buildings. Despite this, we have spent generations creating increasingly complex and compartmentalised interiors with sealed windows and year-round air conditioning.

“Today, we spend about ninety per cent of our time inside, often losing our connection to nature and the outdoors,” says Anders Dam Vestergaard, VELUX Executive Vice President, North America, Europe and APAC. “As building practices developed, multi-space homes, offices, shopping malls and third spaces have become the norm in western societies. These sacrifice daylight and fresh air with potential impacts on health and wellbeing,” he adds.



In Australia, these global shifts are colliding with very real on-the-ground pressures: higher-density housing, tighter building envelopes, rising energy costs and increasing scrutiny of indoor environmental quality. As buildings become more efficient, the way daylight and ventilation are delivered is becoming a critical design and compliance consideration, not an optional extra.

Backed by more than 80 years of global daylight and fresh-air know-how, VELUX develops and tests skylight and roof window solutions to meet evolving international standards. Here,

The European Commission's Energy Performance of Buildings Directive (EPBD) – 2024 Recast

The 2024 recast of the Energy Performance of Building Directive (EPBD)[1] introduces stricter requirements for indoor air quality, ventilation performance, daylighting optimisation and building envelope efficiency, all of which directly shape how skylights are specified in Europe. It mandates zero-emission standards for new buildings and reinforces the importance of natural light and ventilation as part of indoor environmental quality.

Why it matters for Australia

Australia's National Construction Code (NCC) increasingly aligns with global efficiency benchmarks. As European rules push for improved daylighting, natural ventilation and low-energy building envelopes, these same principles may drive updates to the NCC, enforcing new daylighting and minimum skylight requirements. Ultimately, we could see the adoption of energy-performance passports. For trade professionals, this signals a move toward greater accountability for how daylight and ventilation are delivered – increasing the importance of early skylight consideration rather than late-stage substitutions.



EU Sustainability Regulations (EU Taxonomy Regulation)

The EU Taxonomy Regulation[2] classifies sustainable construction activities and sets detailed criteria for climate mitigation, resource efficiency, and low-emission building materials. These regulations are driving European architects and developers toward daylight-centric designs, improved ventilation strategies and low-impact building components.

Why it matters for Australia

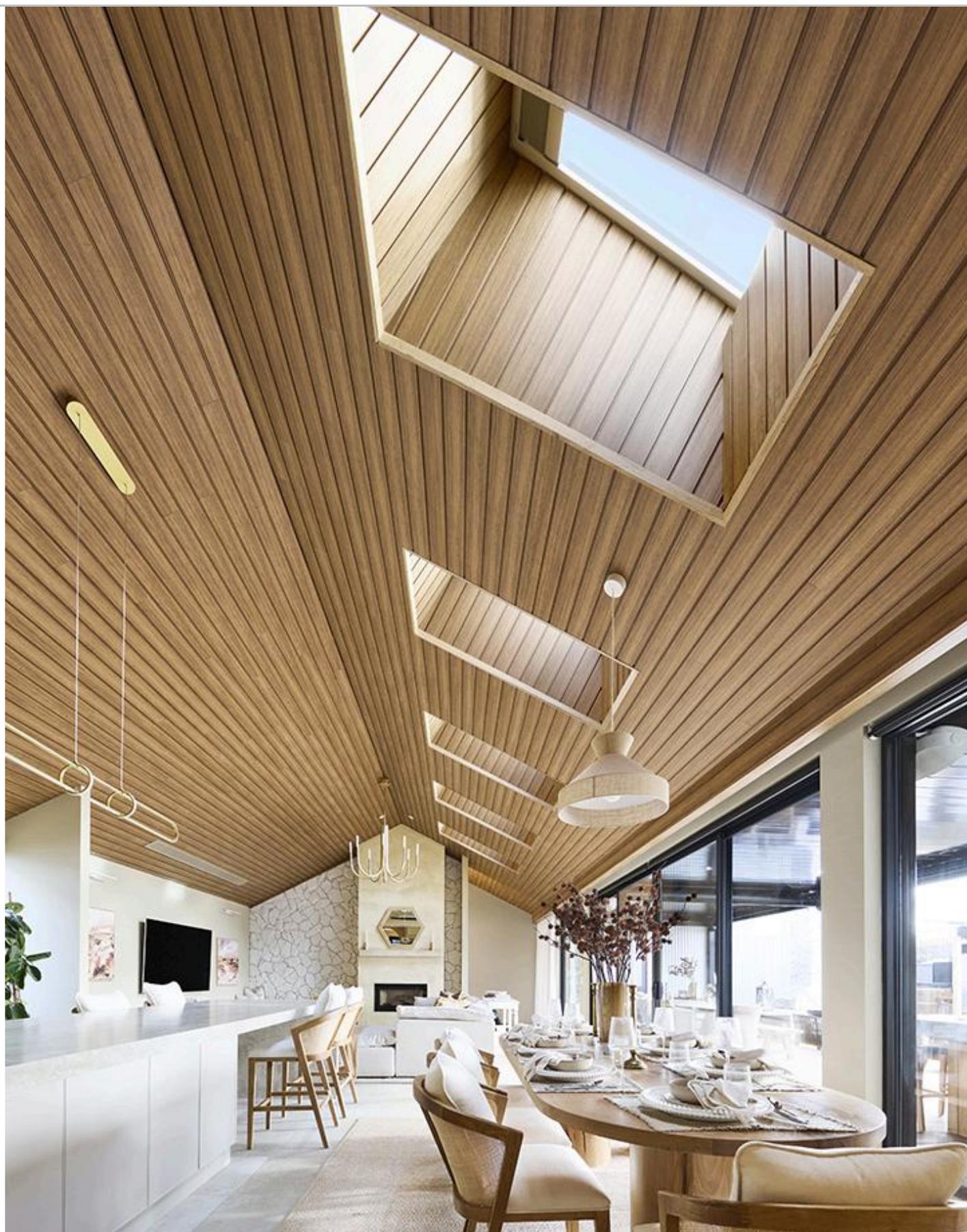
Australian sustainability tools such as the National Australian Built Environment Rating System (NABERS) and Green Star already follow global ESG and lifecycle-carbon frameworks. As the EU tightens rules around building performance and environmental transparency, Australia is expected to adopt similar lifecycle-based requirements, particularly around glazing, thermal performance and passive ventilation. For Australian designers and builders, this reinforces a global shift toward performance-based specification, where products that support passive daylighting and ventilation are easier to justify, document and approve across multiple rating systems.

The American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) 62.1 & 62.2 – 2024 Ventilation & Indoor Air Quality Standards

The American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) standards are globally influential and form the backbone of American ventilation requirements. The 2024 updates[3] include revised ventilation rates, more stringent air-quality monitoring, and improvements in the performance expectations of energy-recovery systems.

Why it matters for Australia

Australia frequently references ASHRAE data and modelling for ventilation and indoor air quality. As ventilation standards become more sophisticated, products that integrate controllable airflow – including automated and sensor-driven skylights – are expected to play a growing role. This elevates the value of installer expertise and system knowledge, not just product supply.



International Building Code (IBC) & International Residential Code (IRC) – 2024 Updates

The 2024 IBC and IRC include strengthened requirements for ventilation, moisture management, air sealing, and smoke control, especially in multi-storey and residential buildings. These codes heavily influence many Asia-Pacific countries and shape global building-product testing norms.

Why it matters for Australia

The NCC routinely benchmarks aspects of the IBC/IRC – particularly wind loading, glazing safety, fire resistance and ventilation design. For skylights, this affects:

- required thermal performance values
- moisture/condensation behaviour
- safety glazing rules for overhead windows

For Australian trade professionals, aligning with these global benchmarks reduces future compliance risk and ensures products and installation methods remain fit-for-purpose as standards evolve.

California Title 24 – 2024 Energy & Ventilation Regulations

California's Title 24 is one of the world's most progressive building-energy codes. The 2024 edition includes more rigorous ventilation, filtration, and energy-efficiency requirements, often influencing global manufacturers and research bodies. [fantech.net]

Why it matters for Australia

California and Australia share similar climate concerns (heat, bushfire risk, rising cooling loads). Title 24 tightens rules on natural ventilation, energy recovery, and daylight optimisation. Historically, many of California's performance-led requirements have later influenced Australian standards. For builders and designers, familiarity with these principles now can provide a competitive advantage as expectations around daylight, ventilation and cooling efficiency continue to rise.

“Every country looks to its peers to guide future regulation,” Vestergaard says. “By understanding what’s already happening globally, Australian builders, architects and installers can design, specify and build with confidence – gaining experience and credibility before these requirements become the norm.”

For more information about VELUX and its range of products, visit [velux.com.au](https://www.velux.com.au)

[2] *EU Taxonomy Regulation:*

Bimobject blog: Top 5 EU sustainability regulations impacting construction products

[3] *2024 updates:*

Fantech blog: Key regulatory changes and code updates affecting ventilation in 2024



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