

For sustainable, healthy and affordable buildings - the “2050 ready building” pact

Brussels, 28 May 2024

REHVA is an umbrella organization that represents as a single voice over 120,000 HVAC design engineers building services engineers and technicians across 24 European Countries.

REHVA's mission is to consistently contribute to the development of an economical, sustainable, safe and healthy built environment.

As REHVA supports the development of indoor environmental quality (IEQ) and Energy Performance of Buildings (EPB) related EU policies (EPBD, RED, EED, ESPR etc.) and their implementation at national level, REHVA member associations wish to encourage the European political forces to endorse the technical principles proposed by the REHVA experts to reach the 2050's EU targets in the building sector.

This is the objective of the “2050 ready building” pact.

Hereafter several crucial topics are summarized, enabling the building sector's role in achieving the 2050's EU targets.

✓ Principles of the “2050 ready buildings” pact

Buildings should provide protection, on one hand. They must ensure healthy, comfortable and safe indoor environment. On the other hand, buildings sector must play a key role in reaching the EU carbon neutrality by 2050. That is why REHVA advocates for “2050-ready buildings” pact built on the following major principles for both new constructions and undergoing refurbishments:

- Energy efficiency first;
- Priority use of renewable energy sources;
- Decarbonized heating and cooling systems (including low carbon construction materials) ;
- Achievement of high indoor environmental quality (IEQ) and indoor air quality (IAQ);
- Digitalization of buildings (smart buildings);
- Cost-effective and environmentally optimized technical solutions.

These principles should be applied holistically to buildings, contributing to the occupant's wellbeing and safeguarding their comfort while significantly reducing the environmental impact in a lifecycle approach (LCA). Buildings are no longer just energy consumers but also active energy producers. Equipped with smart technologies and energy storage systems for heat and electricity, these buildings will provide flexibility to energy distribution networks contributing to the transition and decarbonisation of the energy sector.

REHVA specifically advocates and works to define a European "common language", based on common indicators, for the building's energy and health indoor environment performance. Due to the multidisciplinary and increasing complexity of the building sector, it is necessary to find a mutual understanding and provide intensive education for all target groups and stakeholders.

✓ **Carbon Neutrality for the building sector in 2050**

The building sector is responsible for 37 % of the EU carbon emissions. Reaching carbon neutrality in 2050 is an ambitious target for the building sector. The decarbonisation of heating and cooling systems is key.

Carbon neutrality includes all stages of the life cycle of a building (production of building elements, their transport, building construction, use, replacement, deconstruction, management of waste materials, reuse, recycling and final disposal) and all greenhouse gas emissions on the building site, nearby and distant.

The European Directives and regulations, and their transposition at national and regional level, should be "performance based". They should be technology neutral, allowing the optimisation of the technical solutions by building professionals, and creating a level playing field for technical equipment and for energy carriers.

✓ **Healthy buildings - better indoor environment and indoor air quality (IEQ/IAQ)**

The need for adequate air quality does not stop at our doorstep but also includes the air we breathe indoors - where we spend up to 90% of our daily lives. The air within buildings is even more seriously polluted than the outdoor one[1]. According to WHO[2], 150.000 premature deaths in Europe are annually caused by poor indoor air quality generating extra costs of over 260 billion euros every year. This issue must be addressed urgently by taking up the health-related challenge it generates and thereby enable major savings and optimised public spending.

EU policies should safeguard improved health in buildings, associated with better IEQ/IAQ through regulatory evolutions ensuring an as ambitious as possible transposition of the EPBD in particular regarding ventilation. Improving the monitoring, visualisation and regulation of IAQ in residential buildings and extending the inspection of ventilation systems to all buildings, should be part of these policies.

The requirements for buildings to guarantee indoor air quality should be embedded in the taxonomy and the green public procurement legislations.

Ecodesign requirements should be updated to ensure energy-efficient ventilation products are put on the market.

To get a better information and feedback, the building stock observatory should also integrate data on indoor air quality and ventilation.

[1] <https://sustainvironres.biomedcentral.com/articles/10.1186/s42834-020-0047-y>

[2] https://unece.org/DAM/Photos_Info_Unit/Economic-cost-health-impact-air-pollution-en_1_.pdf

✓ Affordable homes and incentives

Affordable building renovation, operation and maintenance, the understanding of and the agreement on the proposed solutions, play a crucial role in the social acceptance of the energy transition.

There is no “one fits all” solution for new and existing buildings. Informing on the benefits of renovation, in terms of wellness and economic return, should be the key to motivate owners and/or private investors. Building professionals shall propose and explain the best solution to building owners and occupants.

Energy poverty must be addressed by targeted financial incentives/measures enabling low-income families to upgrade their homes. This not only reduces energy consumption and costs, but also enhances the overall living conditions, health and wellbeing for residents, promotes social acceptance and support for sustainable living practices.

The following actions should be implemented:

- property owners should receive funded technical assistance, also through one-stop shops, (such as energy audits or renovation passports) to facilitate informed decision-making;
- access to capital should be facilitated through measures such as green mortgages as requested in the Article 17 of the EPBD;
- financial incentives should be performance-based, favouring or excluding no single technical solution if performance requirements are met.

Coupling affordable housing initiatives with incentives is a crucial strategy in fostering both social equity and environmental responsibility, while preserving public funds, which, given their scarcity, should be optimized and carefully managed to effectively combat energy poverty and support the energy transition.

✓ The Role of HVAC Professionals in the Energy Transition - built up skills and EU dimension

The role of HVAC professionals in the energy transition is pivotal. The new challenges require the development of new technical skills and an understanding of the EU's overarching energy policies. Continuous professional development is essential, as it keeps professionals updated with the latest technological advancements and regulatory changes. Among the numerous references to training skills, upskilling, and reskilling, Article 17 of the EPBD mandates that Member States promote education and training to ensure a sufficient and competent workforce, especially targeting SMEs and microenterprises.

Research collaborations between academia and the HVAC industry should be incentivized through innovation hubs, research centres, and collaborative projects to define new educational programs addressing the key challenges, drive innovation, and attract new students.

Standards for HVAC systems play a critical role in facilitating mobility and recognition of qualifications across Member States. Standards ensure that HVAC professionals across the EU have a consistent knowledge base and skill set. By adhering to common EU- standards, HVAC professionals can contribute effectively to the energy transition, optimizing systems for performance and sustainability.

Shared methodologies, based on common EU standards, to evaluate the building promotes transparency, informed decision-making, and consistency in enforcing the energy transition. Knowledge sharing and the development of shared methodologies and tools can reconcile differences between Member States due to economic, technological, and social factors while respecting cultural diversity and social equity.

While common methods are employed, national requirement levels must reflect each country's specific climatic and regulatory needs. This harmonized approach supports a unified effort across Europe, driving forward the energy transition while fostering a skilled, motivated workforce dedicated to environmental stewardship.

