EVIA feedback on the EU's Energy Efficiency First guidelines

EVIA welcomes the opportunity to contribute to the development of the European Commission's guidelines on the implementation of the Energy Efficiency First (EE1) principle. In this submission EVIA, as the association representing manufacturers of ventilation units/systems, considers the implementation of EE1 from the perspective of energy used by Technical Building Systems (TBS) in the built environment. As such the following responds primarily to section *'3.4. Buildings'* in the discussion document *'Implementation of the EE1st principle in specific policy areas'.*

EE1 trade-offs in the built environment:

EVIA note that energy efficiency is a factor that is not mutually exclusive. Indeed, efforts to address energy efficiency often have direct impacts on other factors. These impacts are not always necessarily positively correlated and thus contribute to negative trade-offs in the built environment. EVIA therefore, strongly encourages the Commission to integrate the concept of 'do no significant harm' in the forthcoming guidelines on the EE1 principle.

'Do no significant harm'

The precautionary principle of 'do no significant harm' is already used elsewhere in the EU acquis as a guiding principle for conditionality for private financing. Under the Sustainable Finance Taxonomy Regulation (EU) 2020/2088[1] financial undertakings are required to ensure that an investment 'does no significant harm' to environmental or social objectives, for the investment to be classified as sustainable, bases on harmonised EU criteria for environmentally sustainable activities. In essence, for an investment to be classified as sustainable it should 'do no significant harm' to one of the six environmental objectives established under Article 9 *Environmental objectives,* including non-exhaustively climate change mitigation, and pollution prevention and control.

The 'do no significant harm' principle has more recently been utilised as a guiding conditionality[2] for the Recovery and Resilience Facility Regulation, for the dispersal of EU public financing in the context of COVID-19 economic stimulus, including for building renovation initiatives.

In the context of the implementation of EE1, EVIA note the following trade-offs (red titles), that would be addressed by a 'do no significant harm' principle.

EE1 and Indoor Air Quality:

Health of building occupants

People spend 90% of their time indoors, with the WHO estimating that 120,000 Europeans die prematurely every year due to poor IAQ, translating into an annual cost to society of EUR 260 billion. Poor IAQ is linked to negative health outcomes from irritation of the eyes, nose, and throat, through headaches, dizziness, and fatigue to respiratory diseases, heart disease, and cancer. In the context of the current

[1] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (Text with EEA relevance)

[2] Commission Notice Technical guidance on the application of 'do no significant harm' under the Recovery and Resilience Facility Regulation (2021/C 58/01)

COVID-19 outbreak, the proper use of ventilation is a particularly important contributor to maintaining an adequate level of IAQ and to limiting the potential for aerosolised transmission via mechanical air renewal. A recent article by *The Lancet*, the well-known weekly peer-reviewed general medical journal, estimates that ventilation can reduce the risk of airborne infection by the SARS-CoV-2 virus by a factor of ten[3].

In its October 2020 Renovation Wave Communication, the Commission aims to double the annual renovation rate of residential and non-residential buildings by 2030. The primary objective of the Renovation Wave is EE1, with a view to decarbonisation of the building stock. Energy efficiency renovations primarily target insulation of the building envelope with a view to limiting thermal losses and thus improving the energy performance of the building. In new or refurbished buildings which are well insulated approximately 50% of the energy demand, and even a higher rate in non-residential buildings, can stem from thermal losses due to air renewal achieved through window airing, depending on the use of the building. This energy waste can be dramatically reduced thanks to the implementation of a dedicated ventilation system.

The insulation and in consequence air tightness of the building envelope, heavily reduces the air infiltration and energy losses of a building. In such a context, controlled air renewal via mechanical ventilation becomes a necessity to avoid negatively impacting health outcomes. As non-residential buildings typically need higher ventilation rates caused by higher occupation density this aspect is even more acute.

Ensuring the implementation of well-functioning mechanical ventilation systems in new and renovated buildings, is essential to help guarantee an adequate IAQ for people living, working, or undertaking recreational activities more than ever in insulated and air-tight environments. However, ensuring an adequate ventilation rate providing necessary air-renewal requires a minimum of electricity to ensure efficient operation of a mechanical ventilation system. As such, the proper operation of mechanical ventilation units/systems could suffer from the unrestricted implementation of EE1, with unintended negative consequences for the health of building occupants. The use of a small amount of electricity brings the benefit of a reduced heating or cooling demand thanks to the ventilation needs of the building. Typically, 1 kWh electricity results in a saving of 4 to 10 kWh thermal energy (depending on climate and use).

Health of buildings

Poor IAQ affects not just the health of occupants but also of the building itself, due to the effects of mould and damp, which reduce the lifespan of a building or increase the required rate of renovation for a building and thus does not allow to optimise the investment budget allocated to building renovation, a must in view of the very large amounts involved. This is acknowledged in Doc 2. from the EE1 expert meeting on *'EE1 assessment'*; "Mould and dampness, generally resulting from the temperature level and the ventilation level of the building". As such strict application of EE1 could also have negative trade-offs for resource efficiency and sustainability, as well as economically, in respect to a buildings/renovation's longevity, if IAQ is not addressed.

Recommendation

Implementation of EE1 in the context of the energy performance of buildings must be conditioned on the basis that 'no significant harm' results from the action on IAQ. Ideally, the risk for 'significant harm' would

[3] "Small droplet aerosols in poorly ventilated spaces and SARS-CoV-2 transmission", The Lancet, 27 May 2020.

be mitigated by ensuring that, within the energy consumption limit of the building, enough power is devoted to the ventilation system for it to renew the air in a sufficient manner. It must be noted that Annex I 2 of the Energy Performance of Building Directive (EPBD) requires that Member States calculate the energy needs for ventilation, among others, to optimise health, indoor air quality and comfort.

EVIA note the suggestion in Doc 3. that a "certain energy performance level or improving first the performance of the building envelope before replacements of heating systems". In practice, this should mean that ventilation and insultation/air tightness of the building envelope and the use of the building are inseparable in the context of renovations, with retrofitting of ventilation to be considered before the heating system, in respect to 'do no significant harm'. In addition, the ability for state-of-the-art ventilation units/systems to recover heat/re-use waste heat further supports the early retrofitting of ventilation. Systematic commissioning of newly installed ventilation systems in new and renovated buildings as well as its maintenance throughout time to maintain its performance should also be mandatory.

EE1 and Renovations:

Strict application of EE1 could also lead to negative economic trade-offs in the context of building renovations.

The ventilation unit market is segmented between unidirectional ventilation units (UVUs) and bidirectional ventilation units (BVUs). Both UVUs and BVUs are covered by a single energy label under Regulation (EU) 1254/2014[4] to the relative disadvantage of UVUs, which score below BVUs from an energy efficiency perspective. Strict application of the EE1 principle would suggest that public and private financing conditionality or public procurement criteria, should be geared towards BVUs due to their higher efficiency, as illustrated via the energy label.

However, UVUs are widely considered to be easier to install mainly in residential building retrofits and renovations, and incur lower investment costs, often due to structural legacies arising from requirements in national building regulations. UVUs are also in general less expensive than BVUs, but nevertheless ensure appropriate air renewal when operating properly.

Demand controlled UVUs do represent real added value in reducing energy consumption and in maintaining good indoor air quality, compared to buildings with no mechanical ventilation or buildings with units/systems pre-dating the Ecodesign Regulation for Ventilation Units. Disqualification of UVUs on the basis of relative energy label performance would disincentivise their use in retrofit or renovation projects with technical or tighter budgetary constraints.

Strict application of EE1 favouring only BVUs would hinder the retrofitting or installation of new more energy efficient UVUs in the existing residential building stock, where there is no structural alternative or where the higher cost of BVUs represents an economic barrier to retrofitting or installation of a ventilation unit/system. This could lead to the to long-term negative lock in effects preventing the replacement of

[4] Commission Delegated Regulation (EU) No 1254/2014 of 11 July 2014 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of residential ventilation units (Text with EEA relevance)

old ventilation units/systems by newer more energy efficient ones or their implementation in buildings from which they are absent. This would also be detrimental to IAQ.

In non-residential buildings, there is a huge stock of old BVU without or low efficient energy recovery and poorly efficient fans. EE1 strategy shall clearly identify the need to change these units to state of the art products.

Recommendation

In this case, EE1 should be implemented with the condition that applying the principle does not disincentivise retrofitting with UVUs, and this does 'no significant harm' to efforts that would contribute immediately and tangibly to decarbonisation as well as IAQ improvements. Implementation of the EE1 principle must be based on forward looking cost-benefit assessments integrating consideration of multiple factors.

EE1 and Energy Efficient Ventilation:

Despite the possibility for the above negative trade-offs to occur from the strict application of the EE1 principle, EE1can also be positively implemented through the use of state-of-the-art ventilation which optimises the energy efficiency of buildings.

For buildings using window airing for air renewal, the energy consumption for heating and cooling is higher. Demand controlled ventilation limits thermal losses to the minimum, while guaranteeing an adequate air renewal and ventilation systems equipped with heat/cold recovery passively re-uses heat/cold that would be otherwise wasted. This processlowers the energy consumption of a building for heating and cooling. Buildings in which the latest demand-controlled or heat/cold recovery ventilation units/systems are implemented are thus much more energy efficient.

EE1 could also be positively applied by facilitating the upgrade of old equipment with the latest state-of-the-art energy efficiency technologies. In the last thirty-five years the energy consumption of ventilation units has decreased by a fifth. Old ventilation units over 15 years of age would be advantageously substituted by more modern technologies that are compliant with the latest ecodesign requirements under Regulation (EU) 1253/2014[5].

Recommendation

The EE1 principle would positively drive the uptake of the latest state-of-the-art energy efficient ventilation units/systems in newand renovations buildings. Public and private financing conditionality, as well as green public procurement criteria are policies that can be used to this effect. However, the assessments should always integrate consideration of the 'do no significant harm' principle to avoid unintended negative impacts.

[5] Commission Regulation (EU) No 1253/2014 of 7 July 2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation units (Text with EEA relevance)

About EVIA:

The European Ventilation Industry Association (EVIA)'s mission is to represent the views and interests of the ventilation industry and serve as a platform between all the relevant European stakeholders involved in the ventilation sector, such as decision-makers at the EU level as well as our partners in EU Member States. Our membership is composed of more than 40 member companies and 6 national associations across Europe, realising an annual turnover of over 7 billion euros and employing more than 45,000 people in Europe.

EVIA aim to promote highly energy efficient ventilation applications across Europe, with high consideration for health and comfort aspects. Fresh and good indoor air quality is a critical element of comfort and contributes to keeping people healthy in buildings.