

# Nearly Zero Energy Buildings: The vision for 2020



CONCERTED ACTION  
ENERGY PERFORMANCE  
OF BUILDINGS



## Public statements

- 1. Opinion on the issue of applying the definition of NZEB's at National Level**

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## > CECODHAS

**Build Confidence and De-mystify:** To deliver Nearly-Zero standards for new build, it is vital to build confidence and reduce perception of risk by increasing access to information on long-term performance of nearly zero buildings already in use and deliver precise information about practical implication of these new standards with regards maintenance and use of NZEB including data on running costs and energy.

**Realism in applying NZEB standards to Existing Stock:** The cost-optimal principles must be considered as reached nearly-zero levels in existing buildings is not always financially viable or sensible.

**Learning from Mistakes:** There have been housing developments where it was not possible to open windows, Mechanical ventilation incorrectly installed resulting in drafts and eventually being wall-papered over or turned off due to noise! Mistakes need to be publicised and explained so that they are not repeated in countries with less developed markets.

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## > Buildings Performance Institute Europe (BPIE)

There is an urgent need for establishing common principles for nearly Zero-Energy Buildings (nZEB) and building an open concept which should enable the EU to achieve its energy and climate targets. These common principles, which will form the basis for a common understanding of nZEB, must be compatible with the 2050 CO<sub>2</sub> reduction targets set for buildings (88-91%). In addition, these common principles should enable a gradual transition from the cost-optimal approach to nZEB. At building level, the nZEB definition should contribute to a significant reduction of the energy demand, of the CO<sub>2</sub> emissions and include a minimum requirement for renewable energy. It is key to clearly determine the boundaries of the energy flow related to the operation of the building. It is necessary to set thresholds for the maximum primary energy demand of a building, the maximum tolerated CO<sub>2</sub> emissions and the minimum renewable energy share. More details in the BPIE study on Principles for nZEB.

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## > Energy Efficient Buildings Association (E2BA)

**E2BA will drive the creation of an innovative high-tech energy efficiency industry. Connecting construction industry to other built environment system suppliers will be the decisive step for Europe to reach its economic, social and environmental goals, contributing to the objectives of the Innovation Union. By creating and fostering this new industry, EU companies involved will become competitive on a global level in the design, construction and operation of the built environment.**

**In 2050, the European industry of Energy Efficiency will produce advanced systems, solutions and high value services for intelligent and sustainable buildings and districts. The expected impacts include thaty 2050, most buildings and districts will become energy neutral, and have a zero C02 emissions. A significant number of buildings will then be energy positive, thus becoming real power plants, integrating renewable energy sources, clean distributed generation technologies and smart grids at district level.**

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- > European Council for Construction Research Development and Innovation (ECCREDI)

**Video presentation**

**by Johan Vyncke on behalf of ECCREDI**

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## > European Council for Construction Research Development and Innovation (ECCREDI)

The European organisations participating in ECCREDI represent the principal interests within construction: contractors, engineers, consultants, architects and designers, material producers, control organisations and research bodies. The aims of ECCREDI are to contribute to the competitiveness, quality, safety and environmental performance of the construction sector and to the overall sustainability of the built environment. The ‘Nearly Zero Energy Buildings’ target is important for the future of Europe. It should be realized that it is of utmost importance for our future to become self sufficient in our Energy production. It is to be realized that renovation or existing building stock is above all a challenge to be achieved as only by reducing or energy consumption in existing building we can realize the EU 2020 objectives”.The definition of NZEB should be harmonized at European level, reflecting the common high ambition.



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## > European Federation of Building and Woodworkers (EFBWW)

**EFBWW sees that in order to move towards nearly zero energy buildings it will be of vital importance to ensure that workers in the construction sector are equipped with the relevant skills. This means both upgrading the skills of current workers and changing the curricula of construction-related education systems. It is crucial that both these issues are addressed in the national action plans that Member States are to draw as required by the EPBD Directive. Each Member State will need to determine what type of upskilling and educational reform is needed, in accordance with the type of nearly zero energy buildings that are envisaged for the particular national setting. National social partners should be consulted on these issues.**

**The new technologies related new types of buildings will mean there will be new health and safety risks at construction sites. Making employers and workers conscious of these risks and on how they can be managed should also be part of national strategies.**

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## > Energy Cities

**Public buildings represent about 12 % of the EU building stock area. This is one of the reasons why not only the EPBD but also the currently discussed draft of the Energy Efficiency Directive (EED) force local authorities to play the leading role in implementation of EU energy and climate policy. Energy Cities' members have taken the lead in the implementation of the EPBD and are ready to construct and renovate towards Nearly-Zero Energy Buildings by 2018. Some of our members have already committed to build using Passive House standards (e.g. Frankfurt, Heidelberg, Brussels). However, retrofitting towards NZEB on a large scale requires strong political and financial support from the national level including demonstration projects.**

**Energy Cities confirms that the Covenant of Mayors is now unanimously appreciated as the major European energy and climate initiative of local authorities. It has to be used as a strong vector to accelerate energy efficient building processes.**



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## > **European Solar-Shading Organization (ES-SO)**

**If we adopt eceee's definition that "a zero carbon building is one that, over a year, produces sufficient carbon-free energy to offset the carbon emitted from all fossil-fuel derived energy consumed by the building", we cannot ignore the contribution of free, renewable solar energy to nearly-zero energy buildings by the proper use of smartly controlled solar shading. The building envelope is the main source of energy loss, but also of energy gain. The transparent parts – the windows – are static, while the weather conditions vary continuously. Yet everybody expects a comfortable indoor climate all the time. Solar shading is a dynamic technology and a passive cooling method which reduces or eliminates the need for active cooling in summer conditions by controlling the amount of solar energy entering through the windows. But in the heating season, properly managed solar shading allows harvesting free, natural solar energy. That is two steps towards nearly-zero energy buildings..**

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## > European Insulation Manufactures Association (EURIMA)

1 - Article 9 of Directive 2010/31/EU is indeed a much needed challenge, which deserves priority attention from the senior officials in all the Member States to overcome barriers, *inter alia*, from education and training - given the high potential for energy savings and CO2 mitigation. An active NZEB policy is too important to fail.

2 - In a position paper on NZEB in 2009 EURIMA asked that national strategies and roadmaps with clear and ambitious targets for new buildings be developed; the recast of 2010 makes national plans indeed compulsory and we are pleased with this provision. We insist that the national plans are specific, with clear and ambitious performance targets and embracing all elements such as e.g. the necessity for training and education.

3 - These plans must be anchored in the local reality (habits/know how) and put in the context of long term goals (beyond 2020).

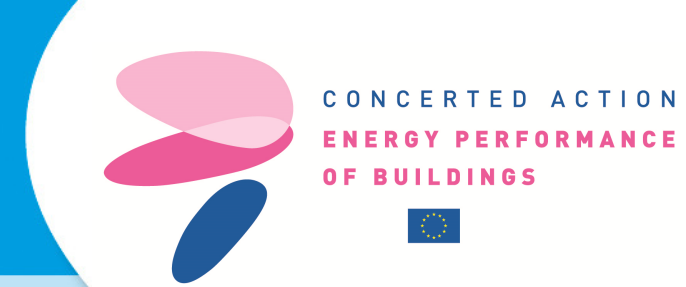
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- The plans must propose performance targets and propose ambitious maximum energy consumption limits for all uses (heating; cooling; hot water; lighting; ventilation in kWh primary energy/.m<sup>2</sup>/ yr).
- Article 2.2 of the EPBD recast attempts to respect the Trias Energetica (energy savings before renewables). Building on the concept of Trias Energetica, the NZEB policies in Member States must first ensure high building envelop thermal performance requirements (maximum limit for energy demand for heating and cooling, and high air tightness requirements). This goes hand in hand with the promotion of bio-climatic design, starting with the building's positioning and orientation (for new build) in order to take advantage of local conditions, including solar gains and the use of daylighting, as well as shading.

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- **Overall EURIMA has high expectations regarding the national levels to be set for the energy demand for heating & cooling (targeting a maximum value of 15 kWh/m<sup>2</sup>./yr to 20 kWh/m<sup>2</sup>./yr), There are several established standards upon which Member States may model their own standards for NZEB, – at least partially.**
- **EURIMA fully backs that public buildings take a leading role. We are pleased that in 2010/31/EC the definition applied for buildings includes all buildings occupied by public authorities (all public authorities) and is not limited to only buildings owned by central government, as in the text in the most recent Council proposal on the Energy Efficiency Directive**

**4 - The housing sector has played a role in causing the present financial crisis, but housing policies can now help solve the crisis. A widespread and ambitious implementation of NZEBs, including renovations, can create many jobs.**