Exploring Synergies between the Active House Principles and the EPBD Revision

I. Executive Summary

The built environment plays a pivotal role in the pursuit of sustainable development and energy efficiency. Now as we move towards the implementation phase of the revised Energy Performance of Buildings Directive (EPBD), the Active House principles will provide valuable insights into optimizing building performance.

In fact, Active House embraces a holistic approach to sustainable building design, taking into consideration energy efficiency, indoor climate, and environmental building parameters. This position paper aims to spotlight the inherent synergies between the Active House principles and the EPBD implementation, advocating for a collaborative and cohesive strategy to address the challenges of the current built environment.

The revised EPBD also presents a unique opportunity to reshape the future of renovated homes by placing indoor environmental quality (IEQ) at the forefront. By recognizing the interconnectedness of energy efficiency and the occupants' well-being, the revised directive can contribute significantly to creating homes that are not only energy efficient but also provide indoor environments that foster health, comfort, and overall quality of life.

II. Introduction

The European Union's commitment to combat climate change and promote sustainable practices is evident in its Green Deal efforts. The latest EPBD revision provides an important framework for the decarbonization of new and existing buildings and broadens the scope beyond energy performance, taking a more holistic approach by better factoring in IEQ and whole life carbon in new buildings.

With the ongoing implementation at national level, there is an opportunity to align these important objectives with the principles of the Active House concept, which focuses on optimizing the interaction between a building and its users while minimizing environmental impact, thus offering a comprehensive approach to sustainable building design.

III. Key Principles of Active House

Active houses actively contribute to the health and comfort of occupants' lives without negatively impacting climate and the environment. The objective is to systematically elaborate designs that positively affect the environment and are based on a more integrated approach, factoring in all relevant building components in contract to passive houses:

A. **Energy Efficiency:**
   Active House places a strong emphasis on reducing energy consumption through innovative design, integration of renewable energy sources, and the implementation of energy efficient technologies.

B. **Indoor Climate and Comfort:**
   Prioritizing occupants' well-being, Active House promotes a healthy and comfortable indoor environment by considering factors such as air quality, natural light, and thermal comfort.

C. **Environmental Impact:**
Beyond energy efficiency, Active House addresses the broader environmental impact of buildings, encouraging sustainable material choices, reduced carbon footprint, and long-term resilience. More specifically, the AH specification includes an evaluation of the following: Impact categories (emissions), Global warming potential (GWP), Ozone depletion potential (ODP), Photochemical ozone creation potential (POCP), Acidification potential (AP) and Eutrophication potential (EP).

IV. EPBD Revision Objectives

A. **Strengthening Energy Performance Standards:**
The EPBD revision aims to raise the bar for energy performance standards in residential and non-residential buildings, aligning them with the EU's ambitious climate goals. This objective resonates with Active House's emphasis on energy efficiency.

B. **Enhancing Indoor Environmental Quality (IEQ):**
As the EPBD strengthens IEQ criteria (new common definition, stronger IEQ focus in national renovation plans, and call on to Member States to new national requirements for adequate IEQ standards), it aligns with Active House principles by recognizing the importance of occupant well-being and comfort in sustainable building design. As no binding IEQ provisions were introduced at EU level, there is a clear need for Member States to step up on IEQ in the national implementation.

C. **Promoting Renewable Energy Integration:**
Active House advocates for the incorporation of renewable energy sources, a principle congruent with the EPBD revision's goal of promoting the use of renewable energy in buildings.

D. **Broadening the scope from operational carbon by also factoring in whole life carbon:**
The EPBD revision introduces new requirements to define a common European approach for all new buildings for calculating and disclosing life-cycle Global Warming Potential (GWP) and introducing limit values and targets.

V. Synergies and Recommendations

The upcoming implementation of the EPBD offers numerous opportunities, both at EU and national level, to ensure a more holistic approach to buildings, in line with the Active House principles.

Concretely, this includes among others work by the European Commission on Delegated Acts for the calculation of cost-optimal levels of minimum energy performance requirements for new and existing buildings (Article 7) and a common Union scheme for rating smart readiness of buildings (Article 15) as well as guidance for the calculation of the energy performance of transparent building elements that form part of the building envelope and the consideration of ambient energy (Article 4). Other concrete opportunities at national level are linked to the new Building Renovation Plans (Article 3), the new framework for Energy Performance Certificates (Article 19 & ANNEX V) and the setting of national trajectories to reduce average primary energy use of residential buildings (Article 9). Not to forget that Member States shall set requirements for the implementation of adequate indoor environmental quality standards in buildings in order to maintain a healthy indoor climate (Article 13).

To ensure a successful EPBD implementation, the Active House Alliance therefore calls for:

A. **Holistic Approach:**
The Active House principles offer a holistic framework for sustainable building design for the national implementation of the EPBD revision, particularly as regards to the new requirements on Indoor Environmental Quality, smart readiness of buildings, cost-optimal levels of minimum energy performance requirements as well as the national trajectories for residential buildings, and the methodology for calculating energy performance of buildings. Synergizing these approaches will result in a more effective and comprehensive strategy.

B. **Innovation and Research:**
Encourage research and innovation in funding schemes and Building Renovation Plans that address and factor in the principles of Active House, fostering the development of cutting-edge technologies and design strategies.

C. **Stakeholder Collaboration:**
Build on the work of the New European Bauhaus to connect a wide range of stakeholders across the building sector. Acknowledge and support ongoing initiatives, such as the development of a common EU framework and definition of core indicators for environmental building performance, emphasizing health and comfort. The EPBD implementation must result in clear measures and provisions to enforce this vision.
Facilitate collaboration among policymakers, architects, engineers, builders and other stakeholders to ensure a harmonized approach in implementing the EPBD revision and Active House principles.

D. Strengthen Health and Comfort Parameters:
Active House principles to guide the work by Member States when setting requirements for the implementation of adequate indoor environmental quality standards in buildings to maintain a healthy indoor climate (as requested in Article 13). Renovation projects provide a unique opportunity to adopt an integrated design approach, where energy efficiency and environmental quality measures can be synergistically implemented. This ensures a balanced and comprehensive outcome.

E. Technological Neutrality:
Uphold technological neutrality to avoid restricting choices and future innovations. The EPBD should not predetermine specific technologies but should adapt to the evolving landscape of IT/smartness, ensuring flexibility for future advancements.

VI. Conclusion

The Active House concept and the EPBD revision share common objectives in promoting sustainable, healthy and energy efficient buildings. In the context of existing buildings, the EPBD revision must acknowledge and prioritize the pivotal role of indoor environmental quality when conducting energy renovations. The Active House principles provide a harmonized method across EU level, which can help facilitate the upcoming EPBD implementation. By embracing the synergies between these frameworks, the EU can address contemporary built environment challenges and create a sustainable future for generations to come.