

Active House Alliance

– a network for development of sustainable buildings

The Active House Alliance has been established with an ambition to create a viable, independent and international influential alliance, which supports the vision of buildings that create healthier and more comfortable lives for their residents without impacting negatively on the climate and environment. The alliance includes the whole supply chain in the construction sector from manufacturers to architects, engineers, builders and investors, to research institutes, universities and branch organisations. The alliance has developed specifications and tools for active houses and the members are involved in demonstration projects, knowledge sharing, webinars, etc. The wish of the members is that Active House becomes the future principle for new buildings and renovation.



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Objectives of Active House Alliance

The background for the development of Active House and an Active House Alliance is the political focus on reduction of CO₂ emissions and the security of supply. The political focus forces the construction sector to build very low energy buildings throughout the world and to build Nearly Zero-Energy Buildings in EU member states by the end of 2020 (End of 2018 for public buildings).

The members of the alliance recognise this ambition for energy efficient and CO₂ neutral buildings and agree that it is possible to reach the ambition with the technology available today, it is a question of optimizing the design of the building as well as sharing knowledge and experience in the sector.

As people spend 90% of their time inside buildings, it is important to focus on human health and the need for ambitious requirements for comfort in buildings. Therefore the members agreed to develop a vision for buildings that focus on humans need and to build from there.

The global resources are limited and the amount of waste keeps increasing. Therefore the members also agree that an environmental focus is highly needed and it includes more than just traditional LCA analyses of products, it needs to move towards a view on the building and the use of, for example water. A topic that all agree will be a future challenges.

The above encouraged the alliance to develop the Active House Vision, which is based on a holistic view on

Comfort, Energy and Environment. It is a vision of buildings that create healthier and more comfortable lives for their occupants without impacting negatively on the climate – moving us towards a cleaner, healthier and safer world (**Figure 1**).

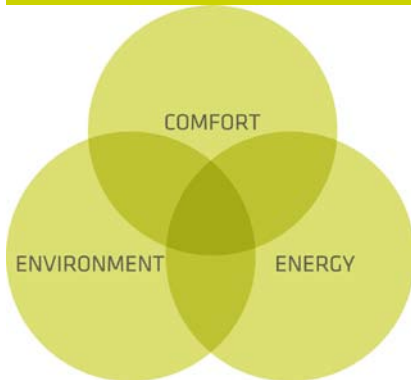
The Active House Alliance

The Active House Alliance is an alliance with representatives from the whole supply chain for the construction sector. The alliance has the ambition to create a viable, independent and international influential alliance, which supports the vision of buildings that create healthier and more comfortable lives for their residents without impacting negatively on the climate and environment.

The alliance focuses on the development of future sustainable buildings worldwide and it includes activities like demonstration projects, specifications and tools for evaluation of buildings, communication activities like organizing conferences, participating with posters and oral presentation at international fairs and conferences, and knowledge sharing activities like workgroups, workshops and webinars for members.

One of the main positions of the alliance is that sustainability has to be integrated into the design of the building already at the start of a project, from the first meeting between the investor, client and the architects. It is in this phase that one can optimize the building without much higher costs than for standard solutions. The design and construction process of buildings also includes involvement of engineers and builders and these sectors

ACTIVE HOUSE is a vision of buildings that create healthier and more comfortable lives for their occupants without negative impact on the climate – moving us towards a cleaner, healthier and safer world.



COMFORT

- Creates a healthier and more comfortable life for the occupants. An Active House creates healthier and more comfortable indoor conditions for the occupants and the building ensures generous supply of daylight and fresh air. Materials used have a positive impact on comfort and indoor climate.

ENERGY

- Contributes positively to the energy balance of the building. An Active House is energy efficient and all energy needed is supplied by renewable energy sources integrated in the building or from the nearby collective energy system and electricity grid.

ENVIRONMENT

- Has a positive impact on the environment. An Active House interacts positively with the environment by means of an optimised relationship with the local context, focused use of resources, and on its overall environmental impact throughout its life cycle.

are extremely important to include early in the process for the development of sustainable buildings. It is also important to involve manufacturers into the process as early as possible as manufacturers have knowledge about use of their solutions and how to integrate these in a sustainable design process. Such knowledge includes a wide range of technologies from bricks, insulation materials, glass, to solutions based on use of natural ventilation, daylight, shading and renewable energy integrated in the design, and technical systems, including the management and intelligent control of the building.

Another position of the alliance is that the knowledge gained from the many demonstration projects throughout the world, from Active Houses as well as other visions, need to be gathered and shared within the construction sector. Several universities participated in the establishment of the alliance and therefore the alliance also focuses on development of the national and international network with and between institutes, universities and branch organizations.

Active House Alliance activities and work groups

The alliance develops its activities across the sectors, by engaging an open dialogue between partners, sharing knowledge and ensuring a close cross-sectoral collaboration to enhance visibility and development. The work is carried out within the alliance in three subgroups; knowledge sharing, specification and demonstration, communication (Figure 2).

The knowledge sharing group organises workshops for its members such as webinars regarding the development of the new specifications and tools to evaluate Active House projects. The workshops are announced on the active house homepage.

The *specification and demonstration work group* developed the new specifications and will in the future focus on development of tools as well as specifications for non-domestic buildings. The work with demonstration projects has among others included projects in USA, Canada, Austria, France, Germany, Netherland, Russia, Norway and Denmark.

The communication workgroup has developed the Active House website homepage and has organized several symposiums. The group also coordinates other activities like the participation at conferences with papers, posters, presentations and other promotional material.

Active House Specifications

The guideline to construct and evaluate domestic building as active houses is described in the Active House Specifications. The specifications were developed by members of the alliance, who have shared knowledge, experiences and feedback from demonstration projects and used it to develop the second edition, published April 2013 (Figure 3). The specifications are described in more details in the next article by Eriksen et al.

The specification were developed using an open source model, involving online debates and contributions as well as workshops with broad participation across the building industry globally. The new edition has been substantially improved, especially in terms of usability. The specifications are described in more in detail in a later article in this edition of the REHVA Journal.

Active House demonstration projects

Several projects have already proven the philosophy of Active House.

Figure 1. The Active House Vision.

| | Objectives | Activities and Deliverables |
|---------------------------------|---|--|
| Knowledge Sharing | Leverage existing knowledge through strong alliance and facilitate cross-sector working groups. | <ul style="list-style-type: none"> • Annual general assembly • Topic based workshops for members • Training and webinars |
| Specification and demonstration | Create new knowledge, describe, illustrate and demonstrate the opportunities and attractiveness of Active Houses. | <ul style="list-style-type: none"> • Active House Specifications for residential and non-residential buildings • Simple evaluation scheme of buildings • Demonstration buildings • Catalogue of design patterns and cases • Design and Assessment Tools |
| Communication | Influence positively on the full supply chain in the construction sector, politicians and legislators. | <ul style="list-style-type: none"> • Communicate with building users and specifiers • External conferences and symposiums • Training and webinars for specifiers • Influence positively on codes and legislation |

Figure 2. Workgroup activities.

The two latest projects were developed in the USA and the Netherlands.

Smith Residence is the project in USA (Figure 4). It is a newly built project which was developed with partners of the alliance and the family planning to live there. The project is situated in the center of the United States in a historic and bustling suburb located 15 minutes away

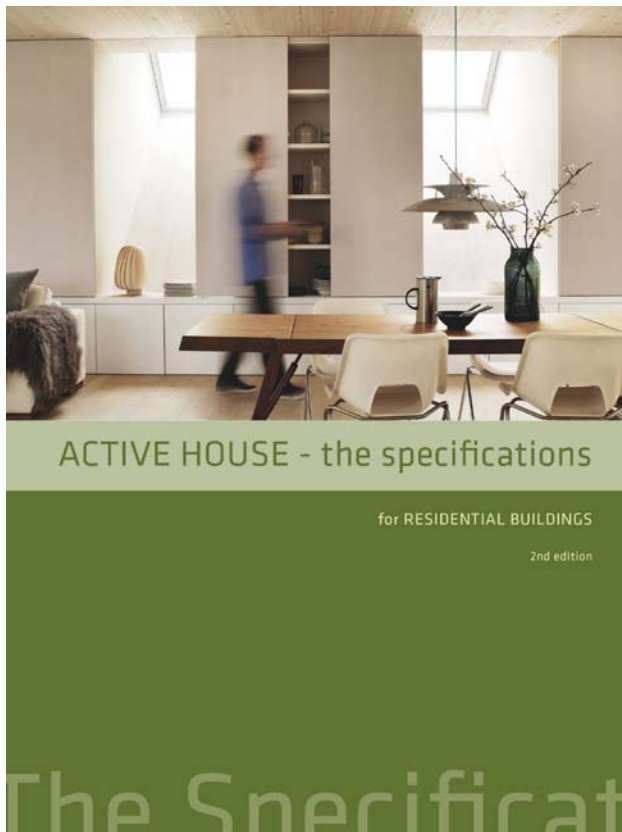


Figure 3. Cover of the booklet Active House Specifications – see the contents in the next article by Eriksen et al.

from downtown St. Louis, MO. Because of its location in a mixed climate region, the home is designed to meet both warm and cold climate needs.

Once the Smith family moves into the home, the University of Missouri Energy Efficiency Research Consortium and the Active House Alliance will monitor the project in order to provide anecdotal and statistical metrics to help assist with further research and development of green building standards in the US and abroad.

Montfoort Active House in Netherland (Figure 5) is a renovation of 10 row houses in Burghers Street, Montfoort, which all were upgraded to A++ in the Dutch energy label scheme for buildings.

By the use of a sustainable concept, based on the principles of Active House the homes have been renovated in a good balance between comfort, energy design and environment. Hereby the total energy demand and CO₂ emissions of the 40 year old houses have been reduced dramatically. In order to support the comfort and health of the residents in these homes, the interior design has been optimized with better access to daylight and fresh air.

Next steps

The alliance will continue developing the insights acquired in the first years and participate in relevant projects and create a platform for knowledge sharing for members and authorities.

The short term steps will focus on the further development on international and national level. It will include the establishment of national activities and where relevant, by engaging national ambassadors for the alliance.



Figure 4. "Smith Residence" - Active House project in USA.



Figure 5. Montfoort Active House in Netherland.

It will also include focus on the international activities and will, where possible, work towards integration of the Active House vision in strategies for sustainable buildings and implementation of nearly zero-energy buildings.

New partners are welcomed to contribute to the development and to get involved in the alliance. The development can be followed on the web page www.activehouse.info. ■

activehouse.INFO
NETWORK AND KNOWLEDGE SHARING

Active House Alliance

Members of the Active House Alliance includes architects, engineers manufacturers, builders, universities, research and branch organizations.

The ambition for the Active House Alliance is, in the common interest of its members, to create a viable, independent and international influential alliance.

Our wish is that Active House becomes the future principle for new buildings and renovation, worldwide.

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