

## Requirements and limitations of climate neutral buildings



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### Topic

- Resilience
- Lifestyle
- Building
- Resources
- Tourism
- Energy

### Title of the Paper

Requirements and limitations of climate neutral buildings

### Form of Presentation

- Poster
- Presentation

### Short Description (maximum 2500 characters)

Passive Houses, Low Energy Buildings, Nearly Zero Energy Buildings, Net Zero Energy Buildings, Zero Emission Buildings, Climate Neutral Buildings or Plus Energy Houses. A whole variety of different terms and concepts are currently buzzing around in the building sector. For some of these concepts a common understanding exists, at least on national levels. Passive Houses are defined by a calculation method according to the Passive House Planning Package in Germany and Austria. The European Energy Performance in Buildings Directive was adopted 2010 and came up with the concept of Nearly Zero Energy Buildings. However, the definition in the directive is rather general and there is room for interpretation by the implementation of the directive on national level.

The Austrian research project "ÖKOPLUS-KOMPLEX" looks into the concepts of Plus Energy Buildings and Climate Neutral Buildings. The technical, ecological and economic requirements for the implementation of these building concepts are investigated. The potential to produce energy from the building surface (e.g. roof and walls) is analyzed and compared to the energy needed by building's residents. The analysis is made at the following scales: four existing single family homes, an apartment building and a housing complex. If more energy is produced than needed the benefits on greenhouse gas (GHG) emissions by replacing energy generation from fossil resources are determined. If the GHG emission benefits are the same - or even higher - than the GHG emissions linked to construction, use and demolition of the building it becomes a climate neutral building.

The paper summarizes the main findings of the project concerning the technologies, which can be used to become a climate neutral building, the impact of setting different system boundaries on reaching plus climate neutrality and the basic requirements of this building concept.

The work for this paper was conducted in the Austrian project "ÖKOPLUS KOMPLEX – Untersuchung der energetischen und ökologischen Voraussetzungen zur Errichtung und Nutzung von Plusenergiehäusern und –verbänden" which is carried out within the

framework of the programme “Haus der Zukunft Plus”.