Darmstadt, 13.03.2014

Climate protection at municipal level: ten-point plan for the building sector

Position paper of the Passive House Institute regarding the use of Passive House technology as a contribution to climate protection in the building sector for cities and communities.

Climate change affects us all. In order to effectively tackle climate change, we must reduce our energy consumption significantly in the long term. This means efficient use of available energy and placing maximum priority on saving energy. Cities and local authorities are important actors when it comes to climate protection – at the local level, with every individual, every community, in every region.

On average, about 40 % of the total energy consumption in industrialized countries is used for buildings. That is why significant improvement of the energy efficiency of buildings has considerable impact on the overall assessment of a town, municipality or urban district in terms of energy. Due to the long service life of buildings, a consistent approach is especially important in this respect.

For more than 20 years, the Passive House Institute has committed itself to the advancement of the Passive House Standard, with which an improvement of 40 to 75 % in the energy consumption for heating and cooling of new builds can be achieved; in the case of refurbishments, reductions of 75 to 95 % are commonplace.

The Passive House Institute has compiled the following 10 points to support and to trigger effective climate protection measures in the building sector at the local level:

1) New public buildings belonging to the city or local authority will only be built to the Passive House Standard in future. As far as possible, renewable energies will be used: additional upgrading of buildings with renewable energies to the *Passive House Plus* level (with fully sustainable energy supply) or *Passive House Premium* (with a surplus of renewable energy generated). The same applies for new builds rented by cities, i.e. the aim is to achieve a heating and cooling demand of less than 15 kWh/m²/a each. Refurbishments of owned or rented buildings will only be carried out with Passive House suitable components, meaning refurbishment to the EnerPHit Standard or a retrofit yielding a reduction in energy usage by a factor of 10. Renewable energies will also be taken into account in the case of refurbishments.

Municipal Passive House school in Frankfurt/Germany. Photo: PHI

2) Land belonging to the local authority will only be sold on condition that construction will take place according to the Passive House Standard, or that refurbishment will be carried out using Passive House components, with the integration of renewable energies. Suitable verification (e.g. preliminary planning with the PHPP) should be provided.

3) Municipal urban planning will be adapted to the climate. The topographic situation of the building, its compactness and its orientation in relation to the sun, the prevailing wind direction, and the shading will all be taken into account. Such planning will be supported by binding specifications of mechanical and building energy supply systems.

4) Housing companies belonging to the municipality will be obliged to construct their new buildings in accordance with the Passive House Standard and to modernise their existing building stock using Passive House components, with integration of renewable energies.

5) The city or local authority will create its own financial incentive programme for investors and private building owners in order to encourage participation in climate protection measures through the construction of Passive House buildings, through refurbishment using Passive House components, and via the use of renewable energy sources.

6) Quality assurance by means of milestones will be used to check whether the required standard of work has actually been provided. Milestones include, for example, planning approval, execution planning, initial site meeting post completion of the building shell, second site meeting post completion of the airtight building envelope, completion of the building, assessment of technical measurements, independent certification.

7) Climate-neutral urban districts based on the Passive House Standard will be developed as pilot projects.

8) Informational events and further training will be offered to communicate with investors, builders, building owners (commercial and private), residents, architects, craftsmen, local companies, urban planning experts, and political decision makers. Providing consultations prior to the issuing of building approvals will be mandatory. Appropriate advisory facilities will be set up.

A whole city district in Passive House standard: the new „Bahnstadt“ in Heidelberg. Foto: PHI

9) The use of energy-saving household appliances and building system technology, as well as replacement of electricity intensive technology will be encouraged, for example, through information campaigns or financial incentives.

10) Communications on construction to the Passive House Standard and the use of renewable energies will be firmly anchored in municipal public relations strategies and campaigns on the subject will be implemented. For a wider impact, the energy consumption of individual buildings will be monitored and the findings published as examples to follow.

The Passive House Institute is convinced that the sum of these measures will contribute significantly to the reduction of energy consumption and greenhouse gas emissions in the building sector while substantially reducing municipal expenditures. There are many examples of cities and municipalities throughout Europe and in other parts of the world that have already implemented such principles either in full or in part and have profited from the resulting contribution to climate protection. This paper is intended to encourage other cities and local authorities to initiate reforms in building sector practices in their own jurisdictions, as climate change affects us all.

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Co-funded by the Intelligent Energy Europe Programme of the European Union