

TS23764 : Technical Specification for ZEB

(Brief Explanation)



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Background

Since the Paris Agreement was adopted in the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, all countries (including emerging countries) have been required to set a target for reducing their greenhouse gas emissions by 2020 and later. In all countries, reducing energy consumption is the most effective means of mitigating greenhouse gas emissions.

The building sector takes a 30% share of the world's energy consumption, and this contribution appears to be increasing[8]. Therefore, reducing the greenhouse gas emissions from this sector is an important global issue. Ultimately, the energy consumption of the building must be reduced and balanced by renewable energy to create a (net) ZEB. Such advanced cases have already been constructed.

Although the ultimate goal of achieving ZEBs is clearly understood, its realization has been limited by practical barriers such as high initial investment. However, as the life cycle of buildings is long, the design and construction of more energy-efficient buildings is considered as a present attempt rather than a future one for greenhouse gas reduction. Hence, accelerating the movement toward ZEBs is an immediate urgency.

From this perspective, this document advocates a step-by-step realization approach for (net) ZEBs. Its aim is to accelerate the ZEB movement and describe the practical realization of ZEBs. Namely, this document proposes a practical ZEB approach and outlines the basic considerations during the total process of ZEB realization, from design to the operation and maintenance stages.

6 step process for ZEBs in TS23764

1. At planning stage, to have clear policy to achieve ZEB by the three steps, ZEB Ready → Nearly ZEB → (net)ZEB, but not to achieve it by only one step to (Net) Zero Energy Building.
2. At the design stage, To identify appropriate passive and active design strategies and select proper materials and equipment, which are certified by the domestic standard or international standard, as much as possible.
3. During construction, to install the selected materials and equipment correctly according to the drawings and specifications.
4. After completion of building, to realize the energy consumption targeted at the design stage.
5. After operation start, to inspect actual energy consumption continuously (suitable times per year) whether there is any difference of energy consumption between the targeted at design stage and the measured at actual operation.
6. After the start-up of the operation, to calculate the primary energy consumption periodically by using simulation software, if possible.

Definition of ZEB

