

TYPES OF ZERO ENERGY BUILDINGS

A Zero Net Energy (ZNE) building is a highly energy efficient building which is able to produce enough on-site renewable energy to offset the energy consumed in the building over the course of a year. These buildings are able to accomplish this through planning and designing buildings with careful installation of insulation and air sealing, energy efficient lighting, natural daylighting, efficient heating, cooling, ventilation and delivery systems and efficient appliances).

Zero Energy Ready Home (ZERH) program is the Department of Energy's (DOE) next step in energy efficiency above their ENERGY STAR program. Over 14,000 homes in the United States have been registered in the DOE ZERH program since 2008. A ZERH is basically an ENERGY STAR 2012 IECC home, with checklists for improving indoor air quality and water conservation and renewable energy connectivity and installation.

Zero Energy Districts (ZED) is where a group of buildings produces as much on-site renewable energy as they use over a course of a year. ZED's share infrastructure and resources (such as waste water heat recovery) to capture energy and increase efficiency between ZED buildings without adding more renewable energy. "Net zero energy districts offer an incredible opportunity for cities to greatly reduce their energy use and carbon emissions while at the same time revitalizing urban neighborhoods." Chuck Kutscher, National Renewable Energy Laboratory's (NREL) Center Director for Buildings and Thermal System.

High Performance (HP) buildings are ENERGY STAR homes and buildings which are energy efficient and have the following eight attributes; safety and security, sustainability, accessibility, functionality, productivity, historic preservation and aesthetics if the Whole Building Design Guide (WBDG) intergraded approach is used. The WBDG assessed the voluntary standard and rating systems of high performance buildings.

Passive House Institute US (PHIUS) is the only Passive House building standard which is climate, comfort and performance based requiring on-site QA/QC to be certified. Allowing affordable cost effective building solutions as a way to achieve a zero energy or zero carbon building. The Passive House is a concept for constructing super insulated, ventilated and balanced buildings which use 90% less energy than the typical building and 75% less than newly constructed buildings.

Leadership in Energy and Environmental Design (LEED) projects earn points in sustainable design to one of four levels of efficiency, Bronze, Silver, Gold and Platinum. LEED projects work for all types of buildings changing how buildings are planned, constructed, maintained and operated. LEED is the most widely used third party verification system for energy efficient or green buildings in the world.