

## Building Components

The buildings sector is – with around 40% of the final energy consumption – one of the largest energy consumers in the European Union. The main fields of energy consumption here are heating, cooling, hot water supply, ventilation, and electricity. In addition to reduction of the energy demand of existing buildings, new building design strategies must show the way towards significant decreases in building energy demand. The structure of energy consumption varies depending on the building type. For example, office buildings usually can have higher electricity consumption but lower heat demand than residential buildings.

The International Energy Agency (IEA) estimates the long-term energy savings potential for new build at 70-75 %, and this without additional costs or with very limited additional costs for owners. The total feasible potential for energy savings by renovation and refurbishment is estimated at 55-80% depending on the building type and region.

Figure 1: Final energy consumption EU - 27 in year 2005 (Source: EEA, Eurostat)

Figure 2: Life cycle cost of buildings (Source: Procuraplus)

Figure 3: Comparison final energy intensity in 2005 per inhabitant

(Source: EEA, Eurostat)

Figure 4: Final energy consumption by sector in the EU – 27, 1990 – 2005 (Source: EEA, Eurostat);  
<http://dataservice.eea.europa.eu/atlas/viewdata/viewpub.asp?id=3373>

By cutting the energy use in buildings by about 30 %, Europe's energy consumption would fall by 11%, more than half of the 20-20-20 target (20% less carbon dioxide by 2020, with 20% renewables in the energy mix).

The building stock in the EU amounts to 21 billion m<sup>2</sup>. The annual production of new buildings is 1%, demolition rate about 0.5%, and retrofit about 1.8 %. At that rate it will take a very long time to improve energy efficiency. A comprehensive and aggressive approach will be needed to reach the 30% target.

In year 2010 a recast of the EPBD is to be adopted, in which requirements for strengthening of national legislative criteria for buildings will be set. Member states will have to adjust their legislation. All this is in adjustment with EU Commission policy, which calls upon member states to develop and perform urgent actions also to boost renovation of existing renovation building stock.