



Poland - Technical Framework

When considering an energy efficiency retrofit within your national housing market, a wide plethora of consideration needs to be made. Below, we list key findings to facilitate your analysis of the retrofit investment. More details and backgrounds can be found on the website www.rentalcal.eu.

Residential buildings and building types in Poland:

- Dwelling stock in Poland counted at the end of December 2013 13.9 million apartments
- In the ownership structure most dwellings belong to natural persons - approx. 7.9 million out of housing associations, over 2.5 million to natural persons in housing associations, while in the stock of housing cooperatives - 2.2 million
- 16.6% of households rent dwellings from different building's owners types, where almost half of rented dwellings are owned by Municipalities
- In the private rental market one can distinguish between three types of rental property using criteria such as technical quality, building age, management of legal/contract issues:
 - rental units in new housing stock (refurbished over past 5-10 years and have reasonable good quality)
 - rental units in old housing stock of decent quality (old housing stock, either built in the socialist era or in the pre-war period, acceptable quality)
 - rental units in old housing stock of low quality (old housing stock, either built in the socialist era or in the pre-war period poor quality)
- There are no significant differences between rental and remaining part of the housing stock
- New buildings with high energy standard represent only about 1% of total housing stock
- For typical individual detached house predominant construction material is brick for, general heating system is a coal/gas boiler heating system with radiators, domestic hot water systems is connected to heating boilers here is no solar system and no PV system installed
- Average multi-family house and is heated by general heating system is district heating in urban, and gas boiler in rural area, there is no mechanical ventilation and no cooling system, i.e. only natural ventilation via the windows is applied. There is no solar system and no PV system installed
- The Thermo-modernization and Renovation Fund was established in 1998, which defines the Government's principles supporting the energy efficient refurbishment of buildings in Poland, annual fund budget is 200 million PLN (about 47 million EURO)
- To become eligible, refurbishment projects must meet certain technical and financial criteria, among which the refurbishment has to deliver at least 25% energy savings
- The aim of the Polish Green Investment Scheme (GIS) is to decrease energy consumption by providing grants and loans for buildings' thermo-modernization and more energy-efficient lighting
- After 1999 about 50% of buildings in Poland were subject of thermos-modernization (in different scope)

Energy saving measures and investment costs in Poland:

- For newly-built buildings, as a mandatory measure, creating a new list of technical and construction conditions concerning minimum requirements for energy savings and heat insulation, in prevision of the energy levels that should be met by 2021.
- For existing buildings, a list of different available programs that support and partially cover the expenses of renovation of several elements of the buildings such as the thermal envelope, windows, facilities
- In Poland the most common are the insulation of walls with either mineral wool or foamed polystyrene, with thicknesses that ranges from 12 to 18 cm; the insulation of roofs with the insulation placed in the cavities between rafters and with/without an additional insulation layer of 4-18 cm and the replacing of windows for double or triple glazing
- Most common system measure is the installation of new condensing gas boiler replacing an older combo model, although it has another version that instead of condensing gas boiler, the old one is replaced by a coal boiler
- Modernization of buildings is planned in Poland based on legally required 5-years buildings reviews, supplemented by 1-year inspection of main installations of the building.

Energy performance calculation methods in Poland:

- The calculation of energy demand for either for the whole building or for the specific zones, follows Polish standard PN-EN ISO 13 790
- For the purpose of the heat demand calculation 5 climatic zones were defined for Poland
- For the purpose of building performance calculation Ministry of Infrastructure offers typical meteorological years and statistical climate data for 61 cities in Poland
- Gap between calculated demand and measured energy - according to the opinion of experts, can be assumed around 20% for small houses, 15% for medium, and 7% for large houses.