



## Social residential building and bio mass

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The enterprise group of the Salzburg residential building consists of three non-profit and one commercial real estate developer. Every year about 200 new flats and about 20 community buildings are constructed. There are about 22,000 administrated units and 280 community establishments on stock.

Besides we use also remote heating systems and natural gas, or combined systems with pellet boilers (together with remote heating or natural gas). In addition the combination with solar-energy installations together with the main heating system has already become a standard.

In 1997 a bio mass heating system has been established for the first time at Golling. There are 100 living units at several buildings, that could be supplied with heat and hot water with the help of two pellet boilers (total 370 KW). Initially there have been a few difficulties with the storage of the pellet-boilers, the yielding, and the quality of the fuel. But now the technology has absolutely matured and been proven in practise.

The further passes for the development have been in 1999 with the implementation of the „passive house“ for 15 flats at Salzburg Schallmoos with a boiler output of 50 KW and through the passive-energy house (energy value 15 KW/m<sup>2</sup>) at Kuchl, 25 flats – boiler output 65 KW. This construction has been accompanied at the scope of an EU-furthered project (CEPHEUS). With the improvements of the heat-damming (of a house) the reduction of the required boiler output related to the heated area is clearly and transparent. The raw heating costs of the before mentioned passive house are only 2 Euro per m<sup>2</sup> and year.

In another living quarter at Salzburg, that was built in 2001, we used for the first time a combined method for the heating: a pellet boiler (150 KW) for the basic requirements combined with a gas boiler (100 KW) for the coverage of the peak-requirements. This system runs without any complaints and has very low energy costs.

The optimised combination has been found at a skyscraper at Salzburg, the „City 11“ with 87 flats. Since the year 2003 there is a pellet installation (150 KW) together with a connection to a remote heating system (200 KW).

A yearly comparison of costs show, that bio mass is at the time the cheapest form of heating. The comparison of fuel oil (extra light) = € 0,54/litre and pellet boilers = € 0,16 per kilo, counted in the heating value (1 litre oil = 2 kilo pellets), that is for example for a concrete house (150 m<sup>2</sup>, 20.000 kWh) with oil about € 1,200,- with pellets around € 800,-. Also the costs for remote heating for pellets and fuel storage (boiler output 150 KW): The pellet installation with about € 35.000,- is apparently twice expensive than a oil heating installation with € 17,000,- or like a gas burner-value-technique with € 15,000,-. Because if you count the

energy-furtherance points (country Salzburg) for the renewable energy bio mass, so the additional costs for the construction of a pellet appliance will be furthered, the building in of a similar installation is absolutely economically. The experience, stretched over several years with the pellet appliances shows us, that a consequent and a little bit costlier maintenance than usual is required. So the storage of fuel has to be regularly emptied for the cleaning (the best is a yearly basis). And also the burning room and the boiler and the ash-storage has to be emptied. The supervision of the heating means a little additional outlay. For the overall meditation the outlay of bio mass in the social residential building sector disburses. The use of renewable energy contributes to the climate protection, in addition there are the protections of local working places, short ways of transportation and energy costs, that are not so related to the oil price.

For the residents of a building a pellet heating is not more expensive than other modern systems – but the bonus are clearly lower heating costs for the tenants.