The increasing number of new and renovated buildings with reduced heating requirements will soon make traditional District Heating (DH) systems uneconomic. To keep DH competitive in the future, the heat loss in DH networks needs to be reduced. One option is to reduce the supply temperature of DH as much as possible. This requires a review of the behaviour of the whole domestic hot water (DHW) supply system with focus on the user comfort and overall costs. This paper describes some practical approaches to the implementation of this Low Energy District Heating (LEDH) concept. It reports on the testing of the dynamic behaviour of an Instantaneous Heat Exchanger Unit (IHEU) designed for DHW heating and space heating in detached family houses supplied by LEDH ensuring an entry-to-substation temperature of 51 °C. We measured the time it takes for the IHEU to produce DHW with a temperature of 42 °C and 47 °C when the tap is opened. Measurements were made for control strategies using internal and external by-pass and no by-pass. Our results show the importance of keeping the branch pipe warm if comfort requirements are to be fulfilled, but this involves higher user costs for heating. To increase user comfort without increasing costs, we propose the whole-year operation of floor heating in bathrooms, partly supplied by by-pass flow.