

FIELD MEASUREMENTS IN LOW-ENERGY HOUSES – QUALITY OF METHODS FOR MEASURING VENTILATION AND AIR INFILTRATION IN BUILDINGS, 2014

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ABSTRACT

Low Energy dwellings in the Netherlands are build or renovated in most cases with very airtight specifications and advanced ventilation systems. How easy is it to realize these airtight dwellings in practice and what is the performance in practice, also compared with other parameters? And most of all what is the effect on the energy performance? In the Netherlands there is a unique opportunity, because in the “Energy Leap” program almost 30 projects will be monitored not only on the performance when finished but also on energy performance, the building process and user experiences. This paper shows some first results.

Since 2010 the five year innovation/implementation program Energiesprong (Energy Leap) helps to create market conditions for an energy neutral built environment in the Netherlands. This program is operated by Platform31. The program focuses on new buildings and renovation, in residential and non-residential buildings and at district level. The program aims at the creation of market conditions required for a successful transition to an energy neutral built environment. This is done by promoting demand for energy neutral renovation, facilitating the development of high level renovation concepts by the market and suggesting improvements in legislation which block the successful roll out of these concepts..

The quality of the ventilation and air infiltration in the very low energy renovated and newly build dwellings is measured through the “Bouwtransparant” (Build Transparently) method. This consists of an inspector who performs a blower door test including smoke tests, a near-infrared picture, a check which measures air taken, ventilation flows, and an inspection about the general quality of the work. This paper describes the experiences of these inspections, common building mistakes and the derivations of the specification on airtightness and ventilation. The effect of these derivations is shown on the energy demand.



Example of a renovated dwelling in Kerkrade, Energyleap programma P31 (picture: Frank Hanswijk, Platform31)

Because the energy use is measured of these dwellings in combination with the weather data and two indoor temperatures, first results are shown of the energy use both annual but also in relation to the outdoor and indoor temperature. Because there is a lot of variation in the energy demand in similar houses, possible explanation are given in these variations.