The equation for the total heat rate required for DHW production for a group of dwellings involves \( N \), which is described simply as ‘the number of dwellings’. This assumes a ‘normal’ dwelling with a fixed number of occupants. A more recent publication, CIBSE CP1: *Heat networks — Code of Practice for the UK*, includes the method for calculating \( N \) for ‘non-normal’ dwellings. This is reproduced below.

A ‘normal’ dwelling

In DS 439 a ‘normal’ dwelling is assumed to have 3.5 residents, including a bathroom with a bathtub or shower. The calculation is the same and with a resulting energy demand of 4.36 kW·h. The kitchen sink is not included in the calculation. A hand washbasin and bidet is only included in the calculation for flats with 2 bathrooms.

The number of ‘normal’ dwellings is calculated from the actual/real number of dwellings, number of residents per dwelling, as well as number of bathrooms and ‘effects per tapping’. The number of the building’s ‘normal’ dwellings are found as the building’s energy demand per day divided by the energy consumption per day of a ‘normal’ dwelling:

\[
N = \frac{\sum (n \times p \times v \times E)}{3.5 \times 4.36}
\]

where \( N \) is the number of ‘normal’ dwellings, \( n \) is the actual number of dwellings, \( p \) is the number of residents per flat, \( v \) is the number of DHW units in the dwelling and \( E \) is the calculated energy demand per DHW unit.

To calculate the numerator in the equation, the dwellings are divided into groups, so that the dwellings within one group are the same in terms of number of residents and the number of DHW units (i.e. number of bathrooms). For each group the product of \( n, p, v \) and \( E \) is calculated, and finally the sum of the results for the respective groups is found.