

Report for Heating Ventilation Air Conditioning Systems (2024/25)

The report must include the following parts:

1. General data of the dwelling

Description of the house with floorplan

General data on the climatic conditions and U-values assumed

2. Peak load for heating

Report the equations used for determining H_t e H_v .

H_t , H_v , H_{tot} room by room and overall

Peak load per room (absolute value, specific values).

Overall peak load (absolute value, specific values)

3. Net energy demand for heating with the simplified method

Calculation of energy demand for space heating with degree-days method. Report results in absolute terms and specific (per unit of floor area).

4. Sizing and net energy demand for DHW

Description of the DHW system used (direct, indirect, instantaneous, with storage, type of storage etc.) and results obtained for volume and thermal power of the coil. Report estimated specific energy demand in kWh/(m² year).

5. Cooling load calculation

Show the diagrams to visualize the different contributions of the energy balance calculation with the Carrier method. Report results of cooling peak load in each room and overall (absolute value and specific value)

6. Sizing of the radiant floor system

Geometrical characteristics of the identified system used for the calculation. Report the main assumptions (choice of circuits, pipes spacing and working operating conditions) and the method used for pressure drops calculation.

7. Selection of the heat pump

Calculation of heat capacity at design conditions (specify method used).

Selection of a suitable heat pump model for heating and DHW production (with comments).

(optional) Draw schematics of the heat supply system including HP, circulation pump(s), manifolds, DHW storage etc. Comment the schematics (components of the system and how it works).