# Heating Ventilation Air Conditioning Systems

# Table of contents for the report

Academic Year 2022-2023

#### 1. General data of the dwelling

- a. Description of the house
- b. Drawing of the house and subdivision of the rooms
- c. General data on the climatic conditions and U-values assumed

#### 2. Peak load for heating

- a. Synthetic description of the equations used for determining Ht e Hv
- b. Results (it is possible to insert some evaluations/comments on the specific energies so as to check the results)

#### 3. Net energy demand for heating with the simplified method

- a. Synthetic description of the equations used for the calculation
- b. Results, including the specific energy demand in kWh/(m<sup>2</sup> year)

#### 4. Net energy demand for DHW

- a. Synthetic description of the equations used for the calculation
- b. Results, including the specific energy demand in kWh/(m2 year)

# 5. Peak load calculation for DHW

- a. Synthetic description of the tank system used (direct, indirect, etc.)
- b. Results, in particular the peak power and the volume

# 6. Cooling load calculation

- a. Synthetic description of the approach
- b. Description of the hypotheses used
- c. Results (show the diagrams to see the different contribution of the balance calculation)

# 7. Sizing of the air duct system

- a. Sketch of the distribution system supply and recirculation line
- b. Description of the hypotheses used (including particular elements)
- c. Results (flow rates, ducts size, pressure drop coefficients, etc) and critical comments

# 8. Sizing of the radiant floor system

- a. Geometrical characteristics of the identified system used for the calculation
- b. Choice of circuits, pipes spacing and working operating conditions
- c. Pressure drops calculation

# 9. Sizing of a mixing valve

- a. Sketch of the distribution system
- b. Description of the hypotheses used
- c. Results

#### 10. Sizing of the heat pump

a. Peak power for heating + peak power for DHW + defrost cycles