ARC 3723 | EBS II

Assignment 3: Low Energy Heating and Cooling

Due: 02/02 (end of day). Upload PDF to Canvas.

Reading: Heating, Cooling, Lighting: Sustainable Design Methods for Architects | Chapter 18 – Mechanical Equipment for Heating and Cooling (4th Edition – Chapter 16)

Assignment: In most small buildings and in many large buildings, the most energy is used for heating and cooling. In the reading, several design strategies/systems are suggested to reduce energy consumption of HVAC equipment. Choose at least two of the systems listed below and explain how it helps reduce HVAC energy consumption. You can select more than two as well.

- Geo-exchange (geothermal) heat pumps
- Air-to-air heat pumps
- Chilled beams
- Radiant floor heating
- Heat recovery ventilators (heat exchangers)
- Displacement ventilation
- Thermal Energy Storage (TES)

Groups: Work in groups of 2 or 3.

Final hand in / PDF:

- Groups of 2 - 500 to 750 words with at least 2 diagrams to support your writing.
- Groups of 3 - 750 to 1000 words with at least 3 diagrams to support your writing.
- Diagrams and images needed to support the research and text
- Format: Chicago Style
- Essays should have an introduction and conclusion
- Essays should be correctly cited and have a works referenced page

Evaluation/Assessment

- 60% Quality and relevance of research
- 20% Pertinence and quality of diagrams / illustrations / images
- 10% Conclusion / Reflection
- 5% Formatting and clarity of text
- 5% References and citations (text and all images)