ARC 3723 | EBS II

Assignment 4: Heating and Cooling Diagram

Due: 02/16 (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: Select a previous project from one of your studios and create a heating and cooling diagram for the project. You can modify your project to allocate space for mechanical systems (e.g., adding a basement for equipment, creating a plenum space in section, etc.). The diagram should clearly show equipment location(s) and how the system moves through the building both vertically and horizontally (e.g., how ducts move through the building in plan and section.). The diagram should clearly show the entire cycle of airflow (supply and return) and location of all equipment needed for your selected system.

Note: Design guidelines for mechanical systems is Chapter 16 (16.15) in the 14th edition or Chapter 18 (18.15) in the 15th.

Individual Work: You can work individually. You're welcome to collaborate, share notes, etc. but each person needs to create a diagram for their own project.

Final hand in / PDF:

- Option 1 - One 3D axonometric drawing showing the heating and cooling system with technical explanation.
- Option 2 - A complete plan and section showing the heating and cooling system with technical explanation.

Notes:

- Diagrams need to be digitally drawn/modeled.
- You can choose any system you want.
- You do not need to size ducts if you use a system that requires them.
- You do not need to size equipment (e.g., A/C tonnage). You just need to clearly locate all of the equipment of your selected system.
- You can mix passive and active strategies.
- You can leave ductwork exposed or within a plenum space, but it needs to be clearly identified.
- Your diagram should clearly show the entire cycle of airflow (supply and return).

Evaluation/Assessment

- 40% Appropriateness and relevance of the heating and cooling system selected.
- 40% Thoroughness of the diagram(s) in explaining the entire system (equipment, cycle of airflow, etc.)
- 20% Technical explanation of the system.