

The Catholic University of America
School of Architecture & Planning

ARCH 402/503: Comprehensive Building Design Studio (CBDS)

Rauzia Ally, Director (ally@cua.edu)

Temple Washington, Instructor (washinga@cua.edu)

Chris Peoples, Instructor (cpeoples@kcct.com)

Mark Lawrence, Instructor (mark@elstudioarch.com)

Greg Kearley, Instructor (gkearley@inscapestudio.com)

Matthew Geiss, Instructor (geiss@cua.edu)

Raj Parikh, Instructor (parikh@cua.edu)

6 credits

M, W, F - 1:00pm - 6:00 pm

Comprehensive Building Design Studio (CBDS)

Exploring the Integration of Building Systems, Materials, and Construction Methods into a Cohesive Whole

ASSIGNMENT #6: S/MEP AND Circulation Diagrams

DESCRIPTION

During the previous assignments, each firm has been asked to represent your design proposals through conceptual diagrams and models and architectural drawings and vignettes. These representations were intended to visualize the forms and spaces in your project and illustrate how they related to your chosen concepts.

During this assignment, each firm will move deeper into an examination of the Structural, Mechanical, Electrical and Plumbing Systems, as well as Circulation and Egress routes. In order to complete this assignment, we encourage you to review the material covered in your previous courses in Environmental Systems and Building Construction courses.

Below are listed some useful references for this exercise.

Building Systems & Construction

Allen, Edward and Joseph Iano, *The Architect's Studio Companion*, John Wiley & Sons, New York

Allen, Edward and Patrick Rand, *Architectural Detailing*, 2nd edition, John Wiley & Sons, New York

Ching, Francis D. K., *Building Construction Illustrated*, 5th edition, New York: Van Nostrand.

Architectural Graphic Standards, AIA, Ramsey, Bleeper, New York: John Wiley (any edition)

Lechner, Norbert, *Heating, Cooling, Lighting*, New York: John Wiley, 2001

Brown, C. V., *Sun, Wind and Light*

Code

International Building Code, 2003

Ching, Francis D. K., *Building Codes Illustrated*, John Wiley & Sons, New York.

ASSIGNMENT

In axonometric, diagram the chosen system for your building. The systems must be represented as it would operate in your building. To illustrate this, each firm will complete a separate axonometric for each of the systems, as well as the egress / circulation routes.

5 Axonometric drawings are required for this assignment

To illustrate the systems in the context of your building design, we suggest that the axons either:

- 1- "Ghost" the form / floors of your building while highlighting the specifics of the system.
- 2- "Explode" the levels of your building while highlighting the specifics of the systems and how they relate / connect to the floor above / below.

In order to begin and complete the axonometric drawings, the architectural plans, sections, and elevations must be at a point where the following items are resolved:

Mechanical

- Type of Systems (Heating / Cooling?)
- Location / Size of Mechanical Room
- Locations of supply / return ducts, as well as fresh air intakes

Electrical

- Location of Electrical Room
- Location of Utilities on the site

Plumbing

- Location of Utility Room for Plumbing
- Location of Water supply piping, Drains, etc.
- Location of Plumbing fixtures / rest rooms, number of fixtures

Circulation / Egress

- Location and number of emergency egress stairs (per code)
- Size of egress stair correctly drawn (per code)
- Location of corridors, circulation spaces, stairs (non egress, if any), elevators

FORMAT The axonometric drawings are diagrammatic in nature, therefore the size of the drawing need not be excessively large. Although it may be drawn / drafted at a large scale, it may be presented on 11x17 (portrait)

MEDIA No specific media is suggested, other than the requirement that all 5 axons are represented consistently, as a family of diagrams.

Consider the following:

- create a "base" axon (exploded or ghosted) for use in each axon diagram.
- use color to represent and make distinctions between the various components of each system (i.e. blue line for cold water, red line for hot water, etc....)
- use line and line weights (gray) to imply the building form, use colored fills to represent systems

DUE DD Pin Up
Wednesday, Mar 18