Assignment A02: Office Building Program

ARCH 3502
Instructor: Glenn Hill

TASK: Develop a program for your Office Building. Include diagrams and images on the Tectonic, Cultural, Social and Aesthetic of the project. Through diagramming and annotated images explain and analyze the building systems, code, spatial needs and site conditions for the design and development of an Office Building.

Remember the emphasis is on the analysis of the needs and qualities of the proposed Office Building. This is not a report. The data and information you collected from your research and class activities should be developed into an analysis that explains the form, spatial needs and qualities necessary to design this Office Building.

- Develop a series of programming cards which communicate the fundamental requirements for the design of the Office Building. (See Appendix A)
- The programming cards shall include a Title, short description, diagram or image, appropriate annotation, and citation.
- All diagrams shall have a title, short description and citation.
- Use only hand drawn diagrams and annotated images. Annotation may be typed. You may use grid paper, but no straight edge to draw diagrams.
- All diagrams, sketches and text shall be your own work. You may trace others work but should cite the work it is taken from.
- Scan and scale your 5” x 8” analog diagrams to include them into a poster.
- The programming cards should include the data set in Appendix A, which includes but is not limited to 1) concepts and principles of the architecture’s structure and tectonics; 2) all the code and life safety requirements for this building type; and 3) all the critical information and analysis to understand the spatial needs and site conditions for the design.
- Use proper citation on all images, text and ideas used in this poster.
- All images shall have a title, citation and a short description communicating the relevance of the image to your analysis.
- Using the programming cards above organize the content into a poster based on the Table of Contents in Appendix A.
- The poster is to be 36” x 72”.
- The Poster shall be composed, using good principles of graphic design.
- Compose the Poster either in InDesign, Adobe Illustrator, or Microsoft Word.
- Publish the poster to a PDF file format and post on the course server. Name the file: 3502_Spring2016__Hill,Glenn_LastName, FirstName_A1.2_OfficeBuildingProgram.pdf.
ASSIGNMENT A02 – Office Building Program

GRADING SHEET:

NAME:__________________________________________________________________

DATE: ______-_______-_______  GRADE: ______

Each program card will be evaluated based on:
1. Analysis. The analytical acumen of the diagram.
2. Design information or the ability of the diagram to inform the design process.
3. Clarity of thought or idea.
4. Graphic Quality.
5. Diagram, Title, Description and Citation.

Based on the criteria above each diagram is evaluated using the 3 metric rubric explained below:

- X – No diagram.
- Check Minus – Below Expectations. The diagram failed to meet the expectations of the instructor in two or more of the criteria listed below.
- Check – Met Expectations. The diagram met the expectations of the instructor in at least four of the criteria above.
- Check Plus – Exceeded Expectations.

Additional credit of up to 5 points will be given for quality composition.

Numerical Grades between 0-100 will be given to the Poster based on the number of check minuses, checks, and check pluses given to the diagrams and total number of diagrams. This grading will be adjusted based on an overall subjective evaluation of the content by the instructor.

General Grading Criteria.
A - Superior/Excellent - Accurate and complete work that exceeds the level and requirements requested by the instructor. Consistently showing scholarly initiative, innovation, attempts, discrimination and discernment.
B - Above Average - Accurate and complete work meeting the requirements of the instructor, and exceeding the level requested in a few. Often showing scholarly initiative, innovation, attempts, discrimination and discernment.
C - Average - Accurate and complete work meeting the requirements of the instructor and requiring minimal corrections. Work satisfactory, but needs improvement. Inconsistently showing scholarly initiative, innovation, attempts, discrimination and discernment.
D - Unsatisfactory - Work that is often inaccurate or incomplete, not meeting the minimum requirements of the instructor. Rarely showing scholarly initiative, innovation, attempts, discrimination and discernment.
F - Unacceptable - work that is unacceptable therefore not defined.
APPENDIX-A:

Program Cards all of the programming requirements below. Include annotations, title and diagram description. Include annotated images as needed.

This list may be added to or amended as we work through the development of the design. The list below is intended to be a beginning point for design purposes not a final list of content. You are encouraged to ADD additional relevant information you feel will inform your design.

Some of the required information below may need multiple diagrams to explain them. Also, some of the required information may be included with other information to create one diagram.

List of Resources:
Building Structures Illustrated, Ching, et.al., Wiley, 2009. (Ching01)
Building Codes Illustrated, Ching, et.al., 3rd edition, Wiley, 2009. (Ching03)
Climate Consultant 5.4, Murray Milne, software, UCLA, 2012. (Climate Consultant)

1. TITLE: A02 – Office Building Program; ARCH 5901, Fall 2015; Professor: Glenn Hill; Student’s Name.
2. Site Analysis (Project Handout, Online and Site Visit)
   a. Location diagram. City, Region, State, Country. (Plan)
   b. Site Plan – w/dimensions and setbacks. (Plan)
   c. Site Elevations & Section. (Surrounding Buildings)
   d. Footprint of Base Building on site. (Plan & Elevation)
   e. Traffic Patterns and Entrance to the site. Mass transit, auto, pedestrian…. (Plan)
   f. Services. Entry into the Site. Electrical, Water, Sewer, etc…. (Plan & Section)
   g. Site Images. Photographs showing views into the site and surrounding conditions.
   h. Site Views: Photographs showing views from the site.
   i. Public Space Precedent images. Images representing the quality of exterior spaces you wish to achieve.
   j. Important Site Connections and Conditions (Plan/Elevation/3d diagram)
   k. Other Context & Conditions – Surrounding conditions that will have an impact on the design, such as neighboring buildings, traffic patterns, building facades, streets, etc.

2. General Building Requirements. (Project Handout)
   a. General Description of the Building. (See project statement and handout)
   b. Aesthetic Precedent Images. (4+ images and descriptions of the Aesthetic you wish to achieve).

3. Exterior Requirements. (Project Handout)
   a. Precedents for the Projects location
   b. Plaza
   c. Outdoor Eating
   d. Outdoor Workout

4. Core Configuration (Kohn&Katz, 10 Key Consideration)
a. Types of Core locations.
b. Adjacency Diagram
c. HVAC Chase
d. Stairwells per American Disabilities Act & International Building Code
e. Mechanical Closet & Riser
f. Data – Telecommunications Closet & Riser
g. Electrical Closet & Riser
h. Janitor
  i. Mens and Women’s Restroom per ADA and IBC
  j. Elevator – Machine Room-Less (MRL) (per IBC and Schindler Brochure)

5. Floor Plate (Kohn&Katz, 10 Key Consideration)
   a. Floor Plate, Total Square footage and Number of Levels
   b. Floor Plate Grid

6. First Floor Space Requirements (Project Handout)
   a. Adjacency Diagram & Bubble Diagram
   b. Entry Vestibule – ~ size and function.
   c. Lobby
   d. Conference Center
   e. Health Center
   f. Employee Cafe
   g. Shipping and Receiving
   h. MDF
   i. Core

7. Typical Floor Plate Requirements (Project Handout)
   a. Adjacency Diagram & Bubble Diagram
   b. Core

8. Floor-Floor Height (Kohn&Katz, 10 Key Consideration)
   a. Typical Wall Section.
   b. Floor to Floor and Floor to Ceiling Requirements.
   c. Daylighting Considerations.

9. Exterior Wall System (Kohn&Katz, 10 Key Consideration; Ching01; Ching02)
   a. Typical Glass Curtain Wall Systems. (Section Diagram and Image)
   b. Typical Roof Systems. (Section Diagram and Image)
   c. Typical Opaque Wall System. (Section Diagram and Image)
   d. Alternative Enclosure Systems. (Diagram and Image)

10. Structural Systems (Kohn&Katz, 10 Key Consideration, Allen&Iano; Ching01)
    a. Code Construction Type and Limitations. (Text & Diagrams)
    b. Bay Layout - Preliminary. (Diagram)
    c. Preliminary Component Sizes - estimates. (Diagrams)
       i. Primary, Secondary, Tertiary structure Components.
       ii. Roof Construction and depth.
       iii. Floor Construction.
       iv. Foundation Construction.
11. Interior Systems. (Ching02)
   a. Typical Opaque Interior Wall System. (Diagram and Image Example)
   b. Typical Glazed Interior Wall System. (Image Example)
   c. Typical Ceiling Systems. (Image Example)

12. Mechanical Systems (Kohn&Katz, 10 Key Consideration, Allen & Iano; Ching02)
   a. Mechanical System – Variable Refrigerant Flow. (System Diagram)
   b. HVAC Zoning Requirements. (Based on Variable Refrigerant Flow system)
   c. Diagrammatic Layout of Mechanical System, (Base Building)
   e. Major Components and Space –Function, Size, and Location.
   g. Horizontal Distribution. Location, Sizes and Spaces.

13. Electrical System. (Allen&Iano; Ching02)
   a. Typical Systems diagram. (Allen & Iano)
   b. Components and sizes.(Allen & Iano)
   c. Space requirements.
   d. Overhead or Underfloor Distribution system.

14. Communication System. (Program Handout; Allen&Iano; Ching02)
   a. Types and Space Requirements.

15. Plumbing System. (Allen&Iano; Ching02)
   a. IBC Restroom, Toilet fixture, Water Fountain Requirements.
   b. Plumbing Wall.
   c. Building Service Space requirements.
   d. Typical Restroom Layout. Minimum fixtures per floor.

16. Code Conformance (Kohn&Katz, 10 Key Consideration, Allen&Iano; Ching03, IBC)
   a. International Building Code Requirements. (Diagrams & Tables)
   b. Occupancy Group(s). Maximum Occupancy per S.F. & per Floor.
   c. Construction Type and Limits
   d. Egress Requirements.
      i. Exits
      ii. Hallways
      iii. Stairs
   e. ADA Requirements.
      i. Exits
      ii. Restrooms
   f. Plumbing.
      i. Toilets, lavatories, water fountains, etc.
   g. Other Code Requirements as needed

17. Parking and Loading. (Kohn&Katz, 10 Key Consideration, Allen&Iano; Ching03)
   a. Occupancy Group
   b. Minimum Parking Space Requirements. Typical Parking Space Layout
   c. Minimum ADA. Typical Layout.
   d. Total Parking Requirements and Size. (Allen & Iano, IBC)
   e. Delivery and Loading Requirements.
18. **Area Schedule** (Kohn & Katz, 10 Key Consideration) NOT INCLUDED IN CARDS or POSTER.
   a. Area Schedule (8 x 11) – (Project Handouts; Kohn & Katz; Allen & Iano)
      i. Area Schedule. A complete list of Spaces and Minimum Size Requirements.
         (Table)
      ii. Gross to Net requirement.

19. **Cost & Schedule** (Kohn & Katz, 10 Key Consideration)
   a. Initial cost $500 per s.f.

20. **Climatic Response.** (Climate Consultant; Lechner; Allen & Iano)
   a. Sun Path – Orientation to Site. Spring, Summer, Winter, Fall. (Revit)
   b. Psychrometric Chart. (Climate Consultant)
   c. Daylighting - Illumination Range. (Climate Consultant)
   d. Wind Rose. (Climate Consultant)
   e. Prevailing Seasonal winds (cooling)
   f. Solar Radiation. (Climate Consultant)

21. **Elevators** (Kohn & Katz, 10 Key Consideration, Allen & Iano; Ching02)
   a. Size and Use.
   b. Elevator Lobby space requirements.

22. **Passive Design Strategies** (Precedents, Climate Consultant; Lechner; Allen & Iano)
   a. **Natural and Forced Ventilation.** (diagrams)
      i. Precedents for the Projects Climate Zone
      ii. Design Strategies. (3)
   b. **Passive Cooling Strategies.** (diagrams) (Lechner; Allen & Iano)
      i. Precedents for the Projects Climate Zone
      ii. Overhang depths required to shade façade, during cooling days.
      iii. Three design Strategies. (3)
   c. **Passive Heating Strategies.** (diagrams) (Lechner; Allen & Iano)
      i. Precedents for the Projects Climate Zone
      ii. Overhang requirements to allow heat gain, during heating days.
      iii. Three design Strategies. (3)
   d. **Daylighting.** (diagrams) (Lechner; Allen & Iano)
      i. Precedents for the Projects Climate Zone
      ii. Recommended Illuminance level.
      iii. Siting and Building Shape Considerations.
      iv. Side lighting fenestration size.
      v. Top lighting fenestration size.
      vi. Window Heights & Light Penetration.

**Programming Card Citation & Bibliography. ** Use Chicago Style.