Assignment 1.1: Branch Bank Building Program
ARCH 5901
Instructor: Glenn Hill

TASK: Develop a program for a mid-rise Branch Bank 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 a Mid-Rise Office Building.

Remember the emphasis is on the analysis of the needs and qualities of the proposed Bank 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 Bank Building.

- Based on the previous exercises develop a series of diagrams that communicate the fundamental requirements for the design of the Bank Building. (See Appendix A)
- The booklet shall include diagrams of the information and data set out 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 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.
- All diagrams shall have a title, short description and citation.
- Include a complete bibliography used to develop these diagrams and the analysis.
- Use proper citation on all images, text and ideas used in this booklet.
- All images shall have a title, citation and a short description communicating the relevance of the image to your analysis.
- Organize your booklet based on the Table of Contents in Appendix A.
- Use a 8.5 x 11 portrait format with 2 each 5” x 8” diagram cards on each page.
- Scan and scale your 5” x 8” analog diagrams as needed to include them into the book.
- The book shall be composed, using good principles of graphic design.
- Compose the book either in InDesign, Adobe Illustrator, Microsoft Word.
- Publish the document to a PDF file format and post on the course server. Name the file: LastName_A1.BranchBankBuilding_Program_FA14.pdf.
ASSIGNMENT 1.2 – Bank Building Program

GRADING SHEET:

NAME:_______________________________________________________________________

DATE: ________-________-________

GRADE: _______

Each diagram 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 of the Program.

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:

Diagram 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 Type Basics for Banks and Financial Institutions, H. L. Williams, Williams Spurgeon Kuhl & Freshnock Architects, Wiley, 2010. (Williams)
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 Page
2. Table of Contents (Sections and page numbers)
3. Site Conditions (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 the site and surrounding conditions.
   h. Public Space Precedent images.
   i. Other Context & Conditions – Surrounding conditions that will have an impact on the design, such as neighboring buildings, traffic patterns, building facades, streets, etc.
   j. Important Site Connections and Conditions (Plan/Elevation/3d diagram)

2. General Building Requirements. (Project Handouts; Allen&Iano; Ching03)
   a. General Description of the Building.
   b. Aesthetic Precedent Images. (4+ images of the Aesthetic you wish to achieve).
   c. Floor Plate, Total Square footage and Number of Levels
   d. Occupancy Type and Limits. (IBC: Allen&Iano; Ching03)
   e. Area Schedule (8 x 11) – (Project Handouts; Kohn&Katz; Allen&Iano; Williams)
      i. Area Schedule. A complete list of Spaces and Minimum Size Requirements. (Spreadsheet or Table)
      ii. General square footage. Limits and Requirements.
iii. Gross to Net.
   f. Floor to Floor and Floor to Ceiling Requirements.

3. First Floor Space Requirements (~3500 s.f.)
   a. Adjacency Diagram
   b. Bubble Diagram
   c. Entry Vestibule – ~ size and function.
   d. LOBBY - 1300 s.f. – 24’ x ??
      i. Accessible Greeter Station (movable)
      ii. Teller Pods (movable)
   iii. Coffee Bar
   e. Community Room/Large Meeting Room – 1@ ~380 s.f. - min. 14’ x ??
   f. Texas Room – ~640 s.f.
   g. Personal Banker (PB) Workroom – 172 s.f. – 14’ x 12’
   h. Customer Conference Room - 400 s.f. – 14’ x 12’
   i. Safe Deposit Vault – ~170 s.f. – min. 8’ x ??
   j. Walk-up ATM. (Exterior)

4. Second Floor Space Requirements (~3500 s.f.)
   a. Adjacency Diagram
   b. Bubble Diagram
   c. Open to Below (~1000 s.f.)
   d. Offices – 7 each ~120 s.f. ~10’ x 12’ 2nd floor
   e. Administrative Office – Open Office Plan- 6 Stations - ~320 s.f. - ~6’ x 6’
   f. Work/Copy –
   g. Security Closet
   h. HVAC Piping Chase - 2’ x 4’
   i. Mens and Women’s Restroom (Alternative capacity)

5. Third Floor Space Requirements (~3500 s.f.)
   a. Adjacency Diagram
   b. Bubble Diagram
   c. Expansion/Lease Space (~1000 s.f.)
   d. Offices – 7 @ 12’ x 10’ (120 s.f.) 2nd floor
   e. Administrative Office – Open Office Plan – 6 Stations –
   f. Work/Copy – 2nd Floor
   g. HVAC Piping Chase - 4’ x 4’
   h. Men’s and Women’s Restroom

6. Core Space Requirements
   a. Adjacency Diagram
   b. HVAC Piping Chase - 2’ x 4’
   c. 2 Stairwells (per IBCode)
   d. Mechanical – ~40 s.f. – min. 5’
   e. Data – Telecommunications - ~40 s.f. – min. 4’
   f. Electrical – 10 s.f. – min. 2’
   g. Janitor – 10 s.f. – min. 4’
   h. Elevator – Machine Room-Less (MRL) (per IBCode and Schindler Brochure)
i. Mens and Women’s Restroom (per IBCode)

7. **Climatic Response. (Climate Consultant)**
   a. Sun Path – Orientation to Site. Spring, Summer, Winter, Fall. (3D Vasari)
   b. Psychrometric Chart. (Climate Consultant)
   c. Climate-Responsive Design Guidelines. (Climate Consultant)
   d. Daylighting - Illumination Range. (Climate Consultant)
   e. Wind Rose. (Vasari)
   f. Prevailing Seasonal winds (cooling)
   g. Solar Radiation. (Vasari)

8. **Structural Steel Frame System. (Allen&Iano; Ching01)**
   a. Code Construction Type and Limitations. (Text & Diagrams)
   b. Bay Layout - Preliminary. (Diagram)
   c. Component Sizes - Preliminary estimates. (Diagrams)
      i. Primary, Secondary, Tertiary structure Components.
      ii. Roof Construction and depth.
      iii. Floor Construction.
      iv. Foundation Construction.

9. **Enclosure (Envelope) Wall Systems. (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 Types of Enclosure Systems.
   e. Typical Base Building Wall section of.
   f. Alternative Enclosure Systems. (Diagram and Image)
   g. Three (3) Example Exterior Wall sections.

10. **Interior Systems. (Ching02)**
    a. Typical Opaque Interior Wall System. (Diagram and Image Example)
    b. Typical Glazed Interior Wall System. (Image Example)
    c. Typical Ceiling System. (Image Example)

11. **Code Conformance. (Allen&Iano; Ching03, IBC)**
    a. International Building Code Requirements. (Diagrams & Tables)
    c. Construction Type.
    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.

12. Mechanical Systems. (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. (Allen & Iano; Ching02)
   a. Types and Space Requirements.

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

16. Elevator Requirements. (Allen & Iano; Ching02)
   a. Size and Use.
   b. Elevator Lobby space requirements.

17. Parking and Delivery. (Allen & Iano; Ching03)
   a. Occupancy Group
   b. Minimum Parking Space Requirements. Typical Layout
   c. Minimum ADA. Typical Layout.
   d. Total Parking Requirements and Size. (Allen & Iano, IBC)
   e. Delivery Requirements.

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

   a. Enclosure
   b. Mechanical
   c. Interior

Bibliography and End Notes. List all resources you used to gather this information. Use Chicago or APA Style.
APPENDIX A – BRANCH BANK SPACE REQUIREMENTS

FIRST FLOOR (~3500 s.f.)

- Entry Vestibule – size as needed. Provide Walk-up ATM.
- LOBBY - 1300 s.f. – 24’ x ??
  - Accessible Greeter Station (movable)
  - Teller Pod (movable)
  - Coffee Bar
- Community Room – 1@ ~380 s.f. - min. 14’ x ??
- Texas Room – waiting – ~640 s.f.
- Personal Banker (PB) Workroom – 172 s.f. – 14’ x 12’
- Customer Conference Room - 400 s.f. – 14’ x 12’
- Safe Deposit Vault – ~170 s.f. – min. 8’ x ??
CORE
- HVAC Piping Chase - 2’ x 4’
- 2 Stairwells (per IBCode)
- Mechanical – ~40 s.f. – min. 5’
- Data – Telecommunications - ~40 s.f. – min. 4’
- Electrical – 10 s.f. – min. 2’
- Janitor – 10 s.f. – min. 2’
- Elevator – Machine Room-Less (MRL) (per IBCode and Schindler Brochure)
- Mens and Women’s Restroom (per IBCode)

SECOND FLOOR (~3500 s.f.)
- Open to Below (~1000 s.f.)
- Offices – 7 each - ~120 s.f. ~10’ x 12’ 2nd floor
- Administrative Office – Open Office Plan- 6 Stations - ~320 s.f. - ~6’ x 6’
- Work/Copy –
- Security Closet
- HVAC Piping Chase - 4’ x 4’
- Mens and Women’s Restroom (Alternative capacity)

THIRD FLOOR (~3500 s.f.)
- Expansion/Lease Space (~1000 s.f.)
- Offices – 7 @ 12’ x 10’ (120 s.f.) 2nd floor
- Administrative Office – Open Office Plan – 6 Stations
- Work/Copy – 2nd Floor
- HVAC Piping Chase - 4’ x 4’
- Mens and Women’s Restroom
MECHANICAL

- Variable Refrigerant Flow (VRF) Multi-Zone Heat Pump
  - Multi-Zone – (See attached Schindler 3300 MRL Elevator Layout Brochure)
- Ground Source Heat Pumps (See Fact Sheet)
- Assume 1 ton (12,000 btus) per 1200 s.f.
- Direct Outside Air System (DOAS)

PLUMBING

- Sprinkler System (per IB Code)
- Men’s and Women’s Restrooms (all floors) (per IB Code)
- Stand Pipe
- DHW – Instant water heaters on each floor for bathrooms, janitor and service sinks.

ELECTRICAL

- Exterior Transformer Pad (Studio Companion)
- Electrical Closet every floor (approx. 30” x 6’)
- Overhead Distribution

Mitsubishi Electric – Advancing HVAC

For more than 90 years, Mitsubishi Electric has been a leader in split-ductless, ducted and VRF solutions in the U.S. And we continue to lead the industry in advancing these technologies for residential and commercial applications.

Our smart approach to system design ensures that our modular, configurable systems meet just about any need, taking into account building design and heat load factors.